Show Off To The Carpenter Man!

Web Programming As A Career

May 2007

digit

YOUR TECHNOLOGY NAVIGATOR

Whom Do You Want To
Call Today?

21 Phones.
One Will Make It
To Your Pocket.

Open Source Instead Of Microsoft Exchange?

You're A Boss. So Control Your Employees With Their Computers!

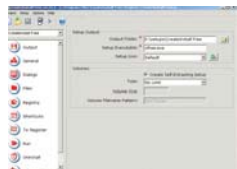Augmented Reality Will Change, Literally, The Way You See Things!

Finally, A Workable Non-English Keyboard Solution

Contents Interactive

DIGITAL PASSION

CreateInstall Free 4.9

This software connects to all major databases and eases SQL editing and database structure design for a fraction of the cost of single-database solutions

BrowserBob 4.1.2

Combine the best of desktop and online world! Create smart applications with the power of desktop programs and the usability of a website with ease

Report Sharp-Shooter Express 2.1

It allows you to create complex parameterized and side-by-side reports, reports with unlimited number of master-detail relations, columns, etc. It is possible to design a large number of reports with the unified layout in minutes

Banshee

Import, organize, play, and share your music using Banshee's simple, powerful interface. Rip CDs, play and sync your iPod, create playlists, and burn audio and MP3 CDs

DEVELOPER TOOLS
- DBF Viewer 1.5
- Dev-Pascal 1.9.2
- SWF To Image 1.28
- XMLFox XML/XSD Editor 2.01
- Guiffy 8 build 214
- QF-Test

LINUX
- ArgoUML 0.24
- BitTorrent
- CDRecord (cdrtools) 2.0
- File Ripper 1.0.1
- LimeWire 4.12
- Partition Image
- ShowImg 0.9.4-1
- VLC Media Player

- SurgeMail Mail Server 38f3

DIGITAL TOOLS

FREE FULL VERSION

VirusBuster Professional
This software provides comprehensive virus protection for every workstation

ReactOS 0.3.1
This is an advanced free open source operating system providing a ground up implementation of a Microsoft Windows XP compatible OS

stellarium 0.8.2

This is a free open source planetarium for your computer. It shows a realistic sky in 3D, just like what you see with the naked eye, binoculars or a telescope

MULTIMEDIA
- Apophysis 2.02
- Foobar 2000 0.9.4.2

- HandBrake
- Juice
- MediaCoder Full Pack 0.6.0-pre9a
- musikCube
- Paint.NET
- XPize 4.6 Final
- Image Assistant

INTERNET
- BadBlue Personal Edition
- Cabos
- Direct Connect
- Email Extractor 2.57
- Gnucleus
- LanDiscovery
- IE Translator 2.2
- X-Chat 2

SYSTEM
- Norton Antivirus Update
- A-PDF Size Splitter
- ExamDiff Pro
- File Security Manager 1.8.1.98
- Open File Manager
- Quick Starter 3.1
- SpeedUpMyPC 3.0

RSS READERS

- Alertbear v1.10
- Feedreader
- GreatNews 1.0 Beta (Build 381)
- Internet Explorer 7
- KlipFolio
- Mozilla Firefox 2.0.0.3
- Mozilla Thunderbird
- RSS Bandit

DIGITAL BUSINESS

Easy Resume Creator Pro

With Easy Resume Creator Pro, you can find, track and apply for position tasks in seconds, without having to jump through hoops. You can even follow up on the application effectively and efficiently

Dia 0.95

This software can be used to draw many different kinds of diagrams. It currently has special objects to help draw entity relationship diagrams, UML diagrams, flow charts, network diagrams, and simple circuits

emoze 1.3

With emoze receive your emails and Outlook data anywhere, anytime; Handle your schedule and meetings via your mobile device; Enjoy synchronized Personal Information Management (PIM); Access information about your Contacts, anywhere, anytime

Smaato Cost 2.07

This mobile application allows in-depth tracking of your accumulated minutes, your transferred data volume and sent & received SMS

PRODUCTIVITY TOOLS
- AM-Notebook
- Documentor
- Ganttproject
- Nmap
- Tustena CRM OS 3.0.2
- AcroPDF 2.00
- DameWare NT Utilities
- WinAudit

MOBILE APPS
- Bubble Shooter
- Videora iPod Converter
- AutoLock v1.0 for S60 3rd edition
- Best Screen Snap
- Hotspot Finder
- Smaato News
- RemoteControl II 2.12
- Novii Remote Infrared Codes 1.1

DIGITAL LEISURE

Merry Motors

The games and exercises of the Merry Motors collection help to develop memory, attention, basic motor skills, spatial imagination and logical reasoning

Paparazzi

Use your eyes and quick reflexes to capture photos of strange subjects and sell them to humorous tabloid newspapers for valuable cash. Join the Paparazzi!
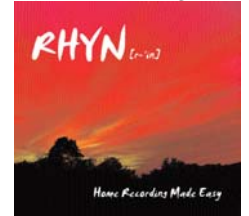
Fizzball

Bounce bubbles, rescue and feed the abandoned animals, and solve a mystery—all at the same time, in FizzBall!

SMALL GAMES
- Bug On A Wire
- Crypt Raider
- Zombies 1.0.1
- Blox Forever

MP3
Rhyn: Home Recording Made Easy

01 - Compatibility Test Intro
02 - Nothing In Particular
03 - Skies
04 - Wishing The World Away
05 - Break The Seal
06 - The Only Place
07 - 4-5-6, Go!
08 - Waiting At The Window
09 - Radiotherapy
10 - Dream
11 - Amorphous
12 - Rain Dancer The Calm
13 - Desert Monsoon The Storm
14 - Break The Seal 2004 Bonus Track
15 - Nathan Loves Dan Bonus Track

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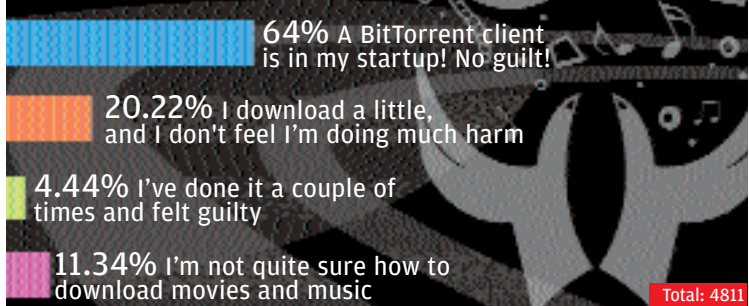
taste technology at **www.thinkdigit.com**

FEATURED TUTORIAL FROM DIGIT FORUM (www.thinkdigit.com/forum)

This month, we feature a member tutorial from the forum here.

Click here to go back to **thinkdigit.com**

Torrenting For Dummies

21-04-2007, 11:30 PM

rakeshishere

SOFTWARE GUIDE
In The Zone

Join Date: Jun 2006
Location: karnataka, Bangalore
Posts: 882

On Lots of Requests of queries from different members on Torrents and on special request by aryayush I have made this thread from various sources around the web..Will update this as fast as possible..I have typed most of stuff in here and will add more to this in the meantime

Bittorrent Basics

Firstly get a good client such as utorrent or Azureus.Other Clients are not recommended!

The client handles the torrent file you download from a tracker. There are a number of sites where you can find torrent files. You can even find them using google, or read around in forums.

The torrent file is not the file you aim to download, but a tool in order to begin downloading it keeps you in touch with a tracker which sorts out which users are sitting on which piece. Seebittorrent sends small bits randomly between users, who in turn sends small bits to other users. Have you ever seen a champagne pyramid? Principally the sameone glass gets filled, and that glass in turn fills up the next glass, which in turn fills the next, and so on. Trickling down, filling all glasses. Bittorrent isn't linear though, that that example might implyit randomly sends and receives pieces from random users connected via the same torrent file.

Terminology

Leecher – that's the guys that don't have the complete file. Observe that the leecher still is a part of the process and uploads at the same time he/she's downloading. It might do you good to know that the more you participate in the uploading process, the faster you will get the whole file. Try not to quench the upload speeds too much, it will pay off for you.

Seeder – those that now have the entire file, 100%, and therefore only function to upload to those that haven't got the whole thing yet.

Peers – all users connected to the same torrent. The more peers, the greater the speeds, providing there are enough seeders. If there are thousands of peers and only one seed, you will have to exercise some patience.

For the rest of this, and more tutorials, visit:
http://www.thinkdigit.com/forum/showthread.php?t=55842

14

Enter

Abhijeet Sawant
Singer

Sawant shot to fame by winning the Indian Idol contest. He soon released his first album, *Aapka Abhijeet Sawant,* which became a hit. Then on, there has been no turning back for the singer.

Technology to you is...
An important aspect of life. I am a singer, and it is used extensively in my field. Thanks to technology, editing, mixing, and retakes can be done in a very short period of time. Technology has now become the fourth element of life!

What gadgets do you use?
I have a wonderful audio system, an Xbox, a Nokia N73, a Sony handycam, a 7-megapixel Sony Cybershot, and a Sony Vaio notebook.

What would your dream gadget be?
I wish I had a bike or scooter that could fly...

What do you mostly do online?
I check my mail, hunt for good music Web sites, socialise on Orkut, and check for games online. If time permits, I respond to fan mail.

Any instance where technology has really helped you?
A year ago, my friend met with an accident at 3 AM. Thanks to the mobile, we were able to reach a helpline. As I said earlier, technology has now become a part of us. We cannot ignore it.

WORLD DOMINATION

Microsoft Targets The Poor

No, this is not another anti-piracy story, so stop smirking! Recently, Microsoft executives were all abuzz about their latest plan to target the 5 billion users who aren't already using PCs. With a global population of over six billion people, Microsoft is appalled that only under a billion use its products—including pirated software users. In a bid to make this a more Microsoft-dependent world (and thus, World Domination), the company is looking to make deals with governments to provide cheaper versions of its popular software for students and the under-privileged.

When you think about it, of all the software that Microsoft makes, two really stand out: the world's most popular OS, Windows XP, and the world's most used office suite, Microsoft Office. While most of us *privileged* users might have to spend several months' salaries to afford these software, there are entire villages in India that simply cannot afford them. The world (a lot of *Digit* readers included) has been crying out for Microsoft to consider that their software costs as much as five times the hardware that it runs on, and it seems Bill Gates finally listened.

The offer? How does $3 (a mere Rs 135) sound as a price tag for Windows XP Starter Edition, Microsoft Office Home and Student 2007, Microsoft Math 3.0, Learning Essentials 2.0 for MS Office and Windows Live
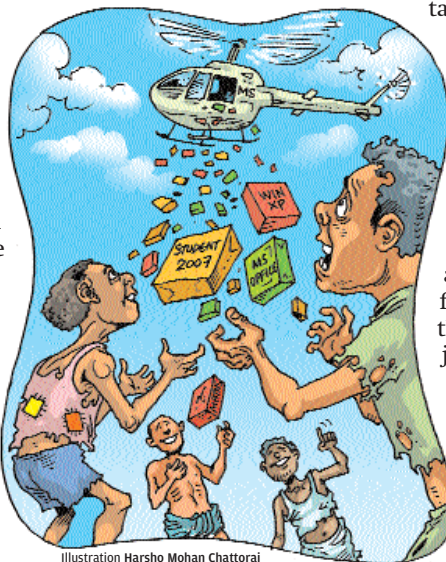

Illustration **Harsho Mohan Chattoraj**

Mail Desktop? Unbelievable? Believe it! Termed the Student Innovation Suite, Gates unveiled Microsoft's plans during a speech in China in mid-April. Although the Microsoft Student Innovation Suite (MSIS) is meant for students, it doesn't apply only to schools and colleges—students can use this at home, and Microsoft knows that the entire family will probably use the same PC.

So is Microsoft selling all these great products for $3 to *everyone*? Not on your life, as always, there's a catch. Remember, the software is being sold to governments, not the students themselves.

And this is supplemented by the provision that the governments have to pay at least 50 per cent of the price of the PC that MSIS is bundled with. Since this is targeted at the underprivileged, Microsoft even accepts the purchase of refurbished PCs as eligible for MSIS.

In terms of India, this means that our government now has the power to provide students and underprivileged families with PCs for half the hardware price and just $3 for the software. Now if only we had plans for such a project in place, we could really see a spurt in the amount of PC users in India. It would also help cut down the amount of pirated versions of Microsoft software being used in India.

So what's in it for Microsoft? Well, Microsoft does do a lot of charity work, as does Bill Gates, and this is their way of giving back to society. OK fine, we didn't buy that either. It's obvious that one more billion people depending on Microsoft products will result in a lot more business sales because employees are already versed with Microsoft. However, one can't blame Microsoft, it is after all a company that has to do business. For underprivileged Indian end-users, however, it's a win-win situation.

More Windows Woes

The Problem
Two serious vulnerabilities have been reported in most Windows versions, including XP Home and XP Professional.

The first has been rated by security firm Secunia as Extremely Critical, their highest rating for threats. The vulnerability can be exploited to take control of a user's system. It is caused due to a certain error within the handling of animated cursors, and can be exploited via a specially-crafted animated cursor file. Arbitrary code can be executed if the bad guy takes over, and this can happen when you visit a malicious site using Internet Explorer or open a malicious e-mail.

The vulnerability was being *actively exploited* at the time of this writing.

The Solution
Microsoft has released patches for this; the patch for Windows XP SP2 is at **http://tinyurl.com/2fu9gc**. The full list of patch URLs (for other Windows OSes) is at **http://tinyurl.com/2qymgy**.

The second vulnerability is only a notch lower—"Highly Critical"—and that means you'll just have to apply the patches for this one as well. The description of the danger is the same as for the first vulnerability, except, of course, that it works in an entirely different way.

The XP SP2 patch for the "Agent URL Parsing Memory Corruption Vulnerability" is at **http://tinyurl.com/26qvsn**, and the full list of patch URLs is at **http://tinyurl.com/2gge2q**.

HERE COMES GOOGLE

Almost 70% Profit Increase For Search Giant

April is the time when companies take stock of their Q1 performance, and take steps to enhance growth or reverse losses over the rest of the year. This year, investing in Google looks promising, thanks to their 69 per cent rise in profits from Q1 2006. It's still search and the advertising it brings that powers Google, but their whole strategy of diversifying, acquiring and hiring seems to be paying the dividends it's supposed to.

We reported earlier that Microsoft CEO, Steve Ballmer, thought Google's growth strategy was "insane". At a talk in Stanford, Ballmer said, "They (Google) are trying to double in a year. That's insane in my opinion." He was careful enough to add that this didn't mean that Google wouldn't do well. He also pointed to Google's work ethic of allowing people "to do their own thing", and said that it wasn't proven to create "value". For those who don't know, Google demands that engineers spend 20 per cent of their work hours working on projects of their own, no matter how weird. This is perhaps why some of the coolest things online are at Google Labs.

With Google going from a 10,000+ employee company to 12,000+ in under a year, and posting huge increases in profits, it seems to us that they have got their business model right. Acquiring smaller companies with ideas that fit into the Google way of life also seems to be paying off. But most of all, it's the public perception and Google's image as an innovator that's not afraid to try new and fun things that's helping them. We all want jobs at Google, and we all want to use their products—come to think of it, maybe 69 per cent is nothing compared to the things to come.

We're just dying to hear what Steve Ballmer will say next, after all, it was he who predicted in 2005 that Google would be dead before 2010!

Related
Apparently, it's not always fun at Google. Breaking the myths we've had about Google being the ideal place to work, are two founders of Dodgeball, a mobile social networking site that Google took over back in 2005.

Dennis Crowley and Alex Rainert quit Google in mid-April—Crowley said on a blog, "The whole experience was incredibly frustrating for us, especially as we couldn't convince them that Dodgeball was worth engineering resources, leaving us to watch as other startups got to innovate in the mobile + social space."

Google's response was posted on the Google blog on CNET:

"Google understands the important role social networking plays in today's mobile ecosystem, and we are constantly looking at ways to provide a great user experience in this area. Dodgeball was an early attempt at understanding user needs in this space and we are continuing to evolve our thinking and our offerings. However, we have nothing to announce at this time."

But it's clear, business is business to Google, so don't think it's all just fun and games, especially if you're being bought over by Google.

HOT
DRM Dead?
An agreement between EMI and Apple allows the Apple iTunes store to sell all songs owned by EMI Music completely DRM-free, at 256 Kbps AAC—much better quality than was earlier available.

Three To Go
NOT
It's only EMI; the rest of the Big Four—Sony BMG, Universal and Time Warner have adopted the wait-and-watch, money-grub-while-you-can attitude. They're not even interested in getting a higher price per non-DRM-ed song. Distressing, this.

One Silly Question — **"Your computer is Satan, a Saint or...?"**

"My wife!"
Umesh Lella

"It's a dog."
Gavrav Dutta

"A saint."
Aunragha Rao

"Time-pass, or Friend..."
Bhavesh Bhasin

"It's Satan himself!"
Sarang Pahade

The Digital World

NORWAY
A liberal political party, Venstre, is pushing the government to ban DRM and legalise file-sharing. They're speaking for the people, who are disgruntled by the current restrictions on downloading.

UNITED KINGDOM
Cyber-bullying of teachers on video-sharing sites is causing many teachers to leave their jobs because of the resulting defamation and humiliation.

CHINA
A rule to fight online gaming addiction has been passed by the government: there's now a limit on the game score of any under-18s playing online games for more than three consecutive hours a day!

UNITED STATES
The Department of Defense will launch a satellite with an Internet router in 2009. It will enable voice, video, and data communication for US troops, as part of the Internet Routing in Space (IRIS) project.

THAILAND
Access to YouTube was blocked by the government after Google refused to pull down video clips poking fun at the Thai King. Criticising or defaming the royal family is a crime in the country.

BRAZIL
In the virtual world of *Second Life*, the Brazilian airline TAM has actually announced free virtual flights from Berrini Island to England, Milan, New York, and Paris. Avatars get free flier points and gifts such as virtual aircraft.

CRAPWARE AND XP

XP Makes A Comeback, Crapware Kills The Joy

Yes, that is a word. Crapware stands for anything that's bundled with your PC that you don't want. When you buy a branded PC, it comes preloaded with an OS and a really big bundle of junk software. This includes anti-virus and security software, multimedia tools, system tools and a whole load of Internet related rubbish. Sure a lot of the software is good, but all we get are the trial versions. Why buy the full versions when there are so many free alternatives floating around?

Consider this: you get a brand new PC, the glint from it is hurting your eyes. It's a dual-core CPU with 2 GB of RAM and a rather large hard drive, but switch it on and it starts up laboriously. Anyone who's ever formatted and reinstalled Windows will testify to the speediness with which it starts up before you install all your software. Branded PC buyers, however, get tonnes of software pre-installed. They don't ask for it, they don't want it, but it's provided anyway. Why? Simple: PC manufacturers try and cut costs everywhere they can. One way is to bundle trial versions of popular paid software, pick up some money from these "advertisers" and bring prices down to a point where PC brands and assemblers are fighting over a small price difference.

Sadly, since everyone uses OEM bundling of Windows, it's not like you can get your own Windows CD and format to get rid of this crapware. God forbid you have an OS crash and have to load from the backup drive—you get those trial applications installed again, and have to spend time cleaning up the mess.
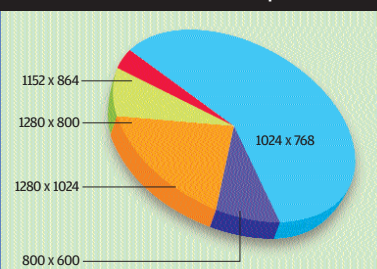
Here in India, the solution seems to be: keep your bill safely, format, install a pirated version and

Stat Attack
It's all in the numbers

The world's favourite desktop resolution

- 1152 x 864
- 1280 x 800
- 1280 x 1024
- 800 x 600
- 1024 x 768

Europeans on average get their first phone at 8. They'll spend **$28K (Rs 13 lakh)** on handsets and services during their lifetimes.

The typical office worker is **interrupted every 3 minutes** by a phone call, e-mail, IM, or other distraction. But it takes 8 **uninterrupted minutes** for a brains to get into **creative** mode.

Staying Connected:
81% use a mobile phone. **65%** use a laptop. **19%** use a smartphone.

31,842 PS3s donated 417 Teraflops to folding@home; 1,85,618 PCs do 117— making each PS3 worth about 22 PCs!

Firefox is most used in Oceania and Europe (24% in both). In North America: 15%. And in Asia: 12%.

Photograph **Gaurav Pranshu Garg**

Each month *Digit* will carry a caption for a photo. Come up with something funnier, and beat the *Digit* team at their own game! Entries accepted by the **20**th of this month.
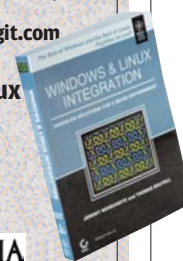
live happily ever after. In the US, however, stricter laws lead to people having no choice. In fact, some PC vendors actually charge extra to give you a cleaned out Windows. Yes, you actually pay more for less with that solution! For now, you should get the PC Decrapifier from **www.pcdecrapifier .com**, and clean up your PC.

Good news from PC vendors is that Dell has decided to bring back Windows XP, so you can get cheaper versions of high end hardware. Of course, since Dell is doing it, all the others will follow suit.

THE GOOGLE SPIES
Search Giant Will Now Know More About You

Recently, Google announced plans to buy DoubleClick, the digital marketing giant, for 3.1 billion dollars (about Rs 13,950 crore) *in cash*! For Google, which already has a booming business that garners advertising revenue, this will make them a formidable force for online advertising. End users, however, seem to be more worried about how much information Google will now have on each of us. They already know what we're looking for, those with Gmail have already agreed to let Google computers read their mail, and now they will know what sites we visit, and decide what ads we see. Thus far Google has been behind the text ads you see when you search, while DoubleClick is behind a lot of the banner / fixed ads you see on sites. With this merger, soon we might see Google controlling *every* single ad you see online!

Microsoft was quick to condemn the move: Brad Smith, general counsel for Microsoft said, "This proposed acquisition raises serious competition and privacy concerns. We think this merger deserves close scrutiny from regulatory authorities to ensure a competitive online advertising market." Of course, rumours doing the rounds suggest that Microsoft was beaten by Google in the bid war to buy DoubleClick, so it could just be a case of sour grapes. Pity.

The news has already started making top headlines everywhere at the time of writing this. There's even rumours that three public interest groups—Electronic Privacy Information Center (EPIC), Center for Digital Democracy (CDD) and U.S. Public Interest Research Group—will jointly file a complaint against the merger with the US Federal Trade Commission. According to what we hear, the groups will file the case on behalf of the 1.1 billion Internet users across the globe, opposing any merger until it's clearer how Google uses the data it stores, and makes a public formal announcement indicating how it will use all the data it gathers.

Nicole Wong, deputy general counsel for Google said, "User, advertiser and publisher trust is paramount to the success of our business and to the success of the acquisition. We can't imagine taking any actions that would undermine these relationships or the trust people have in using our products and services."

With all the hullabaloo about this merger, we decided to make a list of everything Google would know about any one of us (if you use all of their services), and this is what we got:

1. Search: There's no doubt that the majority of us use Google Search. If you're signed into your account, Google already knows who you are and has your email address. It will now know exactly what you look for online. If you're not signed in, it still ties your IP to your preferences.
2. Gmail: What's the best way to get users to identify themselves? Offer them a really cool new e-mail service; make it invite only to raise the "I want!" factor, and then collect loads of

Priyanka Mahajan Vs. Omkar Sherade

The Google home page is, of course, what appears when you type in "www.google.com", but not everyone knows (or cares) that you can personalise it by adding "gadgets" after signing in using your Google or Gmail ID. The gadgets range from finance to news to jokes to... We got Omkar and Priyanka going to personalise their Google homepages, with

Unsure of the task she was, Priyanka, didn't ask for help. She found the Personalize link soon enough; entering "Add Stuff", she went on to add Gmail, a world clock, a calendar, free text messaging, and "About C/C++" from under "Popular Add-ons". Under News, Priyanka selected IndiaTimes Cricket, and Translate from under Tools. Searching for an Orkut gadget, she added Yahoo! Mail–she couldn't locate Orkut. Browsing through Finance and Sports, she selected Download.com, Music under Lifestyle, and Wordpreference.com from Tools. Searching through all the sections again for Orkut, she finally selected GTalk to compensate for Orkut. Rearranging her home page, she brought Yahoo! Mail, Google Talk and Cricket to the top. A rather social person, we surmise, and the cricket bit was somewhat of a surprise.

Omkar wasn't sure how to do the personalisation, but didn't ask for help either. He dashed to Google, where he found the "Personalize this page" link. From under "Popular Add-ons", he chose BBC News, HowStuffWorks, and Google Video. Finance interested Omkar–he went through each and every page of that section–but he didn't get what he wanted. Under Sports, he selected Soccer Way, and Babelfish (the translator) from under Communications. As we'd sort of expected, he browsed through all the pages under Technology, but he next selected Automotive News under "Lifestyle".

Clicking back to the homepage, Omkar didn't feel the layout was to his taste. Some dragging and dropping later, he rearranged the page. The top news stories, automotive news, and Wikipedia now occupied the top slots in his new homepage. Pretty staid.

personal information on them. Google computers also scan through your mail to see what it is you like / dislike, and target you with more relevant advertisements.

3. Calendar: If you use Google calendar, they know what you're doing and when.

4. Docs and Spreadsheets: With the growing popularity of Google Docs, Google now has access to what you're creating, and what work you do.

5. Reader: If you use their services, Google knows what kind of news interests you, and thus

what kind of products and services you like.

6. Orkut: They know who your friends are...

7. Blogger: They know what you have to say.

8. Earth: They know your address—if you entered it that is...

9. Toolbar: They know everything you do online.

10. Picasa: They know what you look like.

11. YouTube: They know how to entertain you.

First of all, Google doesn't collect personal information from all of its services, we just painted the worst case scenario for

each service above. Secondly, if you're using all these services like some of us are, does it really matter if they know a little more about you? Thirdly, what's the worst that will happen? Instead of seeing ads on sites that bore you, you might actually be interested in buying something. And finally, you are one of 1.1 billion people online, and with that number growing everyday, do you really think you are that important? It's not like you have your neighbour peering through your bathroom window here... Besides, your chemist knows what health problems you have, your trash man / woman knows what products you use and what you've been eating, your accountant knows how much you earn, your mom knows how much salt you like in your food... Google computers know what you do online, and try to entice you to spend a little money.

We need to all take a step back and relax—until Google starts asking for your bank account details, you have nothing to fear!

THE TECH WAY

A New Way To Grieve

The Virginia Tech tragedy has raised a lot of questions for US politicians, college authorities, and the gun laws across the states. People across the world

are grieving for the loss of loved ones, acquaintances or just citizens of their country. The incident made us realise how we, as in society, have changed. The Net has truly changed the way we deal with tragedies.

Friends dealt with the tragedy by sending condolence messages to the victims' social networking pages. Facebook seemed to be the popular choice for mourners, and numerous rather large groups were formed to condone the incident. Even as the media was confused, and reports about the number of lives lost varied from 10 to the final count of 33, these groups were being formed. Initially they shared information and updates on the events, and now are a gathering place to share experiences and offer condolences. Some of the victims had Orkut pages where condolences started pouring in.

Instant messengers were used by Virginia Tech students to get in touch with friends and family. Reassurances and news spread via e-mail and IM like wild fire. Even Facebook and MySpace were used to share news and send the "I'm OK" signals. Because mobile networks and phone lines were jammed with frantic calls being made to and from the university, Internet connectivity came to the rescue, and proved that it's a more reliable service in terms of crisis.

Even while the ordeal was underway, the student

Centrino Pro

Intel's new, fourth-generation Centrino platform, scheduled for release this month, is the Centrino Pro. It unifies the Santa Rosa platform and their vPro technologies.

This new platform uses the second-generation Intel Core 2 ("Merom") processor, which has an 800 MBps Front Side Bus, capable of switching to 400 MBps *on the fly*. This means the processor will consume lesser power when not in use, thus extending battery life on

laptops and other portable devices. The Centrino Pro also supports the latest 802.11n Wi-Fi specification, which increases range up to 50 metres and has a maximum data transfer rate of 540Mbps. Another important advancement is the inclusion of the Extensible Firmware Interface, which completely replaces the now-ageing BIOS. The Centrino Pro also supports NAND Flash memory caching, which will make for an almost-instant bootup!

Red Swoosh

What is Red Swoosh?

Red Swoosh is a company that has developed a new peer-to-peer file sharing protocol that works in a closed user group, giving download access only to the intended audience. It uses bandwidth very effectively and efficiently while transferring large files over a network.

Why does one need it?

Red Swoosh can be used to deploy large presentations, videos, etc. within a corporate environment where individual servers are used to host the files. The use of P2P means reduced stress on the hosting server.

How does it work?

The content seeder adds "http://edn.redswoosh.net" before the URL (as in http://edn.redswoosh.net/www.example.com/sample_movie.avi) and publishes it on their Web site. You install the Red Swoosh P2P client; when you click on a link that is *swooshed* by the site author, the client intercepts that and downloads the target file using P2P instead of the regular HTTP, thus saving on bandwidth costs and download time. To the user, it feels like downloading from within the browser.

When was it developed?

Red Swoosh was founded in the dot-com-crash years by a group of individuals who gave us Scour, one of the first multimedia P2P clients.

Which features make it different?

Red Swoosh targets not the worldwide P2P community, but original content developers. Every Red Swoosh client is assigned a unique static ID in order to verify that content is being delivered to the correct destination computer.

Where is it moving?

Going forward, Red Swoosh plans to share download statistics with end users. It also plans to share ad revenue with them!

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body leaders set up chat rooms to try and warn students and inform them of what to do, how to stay safe, and to not leave their apartments. Others turned to online forums to exchange information about the identity of the shooter and those he murdered.

Currently, online services are being used to create memorials, such as those that already exist on Facebook, and e-mails with prayers and poems written about the victims are doing the rounds. People from other countries are also getting to express their sympathy and grief, thanks to the Net.

It's very obvious that the Internet and the services that are available have done everything from save lives of those in danger, share information faster, reassure worried relatives, express condolences, share experiences and also given people from across the globe a chance to put forward a united front and grieve and condemn the tragic events of April 16, 2007. Thank God for the Net and the various services we usually take for granted—thank you technology!

Related

How sick can people get? Every time we think humanity hits an all time low, a few dig even deeper. Malware writers were some of the quickest to respond to the Virginia tech tragedy, piggy-backing on the curiosity that was formed within most of us after hearing about the shocking events. According to anti-virus software developers Sophos (**www.sophos.com**), the e-mail that's sent to users contains a photograph of gunman Cho Seung-hui, and links to what it claims to be a site that video clippings of the incident. With camera phones omnipresent, this e-mail is quite believable, and was sent out at a time when everyone was abuzz with news of the incident.
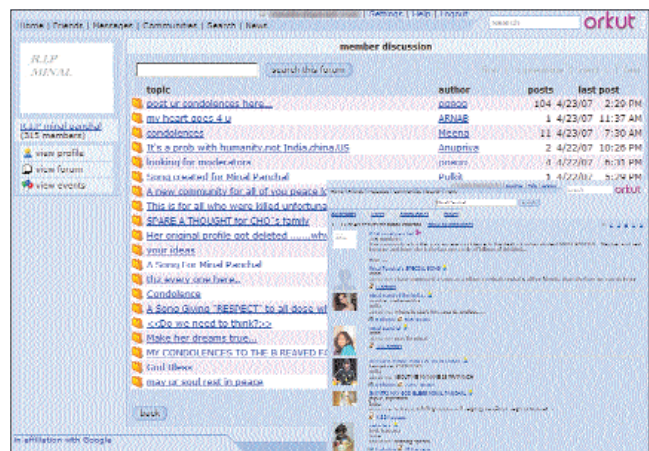
A lot of people on Orkut want to express their condolences to Minal

The site you are directed to tries to install a screen saver file that installs a Trojan that will steal Internet banking data.

Also, a lot of domain names that looked like they were inspired by the Virginia Tech massacre were bought up very quickly. It looks like technology has brought both the good and the ugly of our traits online!

Everyone Wants An Intel Inside

Market research shows that Intel is rapidly regaining the ground it lost to AMD over the past couple of years. Just from the fourth quarter of 2006 to the first quarter of 2007, Intel has regained 4.5 per cent market share (up to 80.2 per cent from 75.7). AMD lost ground from 15.7 to 11.1 per cent in the same period. Many will attribute this to Intel's new Core processor line and their aggressive marketing.

AMD's stocks are also showing the effects of these results. AMD lost $611 million in the first quarter of 2007, which translates to $1.11 (Rs 50) per share. When you compare this to Q1 of 2006, when AMD's stock went up by $0.38 (Rs 17), you get an idea of the amount of losses they're suffering. Currently, Intel owns the performance crown, and AMD is having to resort to a price battle to compete. So, AMD is offering chips at rock bottom prices, while still trying to compete with Intel's relatively huge advertising spends.
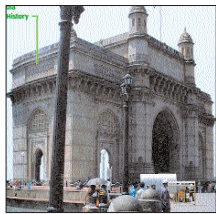
According to market researchers, Intel has more than seven times the amount of cash than AMD, and is worth well over 15 times as much as the latter in terms of market value. So what's David got up his sleeve for Goliath this time? AMD's upcoming Barcelona line of chips might be the sling-shot that dents Intel.

Whatever the outcome, we're so used to the AMD-Intel see-saw game, we're not going to make any silly predictions. We know AMD will come back with a response—they always do. We also know that Intel will hit back again, and the initiative will keep shifting from one camp to another. The only way we see this ending is if the companies merge, and we definitely don't want *that* to happen. All competition between these two giants is what gets us better performing CPUs at reduced costs. May the Intel-AMD fight continue with as much fervour and as many price-cuts as possible! ■

Lead Feature

Ultimate Gaming Champion

The Xbox 360 has been available here for a long time now. The PlayStation 3 has just launched in India. The Wii is rumoured to be on its way sometime in September. It's Showdown time!

Nimish Chandiramani

Long we have awaited this day. Much quality time has been spent with The Three. The moment has arrived for *Digit* to speak unto its readers, bearing the Final Word on which console deserves that hallowed space upon your TV cabinets. Read very carefully, for we shall write this only once.

We've had the Xbox 360 in our office for so long now that it's become just another fixture. No longer do people trip over themselves to have a go at it, except when new titles come in for review; even so, our fingers itch for more. We've been longing to plaster our fingerprints on a shiny new PS3 and break a window or two with that satanic instrument of death, destruction, and weight loss—the Wiimote. Long hours in front of HDTVs, eight sore fingers—the little finger is usually spared such torture—and (horror of horrors) plenty of exercise later, we bring you the ultimate battle for console supremacy…

The Rules Of Engagement

The winner will need to (these are in no particular order):

1. Prove it's hardware-worthy

The PS2 is going strong even today for the simple reason that it's still possible to create good-looking and complex games for that hardware which won't turn it into a brick. A console's hardware must be future-proof, and provide gaming joy for years to come.

2. Not bankrupt you

If you think your monetary woes end with just buying a console, think again…

3. Be in tune with the Force

This is the most intangible part—the experience. Will it rock your Casbah? Does it have Mojo? Will it bake you cookies when you're depressed?

In the first corner, we have the reigning champion of the market, M-Dollar's favourite child after Vista itself, please welcome…

The Xbox 360

(We reviewed the Xbox 360 back in August 2006, so this will be somewhat short.)

It must be nice to lead the life of the Xbox 360—take the market over just by virtue of *existing*, and while your closest competitor takes a year to release, spread your word far and wide to everyone who'll spare you twenty seconds of their time. Not that the 360 doesn't deserve to be at the top.

Powerhouse

With a tri-core IBM CPU and an ATI-built GPU at its heart, the Xbox 360 is capable of incredible visual detail and excellent physics. See the *In A Nutshell* table for more on the 360's innards; you'll see why we still haven't seen a game that the 360 has trouble handling.

In the HD department, the 360 supports up to 1080i—one step lower than the PS3's 1080p—but it has a neat trick up its sleeve, and it's called Ana. Ana is a chip that scales game resolutions up to the maximum that the TV is capable of. Play a 720p game or movie on a TV that's capable of 1080p, and you'll see the Xbox 360 scaling up to that resolution. To most eyes, however, the difference between regular TV and 720p can be summed up as, "This is waaaay better"; the difference between 720p and 1080p is just barely perceptible, and even then, only because you know it's there. Ana's benefits will become clearer some time in the future, when all we see is HD content.

The Adventures Of The Wallet

You can get yourself the Xbox 360 Premium System for Rs 23,000, and this is the one we recommend. It comes with a wireless controller and a Media Center-esque remote, and most importantly, it comes with component cables for your HDTV. Good quality component cables are hard to find, and when you do, they're painfully expensive. If you've got an HDTV, this is a godsend.

Speaking of HDTVs, the 360 is wasted on anything but. On a regular old TV, the most that can be said about the 360's graphics is that they are significantly better than the PS2's. So when you buy your 360, make sure you're building up another Rs 30,000 or so for a decent HDTV. Titles come at nearly Rs 3,000 apiece, so this is going to pinch a bit too.

Going Online

You get a trial membership for Xbox Live when you buy your 360, but Xbox Live has yet to officially launch in India—this should happen later this year. You can still access Live, however—browse content, download game demos and so on, but you're banned instantly when you try to enter the Video section. Most importantly, you can play your games online. With our current broadband situation, though, Live will have a limited Indian audience.

There are plenty of nice things to be said about the Xbox 360, but there's trouble brewing… or is it?

The Sony PlayStation 3

Thanks to plenty of media hype and CEO Ken Kutaragi's obnoxious jingoism, the PS3 seems to have acquired legendary status well before its time—its very presence inspires awe. The design of the console itself oozes style, and yes, that shiny exterior is just begging for fingerprints. Put it next to a sizeable HDTV, and your view of the PS3 is more realistic. It's not a Formidable Force™, it's just a big console.

Roaring Engines

The PS3 is powered by the Sony-Toshiba-IBM (STI) Cell Broadband Engine, or the Cell processor as it's popularly known. This processing behemoth sports a single PowerPC core, helped along by a team of eight Synergistic Processing Elements (SPEs), one of which has been reserved for redundancy. Paired with NVIDIA's RSX GPU, the system is theoretically capable of nearly two teraflops (floating-point operations per second)—nearly double the overall capability of the Xbox 360. In terms of raw specifications, then, the PS3 leaves the Xbox 360 in the dust—no worrying about game developers running out of power on this one. If anything, the biggest challenge they'll face is making a game that will truly exploit the power of the Cell, complete with ultra-realistic graphics and insanely complex AI.
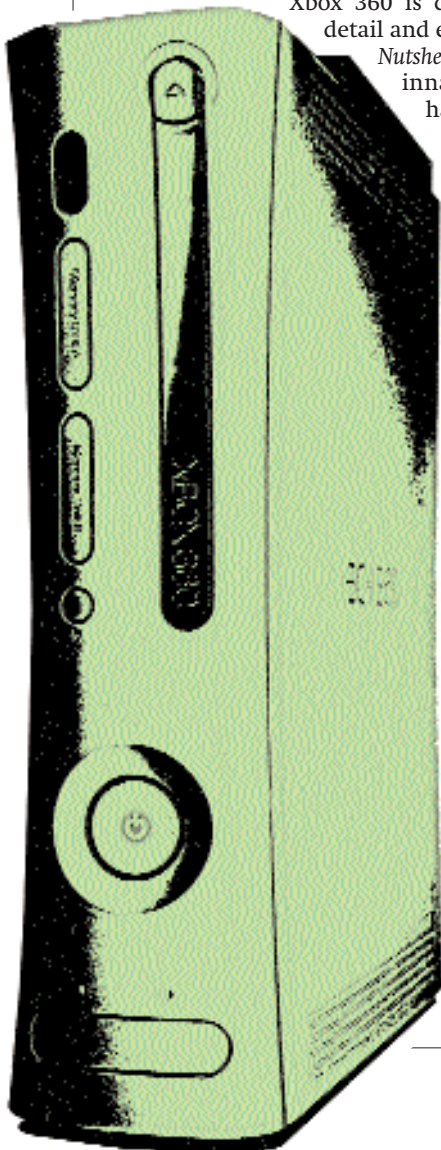
Coming Soon To A Console Near You

When you fire up a title for the PS3, it undoubtedly looks amazing, but one question niggles—what is this doing that the 360 isn't? Today, that answer is "nothing." Whether the PS3 looks better than the 360 is a subjective matter, but while you sit and expect to be blown away by something that is technologically superior to the 360, all you find is something that is at par, if not marginally worse (no hardware scaling chip, remember?).

Read on for our views a couple of launch titles later in this issue, but first…

Lost In Space

When you first pick up the PS3's new wireless SIXAXIS controller, it feels, well, cheap—almost like a bootleg PS2 controller. The vibration is gone, making the controller lighter, but this may not be as good as it sounds—we were to find this out later. The controller is also motion sensitive, so you can control games by tilting it in the right direction. In the

▼ In a Nutshell

	Xbox 360	PlayStation 3	Nintendo Wii
Processor	IBM PowerPC-based custom-built processor with 3 symmetrical cores, running at 3.2 GHz	Sony-Toshiba-IBM Cell Processor with 8 cores, running at 3.2 GHz	IBM PowerPC-based "Broadway" CPU
GPU	Custom-built ATI Graphics with Unified Shader Architecture	NVIDIA RSX GPU	ATI "Hollywood" GPU
Output Resolution	Up to 1080i, lower resolutions scaled up	Up to 1080p, no scaling	Up to 480p
Storage	20 GB HDD (Premium System only) Xbox 360 Memory Unit	60 GB HDD, Memory Stick (Standard and Duo) / Stick Pro, SD, CompactFlash	512 MB Flash Memory, GameCube Memory Card, SD
Connectors	3 USB 2.0 ports	4 front and 2 rear USB 2.0 ports	2 USB 2.0 ports
Connectivity	Wi-Fi, Ethernet	Wi-Fi, Ethernet, Bluetooth 2.0	Wi-Fi, Ethernet (via Ethernet to USB adapter)
Bundle	"Core System: Console, one wired controller, composite AV cablePremium System: Console, one wireless controller, media remote, HDMI cables, 20 GB HDD"	Console, SIXAXIS Wireless Controller	Console, Wii remote, Nunchuck, sensor bar for remote
Price	"Core System: Rs 19,000; Premium System: Rs 23,000"	Rs 39,990	Rs 19,000 (grey market); Rs 15,000 (expected retail price)

games we tried it out, though, it seemed rather twitchy—its lightness makes it easy to over-tilt, even when you're not in the throes of excitement. We'd have appreciated something that felt a tad more substantial. Overall, this has potential, provided game developers are able to use it properly.

Everything about the controller is the same as the PS2's, but the L2 and R2 buttons have been replaced with analogue triggers, and they're plain awful. They're convex, for one, so your fingers are going to slip off them when you apply too much force—not too palatable when it's what's keeping your

character alive or your engine revving. They're also placed awkwardly, and holding them down is decidedly uncomfortable—this was quite obviously an afterthought.

Going Online

You'll be able to access the PlayStation Network (PSN) free as soon as you buy your console, so you'll have access to all the free content—game demos, HD videos et al—and will be able to play multiplayer games, but you won't have access to paid content till later this year, once some issues with the payment gateway have been ironed out. Later this year, we'll see PlayStation Home, which seems to be a Second Life of sorts. You'll be able to create your own avatar, build your virtual home, buy virtual furniture, play virtual games, die a virtual death (we're not so sure about this bit), and so on.

The Gamer's Burden

As with the 360, by playing with the PS3 on a standard-definition TV, you're preventing it from fulfilling its destiny. If you have no qualms about shelling out the Rs 39,990 for the 60 GB unit, we're assuming you don't have any hang-ups about plunging for an HDTV as well. Unfortunately, you'll have to go hunting for your own HDMI cables—acceptable ones should come for around Rs 3,000; better ones, even more.

Titles will release at Rs 2,499 each, and there's a slim chance that this number will fall—Sony has already started replicating PS2 DVDs in India, bringing some prices down to as low as Rs 999, and we're hoping this happens for the PS3 as well.

And from the darkness, another emerges…

The Nintendo Wii

Look at this thing. That small, clean white body belies its cruel black heart. After all, what manner of insolent machine seeks to get people off the couch and *exercise*? And then

Ridge Racer 7

Every Sony platform has had at least one *Ridge Racer* (RR) title to enjoy, and RR7 is the latest in the line. The franchise has long been one of our favourites—how could you not like a game where most of your responsibility entails drifting your car around corners and winning races? This game offers you raw, unadulterated fun and beautifully unrealistic gameplay—you could be in a car that's moving forwards, but at a 135-degree angle to the road's direction!

Naturally, RR7 has gone HD, and can't help looking good on the PS3. It's also become a tad more difficult. In the previous versions, especially those on the PSP, racking up the drift points for more boost was quite easy; you'll have to drift *really* well for these points now, and if you botch up, your opponents will leave you far behind. The only grouse about this game is that all that drifting can get a little monotonous.

Whether you've played an RR title before or not, this one is highly recommended—no nonsense, all fun. **Rating: 8/10**

The Line-up

Lair

Lair isn't part of the launch line-up—it's due for release in the end of July—but it's the first game we'll see that uses SIXAXIS extensively and almost exclusively, and deserves a mention. There'll be battling dragons and much fire-breathing in a world "torn by conflict and strife." You use your SIXAXIS controller to control the flight of your dragon as you hunt the skies for enemy dragons, engaging them in fire-ball-filled dogfights or close-range kick-and-bite attacks. The first mission is training—getting you used to controlling your dragon and learning some basic moves, and even when you consider the fact that we saw some very raw review code, we can see that this is asking for trouble. You have no option but to use the controller's motion sensitivity, so if you're uncomfortable with it like we were, tough. To attack enemy dragons close-range, you need to go near them, jiggle the controller (looking like an over-excited idiot), jiggle some more and finally hit a button combo to kill the enemy dragon rider. We're hoping for a cleaner, tighter control system when the game finally releases. The game has a *Lord Of The Rings*-ish feel—it's set in ancient times, and the little we saw of the environments suggests the same. Shooting never-ending fireballs at enemy dragons has its own promise of fun. 'Twould be a pity were it to be let down by its controls.

A total of nine games will launch with the PS3, and Milestone Interactive (the ones who are bringing the console and its games to India) has many more lined up for the months that follow.

there's that deadly projectile, the Wiimote—the litres of blood that it's drawn from so many innocents… appalling. We had our go with this satanic device thanks to Yogesh Nagdev, who owns a popular gaming café called Plugin in Vashi, Navi Mumbai. You can, too, if you're ever in the vicinity—it's one of few places (and the only one we know) that will let you game on a Wii.

The Mini-console

The Wii's innards—practically as diminutive as its exterior—are almost embarrassing: where the 360 and PS3 talk teraflops, the Wii's IBM "Broadway" processor and ATI's "Hollywood" R520 GPU place it a wii bit ahead (couldn't resist that one) of the older PS2 and Xbox in terms of raw performance. It's not even truly HD—its 480p resolution will look excellent on a good standard-definition CRT TV, but is quite likely to die on a true HDTV—especially when you look at how beautiful games look with the 360 and PS3. But then, Nintendo isn't banking on wiining (couldn't resist that either) on looks…

All That Hubbub

All Wii-talk is pointless without mentioning the Wiimote—the TV-remote-shaped controller for the Wii (the official name is the Wii remote, but we prefer the corruption). It connects to the Wii via Bluetooth, and detects motion using accelerometers and an infrared sensor bar that you're supposed to place above or below your TV. The controller itself is quite simple—one trigger-like button (B) at the bottom, and a classic NES-like button set on the top. It also features vibration and a little speaker that attempts to give you an added sense of immersion—imaging hitting a baseball and hearing the crack of the shot come from between your hands, and you've got the premise. It sounds a bit tinny, but gets the job done.

Most importantly, the Wiimote comes with a fairly sturdy strap to prevent you from chucking it across the room in excitement—we didn't have any such episodes, but there are people all over the world with bruises and broken furniture that will testify to the need for this strap.

Also part of the package is the Nunchuck, which plugs into the Wiimote, and is quite obviously built for first-person shooters. You use the analogue stick to move your character around, while you use the Wiimote to aim and shoot. The Nunchuck is motion-sensitive too, and also serves as your second punching fist in Wii Boxing.

During the first five minutes, we realised that you don't really *need* to stand up or jump around to play on the Wii—flicking your wrist from the comfort of your couch works quite fine. A few minutes later, you wonder whether standing up might actually help, and this is where the trouble begins…

We highly recommend a basic warm-up before hitting the Wii courts / greens / boxing rings, lest you suffer the pain we did.

Are Those…People?

With the hardware that Nintendo had at its disposal, it's surprising that they chose simple, skittle-like models for Wii sports—and surprisingly enough, it's easier to connect with your ridiculously unrealistic in-game avatar (or Mii) than it is when playing any other character! The lack of modelling detail has almost no effect on your game experience; in fact, it adds to the light-heartedness of it all, and will no doubt aid the Wii's Primary Main Objective™—garnering the interest of non-gamers.

Wii Sports features Tennis, Bowling, Baseball, Golf, and Boxing (in order of how much fun they are), and you're explained how to work the controls the first time you play each game.

One Wii Step At A Time

You don't have to go through it, but Wii Sports gives you a Wii Fitness Test, built to "test your skill and stamina." It takes you through a series of mini-games—based on Wii Sports' main games, that is—that will put you through your paces. You'll be asked to return as many balls as possible in Tennis, score some mildly challenging putts in Golf, get as many strikes as you can in Bowling, and so on. At the end, your scores are tallied and your Wii Fitness Age is calculated. The idea is to be as young as possible (at the very least, get your own chronological age), and you should take this test once a week to see how much progress you've made. This writer started out at a shameful 54, but after four hours of Wii-ing, came down to a less embarrassing 35. Clearly more Wii time is warranted.

On The Fields

Tennis is easily the most entertaining game of the lot—while the rest are simple to pick up and play, it's here that you'll find yourself wanting to improve continuously. The game is all about timing and power, and it's by balancing the two that you control the direction and speed of your shot—miss your timing, and you'll be hitting the ball right out of the court. Controlling your shot with the Wiimote is much like you would do in real life, and feels as natural as being there on the grass.

With some more practice, you can also get some spins in, though all we were able to accomplish were little more than flukes. You can also tell quite easily that this is going to be an excellent game if more people join in.

After Tennis, it's Bowling that's quite captivating—you can either use the simple hold-down-B-and-twitch method to get your strikes, or practise more elaborate moves like spinning the ball to nail difficult shots. Here, too, the Wiimote fits in as naturally as your own arm, and the moves are similar to the ones you would use in reality. We don't wonder why this is the most popular game in Wii Sports worldwide.

Golf and Boxing are the game's disappointments. Golf has some pretty challenging holes, but the Wiimote detection doesn't work as seamlessly as the rest of the games, and isn't as immersive. Boxing requires you to hook up the Nunchuck for your other hand, and while the idea of boxing with the Wiimote in one hand and the Nunchuck in the other sounds excellent, the execution is quite badly flawed. For one, we couldn't really throw punches the way we wanted to, and there were even instants where the wrong fist would shoot out.

When you get bored of the games, there's always the Training Room, which gives you three levels of challenges for each game. These challenges are grossly underplayed in all the hype, but can be the best part about Wii Sports—imagine facing off with a friend to see how many strikes you can get in a row, and you'll see the potential in this.

In the end, Wii Sports makes for ideal party or family fun—especially Bowling—even though Golf and Boxing aren't what they could be.
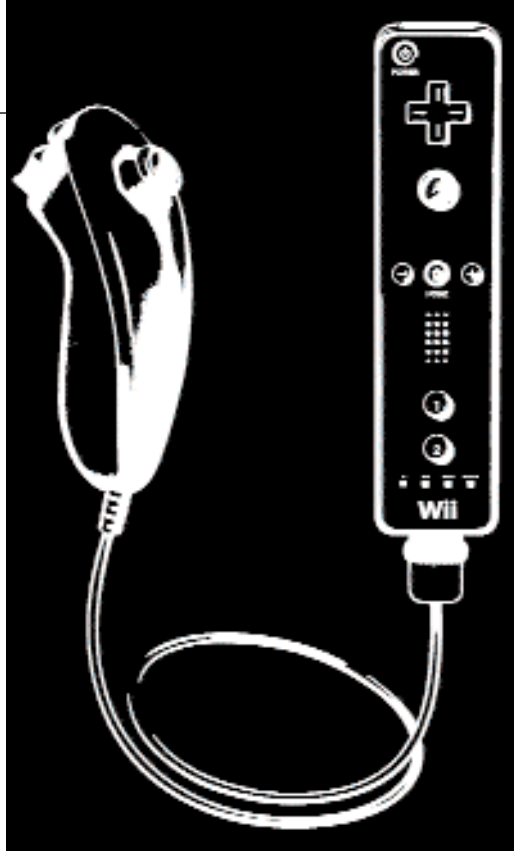
Budget-friendly

The Wii is the cheapest console available today—we don't have the price for India, but it should be a bit more than the $250 (Rs 11,250) that it retails for in the US. On the grey market, you can get one for as much as Rs 20,000—that's just Rs 3,000 less than a legal Xbox 360 Premium! We'd recommend conning a visiting relative into bringing you one, or waiting for the Indian launch. Titles cost around $50 (Rs 2,250), which will quite likely become Rs 2,500 here—perhaps even Rs 3,000.

However, you don't need an HDTV to enjoy the Wii—a standard TV should do just fine. If you do have an HDTV, you'll have to shell out for the component cables as well.

Endgame

What do you look for in games? Would you rather see cutting-edge technology in action or enjoy a new concept? Do you want to be blown away by visuals and sound, or do you just want to have fun? Everyone has their own philosophy on the ideal gaming experience, and most are quite hard-headed in that respect. But we dodge the subject: which console wins?

We'd compare the Xbox 360 and the PS3 on an equal footing for now—the games that have released thus far bring nothing to the table that propel the PS3 into its own class. Unless we see a title that exploits the PS3 in new and unimaginable ways, it can be compared to the 360 with no bias, and the latter takes the podium in that case. The 360's head start has given developers time to create games that showcase the 360's capabilities marvellously, and the number of titles that are releasing for it is just obscene. Unless Sony can catch up to those numbers, the PS3 will always lag behind.

We don't dispute the PS3's technological superiority, but games that can truly exploit the Cell will take some time, and should make the PS3 the flavour of the season a year or two down the line—just not now.

And then there's the Wii. Just as we're bored with the same old keyboard-and-mouse for gaming on the PC, we're bored with the two-analogue-stick-four-button console controller. Where the Xbox 360 and PS3 redefine games, the Wii redefines gaming itself. Scoff at the ridiculous idea of getting up and sweating it out all you want, but there's no disputing how much fun it is. We're just hoping that third-party developers put their minds to the task and build better control dynamics.

Today's winner is the Wii. It's terribly addictive, and this is one addiction that will actually help you *lose* a bit of flab. It breaks away from the old to bring you something so radical and fun it'll leave you gasping for more. If, however, you're not like us and prefer beautiful and more complex games without having to get off your hindquarters, the Xbox 360 is for you. It's cheaper than the PS3, has more titles to choose from, enjoys a healthy, throbbing community online, and even makes some games look better. There's also an embarrassment of accessories, and there's rumour that one of these will bring SIXAXIS-like capabilities to the 360 as well.

The PS3 loses today, but its time will come. There's a lot of technology to be exploited there, and someone will do so soon enough. Until then, keep your Wii strap firmly fastened and stand clear of furniture and wayward family members. ∎

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Cool Code

What goes into making processors that (literally) don't burn holes in your pockets?

Nimish Chandiramani

Our lives are now practically infested with mobile devices. Whether it's your old cell phone, a shiny new PDA, or the upcoming Ultra-mobile PCs (UMPC), the quest now is to pack in as much PC-like functionality into these gadgets as possible. The challenges come in when you realise that the processors for these devices don't have the luxury of living in a capacious cabinet with monster-sized heat-sinks to keep them cool—with the walls closing in on them, they must deal with computation in a completely different way.

Nearly 75 per cent of all embedded processors are based on the ARM Architecture (Advanced RISC Machine, or Acorn RISC Machine), because it meets such requirements beautifully—it's half the size of an old 486 CPU, is almost as powerful (with the potential for more), doesn't heat up even under load, and consumes but a smidgen of battery power. How does it do it, and why don't we have such features in our desktop processors?

History Lesson, I: Less Is More

Today's mobile processors owe their architecture to a division in processor design philosophy that started somewhere in the 1970s. Flashback (in black-and-white, if you like) to a dark age where no compilers existed, and processors were hand-coded in their own assembly language instructions. These instruction sets were quite simplistic, and something as simple as comparing two numbers could take ten instructions to execute. Imagine trying to write an operating system with that! But that was just half the problem.

When you gave an instruction to a processor, you do so as a hexadecimal *op-code*, which was stored in a register on the CPU itself before being executed. This register (a *pipeline* of many registers in today's processors) is an expensive resource to waste, and the number of instructions required for the simplest operations made that painfully obvious—more so when processors were getting powerful enough to do so much more. The goal, then, was to create instructions that were the same length (in bits, that is), but led to the execution of many *micro-operations*. For example, the 8086's JPE (Jump If Equal) instruction loads two numbers from the system's memory, subtracts them, uses that result to determine whether they're equal or not, and then jump to a new instruction if they are indeed equal. Contrast this with its predecessor, the 8085, with but the humble JMP instruction, which made the processor jump to the specified memory location.

This was the birth of Complex Instruction Set Computing (CISC)—simple instructions that performed complex tasks. It didn't waste
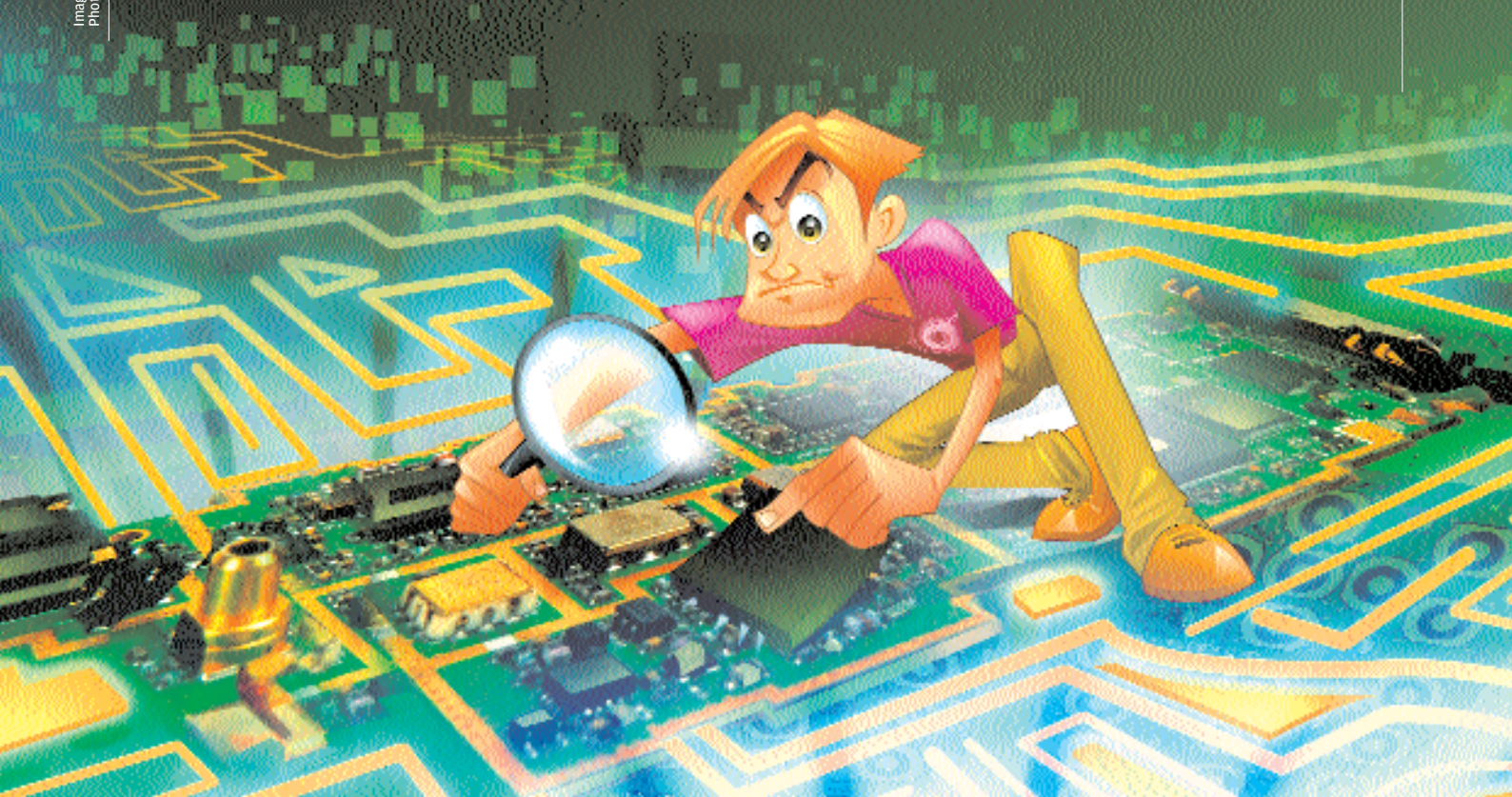
CPU resources as much, and gave programmers relief while they waited for the rise of higher-level languages and their compilers.

History Lesson, II—Enough Is Too Much

With the arrival of languages like C, programming trends started shifting away from the ungainly assembly languages to the more elegant (by those standards, anyway) higher-level languages—which used compilers that translated code to assembly language. As it turned out, these compilers weren't exploiting the potential that CISC had to offer—mostly because compiler designers were at a loss to figure out which instruction to use when. The 8086 had 32 different "Jump If..." instructions to choose from, and more were added with every new processor. The time and effort that went into designing CISC processors started to seem... futile.

The processor design community split into two schools of thought—one concentrated on developing better compilers for CISC processors (notably the Intel x86, which is all-pervasive today), while the other believed that CISC processors were grossly overdesigned, and a simpler, more compiler-programmer-friendly instruction set was in order. The idea came to be known as Reduced Instruction Set Computing (RISC), and came with its own set of advantages and disadvantages.

Every RISC instruction takes one single clock cycle to execute, so the CPU never has to wait for complex instructions to finish executing; the time saved is even more prominent when instructions are sent alternately to multiple processors. Most operations would take the same time on both RISC and CISC processors regardless, but the hardware required to decode RISC instructions is less complex, which makes it easier and cheaper to implement. The most significant disadvantage of the RISC architecture, however, is that it relies quite heavily on software—a badly written compiler can have a devastating effect on performance, as could badly-written programs.

In a nutshell, the simplicity of implementing an RISC machine makes it perfect for mobile processors, so that's precisely what Acorn decided to use when they came up with the ARM.

At The Drawing Board

The biggest thing to consider when designing a mobile processor is power consumption. Every single decision that follows—architecture, clock speed and so on—is driven by the need to use as little power as possible, and naturally so. How would you like it if you had to keep recharging your new PDA phone every three hours? Keeping power consumption low also ensures that less of it is dissipated as heat—which is good, because you don't want to be saddled with a heat-sink in your pocket. Or worse.

It's also important that these processors cost very little, which in turn means that they should be easy to design.

So in 1983, Acorn Computers designed the ARM (Acorn RISC Machine), a 32-bit RISC processor which had a third of the transistors as the Motorola 68000—which was six years older than the ARM—and could still actually do stuff.
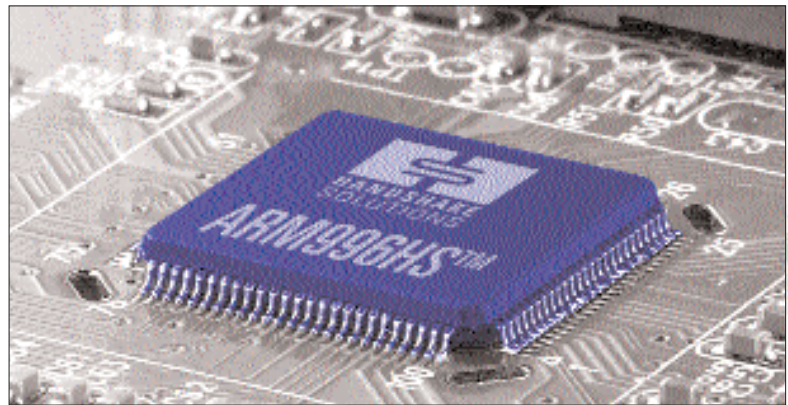
Taking More RISCs

Consider this bit of code that calculates the GCD (Greatest Common Divisor) for the numbers i and j :

```
while (i != j)
    if (i > j)
        i -= j;
    else
        j -= i;
    return i;
```

The premise is that if the lower of i and j is subtracted from the greater perpetually till they're finally equal, the final number is the GCD.

When this code is compiled to x86 assembly,

Anyone can make an ARM processor—once you've paid Acorn for the license, that is

you'll have instructions that:

1. Check the equality of i and j; the CPU will execute the following code if they're equal, or will start executing code from another (specified) memory location if not. This is called *branching*—when there two possible outcomes of the same situation.

2. Once inside the loop, check which of i and j is greater and subtract the lower from it—resulting in another possible branch.

The x86 processor has an instruction pipeline, which loads instructions from the system's memory and keeps them ready for the CPU to execute. In the above case, let's say that while the CPU is performing the first comparison, the code for the rest of the loop is already in the pipeline. If i and j are equal, however, all that code is unnecessary, so the pipeline has to be cleared, and instructions need to be loaded from a new memory location all over again. This wastes the pipeline, CPU time; as we've mentioned before, these are expensive resources, so wastes are unacceptable. The x86 architecture compensates for this with a *branch predictor*, which does exactly what the name implies. Today's predictors are accurate around 99 per cent of the time, and the overall gains offset the losses caused by the one percent.

ARM, however, would have none of this. Branch predictors add complexity, so Acorn decided to use the last four bits of their instruc-

The most significant disadvantage of the RISC architecture is that it relies quite heavily on software

tion code as *conditional code*, which forgoes the branching issue altogether—for smaller loops, at least. The ARM assembly code for the same operation goes thus:

```
loopCMPRi,Rj                    ;set condition "NE (not equal)" if (i != j)
                                ;        "GT (greater than)" if (i > j),
                                ;        or  "LT (less than)" if (i < j)
        SUBGT  Ri, Ri, Rj       ; if "GT", i = i - j;
        SUBLT  Rj, Rj, Ri       ; if "LT", j = j - i;
        BNE loop                ; if "NE", then loop
```

The result of the CMP (Compare) instruction is stored as a *condition flag* in the Current Processor State Register (CPSR) on the CPU for later reference.

Of the 32 bits that form the ARM's instruction, 28 are used for the actual instruction, and the remaining four carry the condition flag—this is ARM's own way of implementing RISC.

So when the SUBGT (Subtract if Greater Than) instruction is sent to the CPU, it isn't going to waste CPU cycles loading the condition flag and then checking it—the flag is right there, and depending on its contents, the instruction executes.

The final instruction tells the ARM to branch back to the label "loop" if i and j aren't equal. Notice that at no point here does the ARM have to jump to different memory locations—saving precious nanoseconds.

This clean, efficient way of going about things means that the ARM doesn't have to fight a Megahertz war—it can get more done for per clock cycle, so it can run on a lower clock frequency without too much loss. Lower clock frequencies translate to less heat generated within the chip, so the only thing heating up your ARM is probably the sunlight that you're basking in.

ARM doesn't have to fight a Megahertz war—it can get more done for per clock cycle, so it can run on a lower clock frequency without too much loss

Coffee With Jazelle

We've no doubt talked about how Java works before, but here's a refresher anyway: when you compile a program written in Java, it doesn't get converted to the assembly code for the processor you're working on. Instead, it's translated to Java *bytecode*, which runs on the Java Virtual Machine (JVM). The JVM then translates the bytecode to assembly language for the processor. The advantage here is that unlike other languages, where you write different code for different platforms (very tedious), you write code just for the JVM. Now you have code that will run on any platform that has a JVM built for it!

The problem with Java, as should be fairly obvious, is that the time taken for the JVM to translate Java bytecode to assembly causes it to take a huge performance hit; this cannot do.

Enter Jazelle, ARM's way of combating this performance lag. The Jazelle Direct Bytecode eXecution (DBX) makes a JVM for ARM redundant—the ARM7, ARM10, and ARM11 families of processors can now run Java code directly! If you've ever experienced the tedium of using a Java application on your mobile phone, this is a ray of hope. To see the difference that Jazelle makes, watch the video at http://www.arm.com/products/esd/jazelle_home.html.

Bells And Whistles

RISC works wonderfully with data that comes in long, continuous streams—video and music, for example—making it a natural choice for any portable multimedia player (PMP). The iPod, among many others, sits on an ARM7-based processor, which is built specifically for multimedia. It's tiny, fast, and lasts hours on a single battery charge. Among the other licensees of the ARM, Freescale Semiconductor builds the i.MX, based on the ARM9 architecture. These processors feature on-board Multimedia Card (MMC) and Memory Stick controllers, a Multimedia Accelerator chip and a Bluetooth accelerator. The architecture supports Windows CE, Linux and Symbian, and you'll be seeing devices based on this in the next few months.

Pocket Powerplants

With the world going mobile and the new emphasis on performance per watt, we've started seeing new developments in processor design, which now permit even the good old x86 processor to be plonked into a mobile device. Samsung's Q1 Ultra runs a low-voltage Intel Core 2 Duo, and runs Vista Home Premium with no problems at all! The three-and-a-half hour battery life is disappointing, but the fact that a desktop-class processor can run in this environment is an indication of things to come.

But does that mean that the ARM will become obsolete? For a long time, no. There's hardly a competitor in the battery life department, and even when it is muscled out of the PDA / UMPC market, portable media players and smartphones will ensure that the ARMs still have punch. ∎

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▼ Jargon Buster

Registers
Every processor has a number of *registers* built right on to the chip. These serve as temporary storage for data or instructions that come into the processor, or for storing important information like the processor's current state, or the memory address that it needs to access next. This is the fastest possible storage in your PC, so wasting it is a processor design no-no.

Assembly Language
When you give instructions to a microprocessor, you do so in Assembly Language. The instructions involve very granular operations in the processor—moving a byte of data from the main memory to the processor's internal registers, for instance. You write assembly code in the form of *mnemonics*—MOV, ADD, DIV and so on, which are then converted to hexadecimal *operation codes* or *op-codes*, which are finally given to the processor.

Microprograms
Microprograms (written in microcode) take op-codes and convert them into real processor actions. The ADD instruction, for instance, will bring numbers from the system's memory to the processor's registers before adding them—it's the microcode that implements this part. Microcode is hard-wired into the processor when it's designed, and optimising it for performance is right up there with the designers' biggest headaches of all time.

Overlay Mode

Information and objects interwoven with what you see and hear?

Ram Mohan Rao

Pop-up information balloons in applications can be distracting. But they're useful when you're using the app for the first time. You see "Speaker Mode," and the balloon says "Click this to change output settings."

On TV, you've doubtless seen those arrows and circles overlaid on and around players in a cricket match. "Now this fielder here," says Boycott in his loovly Yorkshire accent, and a red circle appears around the fielder. "Cooms oop to long-on," he continues, and an overlay arrow appears, pointing in the direction of the shift.

So here you have two silly examples of a field of research we'll soon name. But a not-so-silly question: what do the balloons and the arrows have in common?

Figuring the answer requires no great stretch of the imagination. In both cases, information to *augment* your visual focus is being brought in: information to aid you in understanding what you're looking at.

Now let's stretch our imaginations a bit: if information can be overlaid, why not other things? Take your favourite FPS around with you in the real world! Overlay the game—with all its monsters—on what the "real" world is providing your eyes—buildings and all! So as you're walking to work or college, monsters abound—one on the road, one behind your office building...

Notice we said "real" in quotes. That's because the lines are getting blurred—the lines between reality and virtuality. We're going to talk about "Augmented Reality," where you're in the real world and your experience of it is enriched in a useful way. Embedding virtual objects in reality—as in the FPS example—*could* be called Augmented Reality as well, but it's more like "mixed reality." Or should that be "Augmented Virtuality"?

The Terms-And-Definitions Mess

This is not a textbook, and we hate terms and definitions as much as you do. But we do need to get some things straight. Real Reality (hopefully) needs no explanation, but when it does, a professional philosopher needs to step in. We don't have one in-house, so we'll leave that out.

Virtual Reality (VR) is *total immersion* in a world divorced from the reality around you. You're sitting in your room with goggles on, which make it seem *exactly* as though you were on Mars. There's no overlaying of anything anywhere. Period. And that's where we'll leave it at in what follows.

Augmented Virtuality is concerned with systems that primarily recreate virtual environments while introducing elements of reality into the simulation. It's a concept not too many folks are bothered with, so let that be as it is.

Now, there's Augmented Reality (AR); that apart, let's coin a term—Virtual Imagery Superimposed on Top of Actuality (VISTA). It's a nice acronym, because it does mean new vistas of experience... and this is a nice place to get started.

More Real Than Real

You've seen it on TV, like we said: now imagine being in the stadium—somewhere in the back seats—when a cricket match is on. In the year 2020, our favourite year of the future. You're wearing comical-looking goggles, dangling cables and all.

Imaging **Shrikrishna Patkar**
Photograph **Amrut Patki**

Type : Lights
Time On : 19:30
time Off : 06:00

Type : Monument
Name : Gateway of India
Interest : Architecture; History

Flag:India

Type : Ship
Name : INS Veer
Status : Docked

Type : Transport
Name : Ferry
Status: Elephanta

Type : Hotel
Name : Taj
Acc : No
Contact : 91-22-98765432

Type : Structure
Architecture: British
FOR MORE INFORMATION
asiatic.co.in

Type : Jeans
Brand: Guess
Store: S. P. Mall
Price: Rs 1,400
Discount: No

Type
Bra
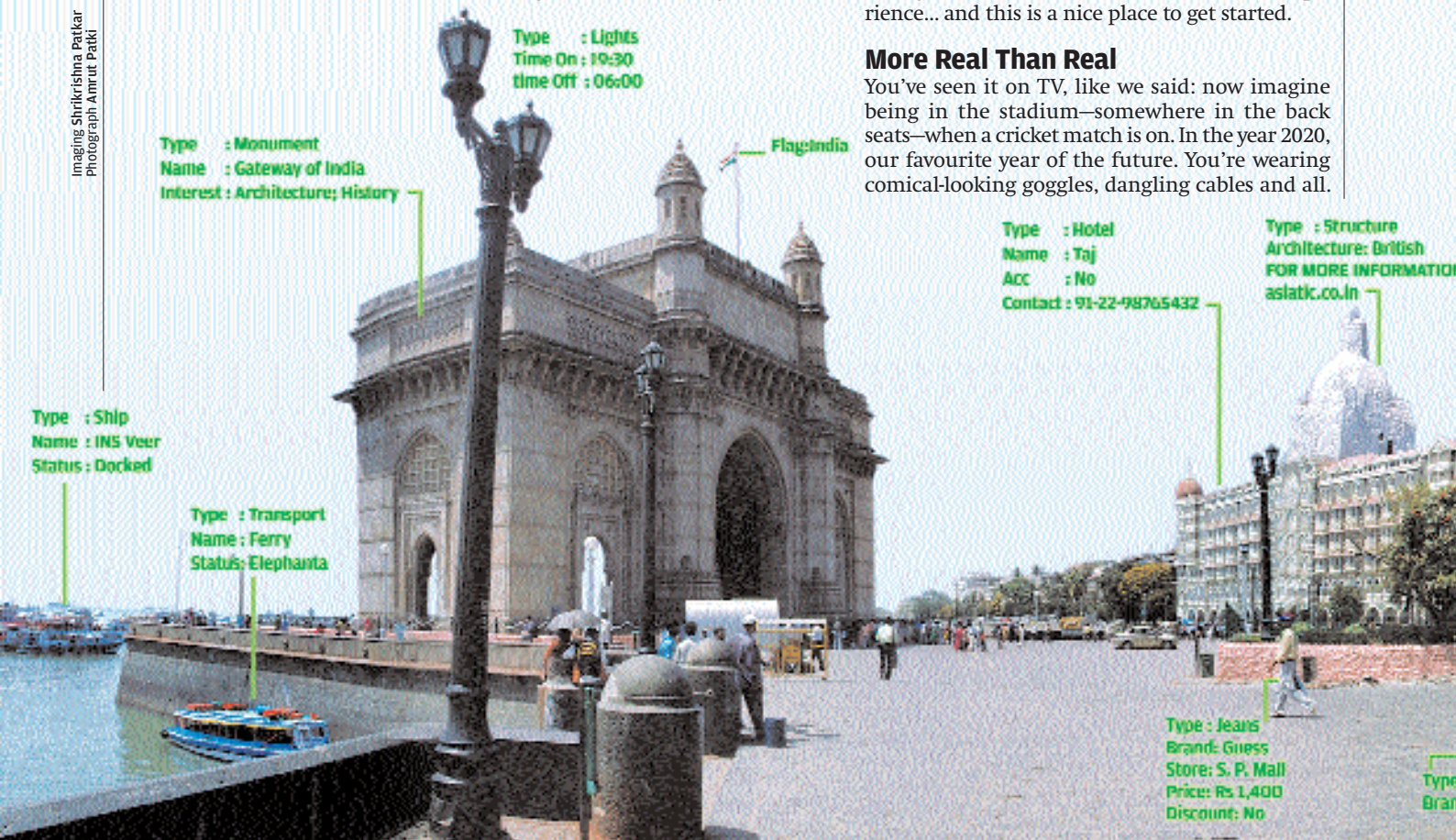
The bowler does his run-up; you see an information titbit next to the bowler that states his name. When he delivers his ball, you see the speed in kmph. You're *seeing all this with your eyes*, because your goggles are tuned in to various information sources—and they are displaying the "extra" information, the primary information being the plain scene of the ground. (Everything *is* information, right?) *That's* AR.

Then, look at the scene below. If you haven't been to our Fair City, you might not know the monument on the left is The Gateway Of India—so your goggles tell you that bit. You can also see whether rooms are available at the Taj just opposite, and more... That's the vision some have for AR. Well, not *the* vision; it's an example application that can aid tourists. The actual number of applications for AR are very, very many.

An aside: we've overdone the goggles. AR can also be done using Head-Mounted Displays—the way it's being done in most research labs now. It could be a cell phone with a camera. It could even be implants in your eyes.

How?

If you've been brought up normally, you're probably wondering how AR can possibly work. Where does the extra information come from? How can it be overlaid? In fact, those happen to be two core questions. The first is to get the information; the second is to overlay it so perfectly on what your eyes see that it becomes one blended scene. Yes, there can be augmented hearing and smell and all, but let's keep it simple and only talk about augmented vision.

A lot depends on the complexity of what is to be achieved. Think of a relatively simple application, like helping a newbie repair computer hardware. When he looks at a motherboard through his AR system, it could label the ports, slots, jumpers, and such. What this demands is an

Although Augmented Reality has not been entirely ignored, science fiction writers tend to emphasise the Virtual Reality experience. It's cooler

information system that knows the motherboard in its entirety, well enough to label it. Why it's relatively simple is because the system need not know where the person is.

Extend this to the picture on the previous page. What needs to be known? Obviously, your physical location, and a database of things at that location. It's easy to imagine the former being supplied by a GPS device. (Easy to imagine, but hard to achieve—imagine GPS to the accuracy of a millimetre!) It's also easy to imagine the latter being supplied by a database created by a tourism company. An ad agency could supply additional information to that database—that's how you'd get the price of the car and where it's available.

Things could get more advanced: picture someone walking down the street wearing Guess jeans, and an ad popping up telling you what store is discounting them! Now that does sound far out, but it's not impossible. Think, for instance, of a world where everything had RFID tags on them.

What is called "registration," however, is a rather hard problem. It's about the extra information being properly overlaid on the real scene. When you move your eyes to the left, the tags need to shift appropriately so they still point to the correct objects—and that requires a complex head-tracking mechanism. We cannot here go into the details of how that is achieved; in any case, we're trying here to tickle your imagination, not go into boring technical details!

AR At Work

Although AR has not been entirely ignored, science fiction writers tend to emphasise the VR experience. It's cooler. But AR is as much of an exciting possibility, if not more so, than VR. With an appropriate technique, AR can enhance any scene. Scour the Web and you'll see what countless people have envisioned. Here's a little sampler.

- ▣ A mechanical engineer is working with a piece of machinery he's never touched before. As he wields his gas cutter, he sees, neatly labelled, the parts of the object he's not familiar with.
- ▣ A doctor needs to make a cut in an open brain, and his AR system shows him precisely where it is safe to make the cut.
- ▣ A road is being dug up, and water pipes are to be avoided in the process. Say there's a database of the pipes in the city. You can then imagine a camera-based AR system that allows the diggers to "look" at the pipes under the road.

We haven't even begun to scratch the surface. Those examples were just to get *you* thinking.

Who's Doing What

At the University of Cambridge Department of Engineering, they're developing what they call "Robust Model-based Tracking for Outdoor Augmented Reality." You point the AR device at an object, and the device detects the edges. Any labelling—as in augmenting—can be done only after the edges have been determined.

Edge detection—seem simple? Actually, the technicalities are way too heavy to go into here! Even for this starting point—detecting edges—you need gyroscope measurements, measurement of

Type   : Hotel
Name   : New Taj
Acc   : Yes
Contact : 91-22-1234567

SPEED
32 Kmph

Type : Tree
Sub-type: Palm
Origin: Thailand

Type   : Car
Sub type : Honda City ZX
Avalable At : ABC motors
Price : Rs 4,25,000
Discount : Yes
SPL Offer ! Hurry!

: Tyre
d: MRF

gravity and magnetic fields, and more!

Nokia's Mobile Augmented Reality Applications (MARA) project uses camera-equipped mobile devices for "video see-through mobile AR," meaning that it can overlay information right on the cell phone's screen, depending on what the camera is being pointed at. We learnt from **http://tinyurl.com/32tmkx** about such a prototype phone: it is equipped with MARA software, and hardware including a GPS, an accelerometer, and a compass. Conceptually, it's simple. As the phone captures a video stream, MARA collates information from the aforementioned hardware to pinpoint the location and orientation of the phone. It then looks in a database to determine what objects *should* be visible when the camera is at that location. (The database could be on the

Just one aspect of the AR problem. User points AR device at object; device collates lots of measurements; edges are detected. Even this is hard!

phone, or accessed remotely.) Some pattern matching is involved here, and once it's been established what objects are being viewed by the camera, MARA highlights them and provides information about them (and hyperlinks, if available in the database). You can imagine the rest: if a restaurant is being viewed and is also in the database, MARA could (potentially) display the menu and wait time. If there were a hyperlink as well, you'd be able to visit the restaurant's Web site!

Watch the videos at **http://tinyurl.com/y883yj**.

VISTA: The Middle Ground

What we were calling VISTA (Virtual Imagery Superimposed on Top of Actuality)—the infusion of virtual elements into a real scene—is, as we said, something like mixed reality. Strictly speaking, according to many people's definitions, this *is* AR—because it's all about augmenting a scene. We've coined the term VISTA because we think AR *enhances* the reality you're experiencing, while VISTA is *adding virtual elements* that shift focus away from the "reality."

Consider these useful applications:

- An interior designer can have a view of the before-and-after scene. He sees a room as it is, and when he presses a button on his Head-Mounted Display, his planned additions—like a sofa—appear as though they were in the room.
- Here's a gem of an idea we found on the Net: "Don't like your office environment? Add plants, waterfalls, and hummingbirds to your office with the 'sounds of nature' software module. Is your significant other unbearably ugly? Overlay their natural face

If AR broadcasts are to be received from some kind of central agency—either a government, or a large corporation—it could result in the ultimate in mind control

with any character using the 'augmented people' module."

Then, from **http://tinyurl.com/35jpxo**, we learn that a system has been developed for tourists at sites such as Pompeii to be able to see the people who lived there before the eruption of Vesuvius destroyed the city. They're calling it a "breakthrough prototype AR system"; it can add "digital people" and other computer-generated, animated elements in real-time to what you "actually" see. Again, "actually" is in quotes, because... oh, well.

Turns out someone's actually designed an AR—read VISTA—version of Quake, in which the monsters are overlaid on the real scene in front of you. Read about the ARQuake Project—and watch the videos—at **http://tinyurl.com/c6459**.

We said it, and we'll say it again—the applications are limitless. The US military has been doing VISTA-oriented research for many years now. The possibilities? How about this one: there is data on the construction of a building, with its entrances and exits; a soldier with a Head-Mounted Display would see all these at once instead of just the one entrance he's facing. Then, think about training: soldiers could "face" troops and tanks and all, while actually situated on real ground, and perform the appropriate actions.

Closing Thoughts

Some aver that AR is a potentially dangerous technology. When it becomes commonplace, you'd have to get your "broadcasts" from somewhere—for example, we said ad agencies could send their information to the information servers so that the ads get displayed along with tourist-aiding tags. Now if those broadcasts are to be received from some kind of central agency—either a government, or a large corporation—it *could* result in the ultimate in mind control. The reality you perceive would be controlled by someone else! If the idea is not clear, think about how much of our minds is controlled by Google today. With that as a real-life example, think about "subscribing" to AR channels, and how they'd influence your perception of reality.

Continuing along the lines of "subscribing to channels," think of how exactly you could *use* AR. As a tourist in Kenya, you'd subscribe to the Kenyan tourism broadcast. On a trek, you'd tune in to "Nature"—and trees and shrubs and little furry animals could get tagged with their names. Just for fun, at a high-profile business meeting, you'd be able to figure how expensive the business suits around you are. Talking to someone who doesn't speak English? Use translation AR, and you'd "listen" to the person in English.

We'll leave the fantasising to you. But we need to reinforce that AR and VISTA aren't fads; research is red-hot and people are dead-serious about it. (Please remember, only we coined "VISTA"!) But it might just lead to nothing much, going the way of VR—if you remember how wild people were about VR a decade and a half ago.

Ultimately, it's about *potential*. To use a cliché and an obvious phrase, we'll end by saying that Augmented Reality has the potential to fundamentally change our life-experience. ∎

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April 2007

Canon A710IS

Michael Browne

Picnicking with a bunch of friends last weekend made me realise how much I missed having a digital camera. I wanted something compact, yet big on features. Scant days later I was told I'd be spending a couple of fortnights with Canon's newest PowerShot the A710IS. I love this job!

Day 1

She lay nestled inside a soft-foam pouch, all alluring tones of silver and steel-grey with dark gray highlights. The A710IS is a beauty! She's got the skin... and she's definitely got the curves. The A710IS sports a 7.1-MP CCD sensor, 6x optical zoom (35 ~ 210), Optical Image Stabilisation, and a 2.5-inch LCD viewfinder.

Day 2

The A710IS is compact for the features. The ergonomic contours allow you to use it one-handedly. The battery flap is built well, and houses the memory card slot (SD/MMC supported). The tripod mount is plastic and flimsy, and the viewfinder is non-lit—mostly useless after dark.

Day 5

I replaced the default screen protector with a transparent one. The difference it makes to the LCD is enormous—everything looks so clear. Took a few shots of my office building and surroundings at the Auto setting. Shot quality was very good even with no tweaks—good detailing, and very good colour rendition.

Day 8

Based on Canon's now proven DIGIC II processor, the A710IS has a 9-point AI Auto Focus. Aperture range is F2.8 ~ F8. ISO settings are 80, 100, 200, 400 and 800. Although ISO 800 is noticeably grainy, there's no dearth of detailing. ISO 400 is surprisingly usable, and some night-life shooting proved that this camera is very usable in low-lighting conditions. Image Stabilisation is good, even at maximum zoom. The IS makes its presence felt at higher ISO settings. Canon's claimed 1 cm macro produced good results—great detailing on both my test shots.

Day 11

The large optical zoom on the A710IS (6x) is great. An S3IS it's not, though. 20 shooting modes, but I stuck to programmed mode—halfway between manual and auto modes.

Day 14

There are seven white balance settings including a new "underwater" mode. Shutter speed is adjustable from 15 to 1/2000 seconds. Exposure compensation is decent enough for a point-and-shoot camera at +/-2EV in 1/3 stop increments. There are a lot of image parameters to play around with, and you can also lighten or darken the skin tone besides individually tweaking reds, greens, and blues.

The AF light is a little intrusive. Upon being the test subject I must say it's very bright, and very red. The flash tones down really nicely for shots where it isn't needed much.

Day 16

There's a custom white balance setting, where you can point the camera at a white object and set the white balance. This setting is remembered even if the camera is turned off. For outdoors, stick with auto white balance settings; indoors means switching to manual.

Day 20

Shot a few videos. It's capable of 640x480 videos at 30 fps—very good. You can also do 320x240 clips at 60 fps. Overall, smooth videos free from most compression artefacts. You can use the optical zoom on the camera while shooting, and the IS kicks in to give you jerk-free movies.

Day 25

Time for the A710IS to be returned—felt so lost without it, I just had to go out and buy my own piece! It's Rs 14,500 (street price). For those looking for a point-and-click with a good dose of manual settings and a lot of goodies like image stabilisation: get the A710IS!

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Novint Falcon

The Novint Falcon is a pioneer in a completely new dimension of interaction with PC applications. It lets you *feel* virtual objects. Sure, there were mice with a little bit of rumbling when you moved your cursor over toolbars and scrollbars, but this is a lot more than that. It uses three motors which move three separate arms, pulling and pushing, a thousand times a second!

This makes for a very realistic feel of objects and the action. The possibilities are endless—imagine the recoil of a railgun, the weight of balls, and the sensation of swinging a bat. The motors move the handles such that you feel various resistances and textures of objects. The device also lets you click, select, and feel objects in 3D game spaces...

Expect to see the Novint Falcon in the market in the next couple of months.

Droolmaal

The good stuff.
Stuff to lust after.
Stuff for the well-moneyed.

tabletkiosk eo TufTab v7112XT

Tabletkiosk's latest entry into the ultra-micro-PC market is the eo TufTab v7112XT which, quite frankly, isn't meant for business executives sitting in air-conditioned offices. It's suited for what people at tabletkiosk like to call "non-traditional" working. The entire device is packed in plastic and rubber, but it's not just cosmetics: what you get is a 7-inch screen with a resolution of 1024 x 600, 1 GB of RAM, a 1.3-megapixel camera, and a 40 GB hard drive. That's not all—security is taken care of by the biometric fingerprint reader. No keyboard here—just a fancy stylus and a touch-screen. You can choose to run XP, Vista, or Open SuSE on it, and pick between black and white models. Cost? About $1,700 (Rs 76,500).

MOTORAZR maxx Ve

TMotorola's MOTORAZR range of phones has evolved into this new phone they've called the MOTORAZR maxx VE. It has external and internal screens and touch-sensitive illuminated media player keys on the outside. It comes with 60 MB of memory, which can be enhanced to 2 GB via the expansion slots. Wireless connectivity is via Bluetooth and EvDO, which offers blazing fast data transfer rates. It has a 2 MP camera with 4x digital zoom for still images. Videos can be played, recorded, or shared using MPEG4 or H.263. What it really is, more than anything else, is a fashion statement. Due out soon, there's no price tag yet.
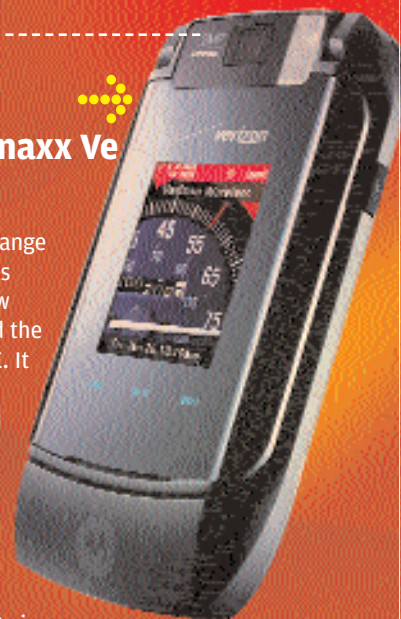
Xbox 360 Elite

Most people may think of the new Xbox 360 Elite as just another stupid gaming console for stupid gamers. It is, actually, but now it comes with a far more attractive black color scheme—far better than that white chocolate thing they had going earlier. They've even replaced the minuscule 20 GB hard drive with a much more substantial 120 GB external drive. This new version has HDMI and IPTV support. It has a wireless controller and headset, and is a limited edition. If you want an Xbox but want to be different, this is the only choice you have. It will cost you $479.99 (Rs 21,500) and will have been released by the time you read this.

Nokia Aeon

The Nokia Aeon is definitely one of the sleekest-looking phones we've come across—perhaps only rivalled by Apple's iPhone. The surface is split into two touch-sensitive areas, separated by a solid divider that will house the fuel cell. Also, thanks to the two touch-screen areas, you can switch control to either one for a different sort of application, such as a media player or a text pad, for example. Rumours say this phone can also monitor your health: details pending. It's still a concept phone being developed by the Nokia Research and Development department, so there is no release date... yet. It would be a shame if such a brilliant and drool-worthy concept were to be dropped. We sure

hope Nokia is listening! Write them a mail and express your interest...

Sony VAIO TP1

*T*he Sony VAIO TP1 is a cool-looking Media Center PC. At first glance, you might mistake it for another Apple product. We actually wish Apple had used this design for their Apple TV! HDMI support means you can hook this baby up to your HDTV. Wi-Fi support is inbuilt, and the memory card reader and USB ports will let you hook up your camera and memory cards to upload media to the Internet using the wireless connectivity. You can navigate the Sony VAIO TP1 using the laptop-style touchpad, less cumbersome than the boring trackball on some cheaper Media Center PCs. As features and horsepower go, this is no lightweight: a Core 2 Duo, a whopping 2 GB of DDR2 RAM, IPTV support, and a DVD-Writer. It should be out anytime soon, with a price tag of around $1,600 (Rs 72,000).
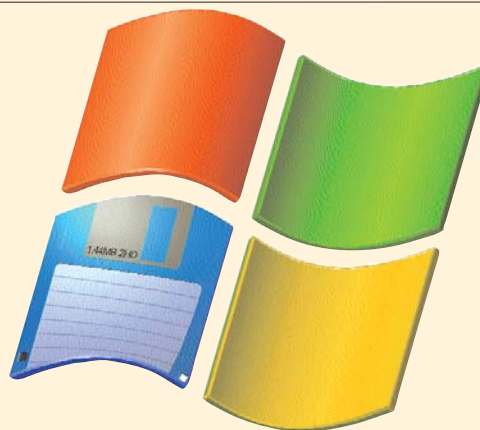
TAKE a CRACK

THIS MONTH'S CHALLENGE

Boot Into XP Using A Floppy!

▶ Create A Special Folder In Windows Explorer

Last month's solution

How can you create a folder like My Documents—one that will appear as a system folder in XP?

Here's how to create a custom folder in My Computer, one that can't be deleted or renamed.

Step 1

In the Registry Editor, navigate to **HKEY_CLASSES_ROOT\CLSID**. Create a new key with a Globally Unique Identifier (GUID). The GUID is a 128-bit identifier that is usually generated by Windows. This can be a random number that is used to uniquely identify COM objects. Create a key using this random GUID: **{FD4DF9E0-E3DE-11CE-BFCF-ABCD1DE12345}**

Step 2

Set the value of the "(Default)" setting for this key to the name of the folder, say "My Personal Data". Create a new sub-key under the main key and call it "DefaultIcon". That is, create a key called: **HKEY_CLASSES_ROOT\CLSID\{FD4DF9E0-E3DE-11CE-BFCF ABCD1DE12345}\DefaultIcon**
Set the value of "(DefaultIcon)" to the
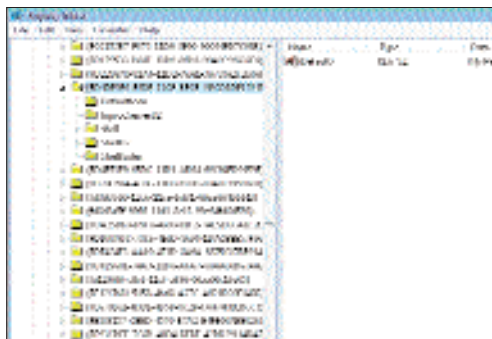
Edit the Registry to make the changes

filename and path of the icon file you want to use for the folder, for example, "C:\Topsec.ico", without the quotes.

If you don't specify a path to an icon file, Windows will use its default folder icon instead.

Step 3

Create another sub-key under the main key called "InprocServer32", that is, create the key called **HKEY_CLASSES_ROOT\CLSID\{FD4DF9E0-E3DE-11CE-BFCF-ABCD1DE12345}\InprocServer32**

Set the "(default)" setting here to "shell32.dll". Create another string value called ThreadingModel and set its value to "Apartment". There's one more: create another sub-key called **HKEY_CLASSES_ROOT\CLSID\{FD4DF9E0-E3DE-11CE-BFCF-ABCD1DE12345}\Shell\Open My Folder\Command**

Set the "(Default)" value here to the command that should be executed when the folder is clicked. In this case, it would be "explorer /root,c:\My Personal Data".

Step 4

There's more keys to be created: **HKEY_CLASSES_ROOT\CLSID\{FD4DF9E0-E3DE-11CE-BFCF-ABCD1DE12345}\ShellEx\PropertySheetHandlers\{FD4DF9EO-E3DE-11CE-BFCF-ABCD1DE12345}** and **HKEY_CLASSES_ROOT\CLSID\{FD4DF9E0-E3DE-11CE-BFCF-ABCD1DE12345}\ShellFolder.** Under this key, create a new binary value called "Attributes" with the value "00 00 00 00".

Step 5

To place the folder in My Computer, add the original key to **HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion\Explorer\MyComputer\Namespace**
So the key value will be **HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion\Explorer\MyComputer\Namespace\{FD4DF9E0-E3DE-11CE-BFCF-ABCD1DE12345}**

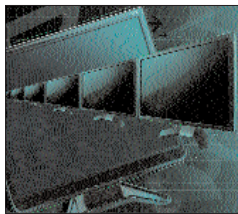Now go to My Computer, and you'll see a new custom folder! ■

Enhance

Disaster-Proof Your PC

### One day everything's fine and dandy; the next, poof! Bye-bye data...

Agent001

Ten or 12 years ago, when I got my first taste of Windows 95 and Windows 98, using a computer was a privilege. Today, it's almost a right. The way I use a computer has changed as well. What was once a tool to work on Excel files and send official e-mails to the four people I knew who had e-mail addresses is now like a life-support system I cannot live without. I have about 10 GB of e-mail in Outlook, everything I've ever written for *Digit*, over 40 GB of MP3s (no, they're not pirated, I own the CDs), and hundreds of GBs of movies ripped from my DVDs. Apart from this, there's pictures of every vacation I've ever taken, some funny things I found online, and an entire 120 GB hard drive dedicated to software I like—freeware and shareware. The software is, obviously, expendable, and is the first thing I start getting rid of when I need space, but everything else is irreplaceable!

Now this is my home computer. My office computer has a lot less personal data, but a lot of important documents, e-mails, spreadsheets, and such.

Recently, two people in the *Digit* team had hard drives die, and lost a lot of personal data. Of more urgent concern was the fact that they lost work they had just completed, and had to begin from scratch. Now they're busy trying to recover data from their lifeless disks. Whether or not the

data is worth the Rs 10,000 to Rs 20,000 that data recovery experts will charge to "attempt" to recover the disks' contents is something each one of us decides only after facing the dilemma. But why do we?

Just yesterday, I got a call from a damsel in distress. Her laptop just stopped working, and now gives her the weird error message "Operating System not found." It's a branded laptop, and still under warranty, so getting another hard drive and a fresh install of the OS is free. Recovering 10 years of memories, which she had stored on the disk in the form of digital pictures? Rs 15,000, and they'll recover what they can. I can't even help her, because if I open up the laptop to remove the drive, the warranty
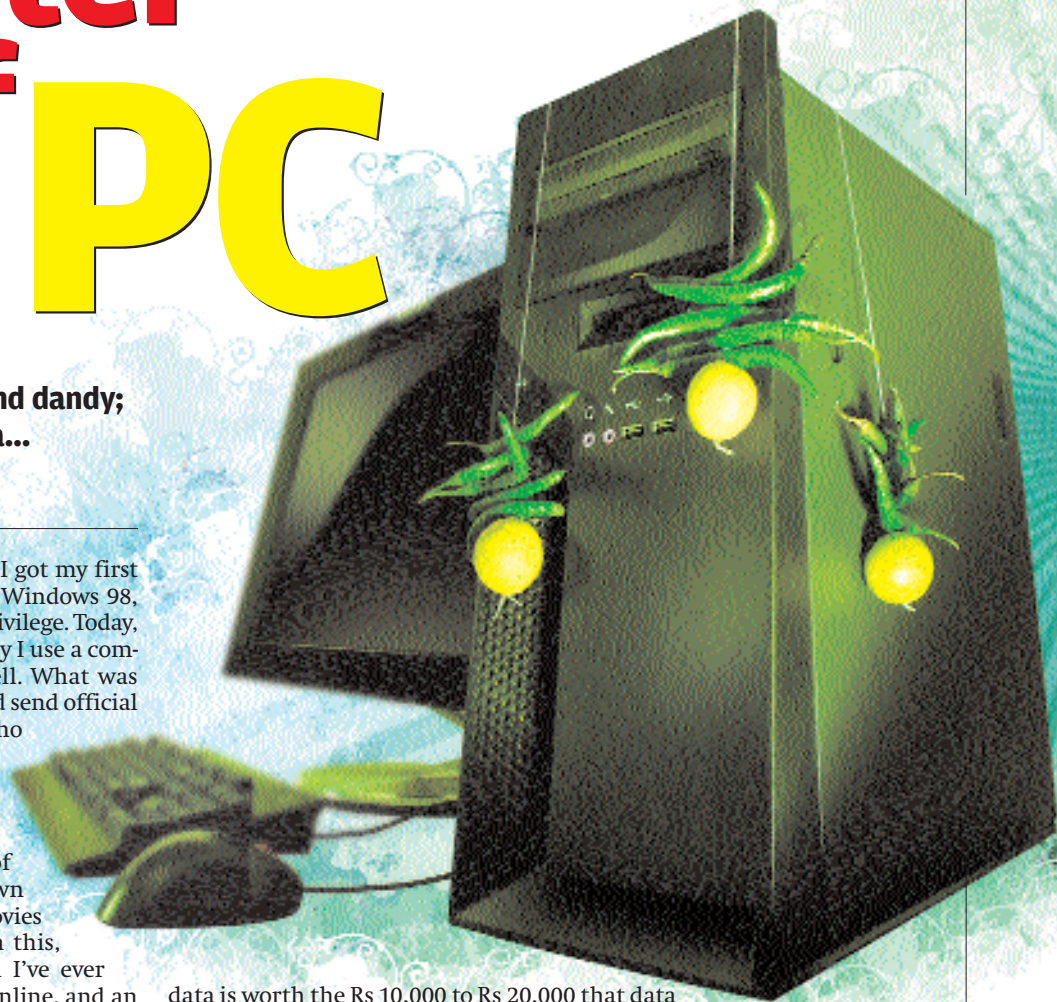
Imaging **Chaitanya Surpur**
Photograph **Jiten Gandhi**

becomes void. What do you do in a situation like this?

Absolutely Nothing!

You take the news like an adult, remain calm and stoic, and move on. You still have that horrible feeling—the kind that feels like someone just ripped out your intestines—but hey, when technology goes wrong, it does so horribly. Life goes on.

What you *can* do, however, is learn from the mistakes of others, and try and safeguard yourself from ever having to be in this situation. My mind is a lot more at ease now because I've taken a few steps to prevent such disasters. If you have data that's really important to you, you should seriously consider following in my footsteps.

RAID

You've heard it a million times, everyone has heard about RAID, but how many of us have found out enough to actually use it?

RAID, or Redundant Array of Inexpensive Disks, can either be used to improve performance or to back up your data. The most common forms are RAID are 0 (Striping) and 1 (Mirroring). Striping improves performance, because it uses two disks as one. Basically, it breaks up data into two and writes one part to one disk and the other to the second disk. This results in faster performance, which is great because the hard drive is the bottleneck in all current-generation PCs. Of course, this also doubles your risk of losing data, because even if one disk dies, you lose all the data on both disks. Only gamers and those who need faster hard drives usually use RAID 0.

RAID 1, or Mirroring, may even result in a performance hit, but creates redundancy. Say you have two 250 GB hard drives, and set them in Mirroring mode. Windows will see them as one 250 GB hard drive. RAID 1 works by writing all data twice—once each to the two drives. What this does is create two copies of everything, so say if one hard drive dies, your system will just continue running like nothing ever happened. Beautiful, isn't it?

Most of us don't use RAID because it requires you to have two hard drives, preferably identical. So you end up spending double the money, and end up with a quite ridiculous cost-per-GB figure. However, after the three recent incidences of hard drives playing foul that I came across, an extra Rs 4,000 to mirror my existing 250 GB drive is worth it for the peace of mind I now have.

If you decide to use RAID 1, I suggest you keep your operating system on a third drive, so that formatting and reinstalling or virus attacks cannot threaten to wipe out your data. For example, I have an 80 GB drive that holds my OS and download folders, while my dual-250 GBs are in RAID 1, and hold everything that's dear to me. The advantage is that I find the performance of my PC to be a little better, since the OS just reads and writes to my 80 GB, and mainly reads from the mirrored drives (when I'm playing audio or video or viewing pictures), and sometimes writes to both (when I back up important stuff). This helps to ensure that both disks last me a long time.

Stuff to remember: Check if your motherboard has RAID controllers—most motherboards made in the last two years will. Next, go out and buy two identical drives—although not necessary, it will save you from the potential headaches of mismatched sizes. Check your motherboard manual for instructions on how to set up RAID, or if you're buying a separate RAID controller, follow the instructions given in the manual that accompanies it. Remember, for motherboards with onboard RAID controllers, you will need to enable it from the BIOS.

Power Problems

Most people think of a UPS (Uninterrupted Power Supply) as a backup source of power. Being a resident of Mumbai, I can literally count the number of times I've witnessed power outages on my fingers—I can actually use just one hand to count the times the power's gone out and my PC was on. Like everyone else, I used to think I just don't need a UPS. About two years ago, the local transformer blew up—literally, with sparks, flames and the works; quite exciting that, and really pretty because it happened at night... Anyway, getting back on track, I was working on a write-up, had some downloads running, and had my regular applications running—anti-virus, image editor, MS Word, MS Excel, a media player, a few IM applications, etc. When everything went black, I was actually relieved, because I figured I'd take a long overdue break from writing, and went out to see what all the commotion was about.

A few hours later when the transformer was repaired / bypassed / <whatever they did to fix it>, the power supply resumed. The first thing I noticed was a dark patch around the back of my SMPS. Pressing the power button on my PC confirmed my fears—a blown power supply. A day or two later, I went out and bought a new SMPS, only to come back and find that the motherboard also seemed to be fried. Apparently, just before the transformer blew up, it sent out way over the normal 240 volts for a split second, and that seemed to have fried a lot of my components.

One by one I replaced fried parts, swearing to never buy a cheap power supply again, or connect my PC directly to the mains without a spike board in the middle. Three days later, I got everything working again, only to find that Windows refused to load. Apparently the power surge had scrambled data on my hard drive as well, because although it was being detected in the BIOS, it refused to admit to having Windows XP. A re-install later, I realised I'd lost all my downloads, my work, and all the settings and programs I'd arranged the way I like it.
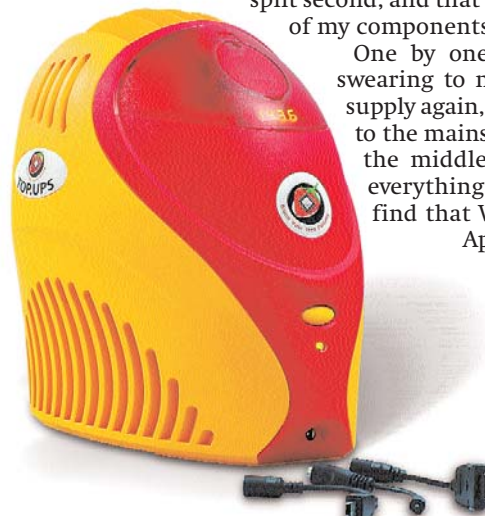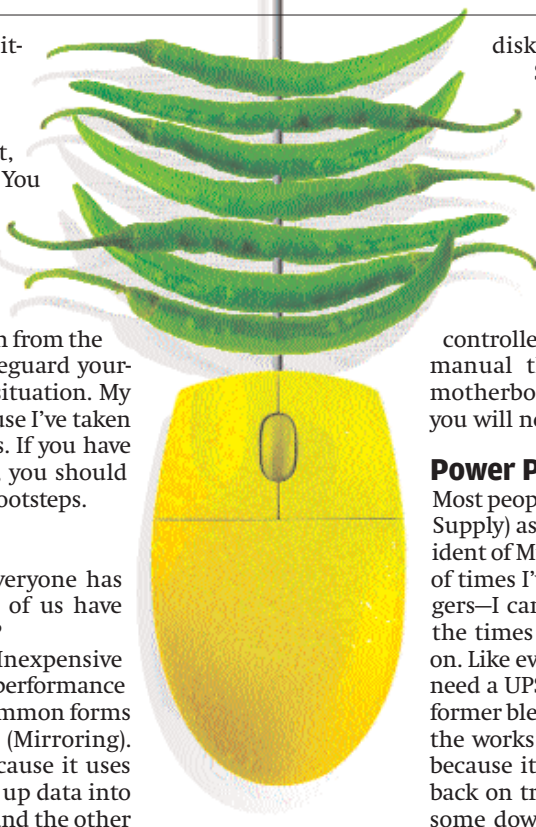
UPS' aren't just boring old boxes anymore. See the Bazaar section for more on this product!

However, the most irritating bit of this incident is, when my neighbour found out, and just *had* to boast of his foresight when buying his PC—he'd bought a spike guard and a surge-protected UPS. Very reluctantly, I have to admit he was right.

If your PC is more than just something you use to check e-mail (in my case it's actually the tool I use to earn a living), you need to make sure it's safe in every way possible. If you don't have a surge protector (UPS, spike guard, or both) between your PC and the electricity mains in your house / office, cease, desist, and go and get one right this instant!

Back It Up

Once I decided that I would do everything possible to safeguard my data, I started looking for even more redundancy. Although I now use RAID at work, I decided that at home, since I already have multiple hard drives—80 GB, 120 GB, and 250 GB—there's really no point in buying a fourth drive of one of those capacities and setting up RAID. If you have only one hard drive, and your data is vital, getting another drive and setting up RAID is still the preferred option though.

The next-best solution to RAID is to use backup software. With RAID, you can safeguard everything, including your Windows installation, from drive crashes. Backup software, however, cannot protect Windows, but will help make sure all the data you want protected is backed up. Apart from just making another copy of your valuable data, backup software has become a lot *smarter*.
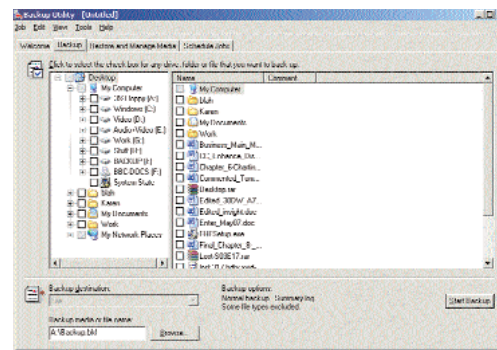
For simple backup jobs, use the Windows Backup tool and use Scheduled Tasks to automate them

For just basic use, you can use Windows' own backup utility. Go to **Start > Programs > Accessories > System Tools > Backup**. You will see the Backup or Restore Wizard. Just follow the easy steps to back up your data regularly. If you want a few advanced features, when the Wizard starts, uncheck the "Always start in wizard mode" box and click on the Advanced Mode link. Here you will find advanced options that will let you specify the folders to back up, and even set a schedule for backups. It's really easy to do, so I'm not going into the details. There is a lot of third-party backup software also available, most of them paid, that will let you do more. If you choose to buy such software, you should look for the following features.

Incremental Backups: Any half-decent software should offer incremental backups. This means that if you set the software to back up, say, the Documents and Settings folder—instead of just copying the entire folder to your backup drive, it should only look for new or changed files and copy those. This helps reduce the time that the backup takes.

Scheduled Backups: If you have to manually take every backup, why do you need software?

Scheduling will help you forget about the task and let the PC do the dirty work by itself.

Multiple Jobs: You may need your Program Files folder backed up only once a month, documents once a week, and e-mail every day. Make sure the software will let you create multiple backup jobs.

Restore: Backing up is fine, but what about when you need to restore files? If you have set various folders from various drives to be backed up, manually restoring them will be a pain. Make sure the software does it for you.

Registry Backup: This is obviously a feature you want.

Compression: It's pointless if you use the same amount of space for your backups, in which case you might as well use RAID 1. Look for good compression of backups, which will use more CPU power, but save on drive space.

Versioning: You deleted an important file, and unfortunately, your scheduled backup has taken place and now the file is deleted from the backup as well. If you had software with versioning, it would have kept the past five revisions of the file, or versions of the last couple of backups (user-configurable; depending on your backup size and frequency, you can set this to 100 versions or even "never delete").

Burning to media: This isn't very important, but backing up to DVD is advisable every so often.

Operating as a service: For those of you who just want to use the backup software to restore (after installation and configuration), and would rather not keep looking at it in the Taskbar, running as a service is a good feature to look for. It will also prevent you from not remembering what it was and accidentally disabling it from the list of Start Up programs.

Real-time: If you have data worth millions, look for software that takes real-time backups of files and folders that you specify. This means that there is a backup of every change made. These are usually business-oriented software, and can cost a bundle.

Whoops!

How many times have you said that? I have. Quite often actually. One of the problems of being a technology enthusiast is that I just cannot leave well enough alone. I just have to tinker and try new things. Most of the time, I'm trying new software, fiddling with hardware, and playing with my OS. The Windows Registry is my favourite toy, and I can't even count the number of times I've had to reinstall Windows because I made a Registry boo-boo. Thankfully, System Restore ended most of those problems when I got to Windows XP.

Software, however, is still the bane of my PC, because if I find something even remotely interesting online, I just have to try it. With an increasing

Software, however, is still the bane of my PC, because if I find something even remotely interesting online, I just have to try it

number of applications bundling adware and spyware, this results in my having to do a format-reinstall cycle at least once in two months. If I try and take the geek's way out, and clean up all those extra files and data that are left behind even after you uninstall an application, I usually end up getting over-excited and deleting something I shouldn't have from the Registry—format-reinstall time again!

However, it's thanks to this very desire that I have found the perfect solution. I stumbled across Altiris Software Virtualization Solution (ASVS). Altiris is now part of Symantec, and you can download this gem of an application from **www.svsdownloads.com**. It's free for single, non-commercial use, and I use it at home religiously.

Basically, what ASVS does is form a layer between Windows and any software installer and then track exactly what changes are made to the system when the installer runs. So from Registry entries to files that are written, everything is recorded. You can choose to leave the new layer enabled and run the software, or just disable it and voila! Your PC is restored to exactly the state it was in before you installed that software. If you decide that a software might be malicious, or are just plain get fed up of it, delete the layer and bid farewell to any changes it made while installing.

In order to use it, just download the latest version, register, and get your license key. Once installed, ASVS asks you to restart your PC. Start ASVS, go to **File > Create New Layer...** (or press **[Ctrl]** + **[N]**), and a Create New Layer dialog box will pop up. By default, the radio button next to "Install application" is checked; just click Next. Now you will be prompted to provide a layer name—a good practice is to provide a name indicative of the software you're installing. So, if it's, say, IrfanView you're installing, put in "Irfan-View" as the name. Of course, you're free to put "Best damn image software on the planet," or "irfi-baby" if you like, just so long as you can easily identify what application that layer refers to.

Now you can either choose to do a "Single program capture" or a "Global capture"—the difference is that when you do a Single program capture, ASVS looks only for changes made by that particular software, while Global settings look at all changes made in the system during the period of capture. When installing software, just choose "Single program capture" and choose the installer EXE. Now go about installing the software as you usually would. Once the installation is done, ASVS stops capturing, returning only to track any more changes that the software makes. When you want to get rid of the application, or even hide it, just start ASVS, select the layer in question, and choose Deactivate Layer to hide the installed software, or Delete Layer if you're done with it and want to completely remove it from your system. Using ASVS, you're sure to keep only the software you need, or even hide applications you don't use very often.

This brings me to the end of the paranoia I've faced in the past few weeks. I hope these simple things will be of as much help to you as they were for me. I know I can now sleep better at night, without fear of PC disasters. ■
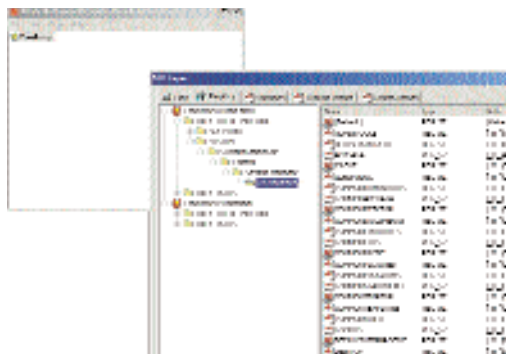
You can use Altiris to see what programs do to your PC when they install themselves

agent001@thinkdigit.com

Handset

Jayesh Limaye

Problem with buying a phone is, there are waaay too many of them. We've reviewed 21 of them worth your attention

Thirteen years after the GSM mobile revolution started in India, the scenario is such that landlines have been outnumbered by mobile phones. The youth drives India's mobile phone industry: around colleges are where you find the widest varieties of mobile phones. In addition, young people are most likely to buy new phones on a regular basis; they're also more likely to want features like music capabilities and cameras on their mobiles.

Taking into account the various usage patterns, mobile manufacturers are increasingly tending to divide their line-up of models into appropriate categories. We have the monochrome, plain ones (the last of their kind), which are meant to be just a means of communication. Then there are camera phones and phones with music playing capabilities, FM radio, and more. "Multimedia" phones emphasise the camera and media capabilities, so much so that certain vendors have started using the brand names of their media players and camera line-ups for their phones. Then there are PDA (Personal Digital Assistants) phones which are actually mini-computers, meant for business executives. What are called "smartphones" are packed to the brim with features. The last two categories are the most expensive.

Our last cell phone test was about a year ago. In this month's test, we tested GSM mobile phones priced up to Rs 17,000. The business and lifestyle phone segments were therefore left out—we intend to review these soon. Twenty-one phones from six brands we reviewed for this test, and divided these into three categories based on price:

1. The Upper Crest (Rs 10,000—17,000)
2. Talk And Click (Rs 6,000—10,000)
3. Just A Phone (below Rs 6,000)

It might irk you that we didn't review many phones from some leading brands. This was because we wanted to give you the bigger picture on the new brands that have entered the market, and which might just displace the current leaders.

THE UPPER CREST

These are multimedia phones—much more than "just a phone." They are typically priced above Rs 10,000. Phones in this category were the Sony Ericsson (SE) CyberShot K550i, SE's hot new entrant in the market, as well as the SE Walkman W710i, which has been around for a few months. The Nokia 3250 XpressMusic, Nokia 5300, as well as the Nokia 6131 were some of Nokia's offerings that figured. The Motorola MotoKRZR K1, which flaunts looks similar to the hugely-successful MotoRAZR, also comes in this category.

Features
Design and ergonomics
When you use a cell phone for long durations, ergonomics do matter. We reviewed three clamshells, two candybars, and one slider.

The candybars are generally the most easy to slip into a pocket. The W710i is designed to be strapped to your body, and has applications that monitor parameters such as speed and distance covered while jogging. The lone slider phone, the Nokia 5300, can neither be held comfortably nor can it be easily carried in the pocket.

At first glance, the heaviest phone in this category at 130 grams, the jet-black Nokia 3250, appears to be the most ruggedly-built, but once it's turned around, the flimsy plastic flap is revealed. The MotoKRZR K1 and the colourful Nokia 5300 are extremely rugged. The W710i is built well with a pearly white plastic body, but the hinges seem weak.

The Nokia 6131 has a spring-action, button-activated lid; it is rugged as long as it is closed, but once opened, it reveals its internal LCD without any glass protection, and you need to take special care of it.

Ease of use was a difficult parameter to gauge: each phone has its own interface, and ease of use just means getting used to it. We tried to gauge this from the point of view of a person handling the phone for the first time. The Nokias have the familiar Symbian-based interface, which is as easy as using Explorer in Windows. SE has its slick interface, which is also pretty easy to handle. Motorola's interface is not as intuitive as those of SE and Nokia.

The SE K550i is, concept-wise, similar to the hugely-successful K750i, but the keypad has been revamped, and not for the better. The K550i's keys are narrow bars which makes them not only uncomfortable, but also painful, as we experienced after typing in a few SMSes. The MotoKRZR has the flat keypad of MotoRAZR fame, a delight to use.

Basic Features

In India, GSM mobile signals are broadcast on two frequency bands, 900 MHz and 1800 MHz.

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MAY 2007

Sony Ericsson CyberShot K550i
A Camera-mobile or a Mobile-camera?

Therefore, a dual-band phone is good enough to be used here. But if you travel abroad, you need a tri-band or even a quad-band. The Nokia 3250 and 5300 only support tri-band, while the rest support all four bands.

The SEs and Motorolas have a display resolution of 176 x 220; the Nokia 5300 and 6131 have higher resolutions of 240 x 320. Even with a large display, the Nokia 3250 still has an (odd) lower resolution of 176 x 208, which makes images look a bit pixelated. The Nokia 6131 is the only handset with 24-bit colour.

GPRS with EDGE are standard on all the phones, and allow you to connect to high-speed Internet (you can expect somewhere between 100 and 200 Kbps) while on the move. Nokia's 6131 and 5300 as well as the SE K550i boast of HSCSD (High-Speed Circuit-Switched Data), which allows up to 50 per cent higher throughput. This may not be important now with current speeds, but it could become significant as the offered speeds improve.

Expandable memory is the norm in mobile phones these days, and all the phones support some kind of memory expansion. microSD was the popular format with most phones, while SE prefers to go with Memory Stick M2. Only the Nokias featured hot-swappable memories, which lets you replace the memory card without the need to switch off the phone. Of these, the 6131 needs to be opened to access the memory slot, which takes away the convenience of hot-swappability. As has been the case with its predecessors, SE phones require a driver to be recognised as removable USB drives when connected to a PC.

The Camera

2-megapixel cameras were common—not so during our previous mobile phone shootout in this price category. Only the Nokia 5300 and 6131 came with 1.3-MP cameras and 8x zoom. The Nokia 3250 has a 270-degree rotat-

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How We Tested

Cell phone tests are amongst the most subjective because there are fewer measurable parameters. For instance, would you choose a phone with hard-to-press keys and nice earphones, or vice-versa? It's therefore mostly about features. We divided the features into sub-sections:
1. Design and Ergonomics, where we looked at form factor, build quality, weight, ease of use of the UI, the ergonomics of the keypad, and such.
2. Basic phone features, such as support for network bands, display resolution and colours, the OS, support for installing Java applications, address book capacity, and Internet and connectivity options.
3. Memory: internal capacity, expandability, type of card slot, hot-swappable or not, etc.
4. Camera: still image resolution, auto-focus, flash, lens protection, available modes, etc.
5. Multimedia: Audio player characteristics such as different formats and whether equalisers are supported, audio formats supported, FM Radio, and such.
6. Other, extra features such as voice recorder, voice dialling, speaker phone, talk / standby time.

7. Accessories: Hands-free, data cable, memory card, and more.

Under Performance, we looked at aspects such as signal reception, voice clarity from the earpiece, speakerphone, and the hands-free microphone, processing speed, and quality of captured images and video. For the signal reception test, we chose three locations in our building: one with maximum signal strength, the second with medium signal strength, and the third with almost no signal. We noted the ability of the phone to hold on to the signal in these three zones, and rated them accordingly.

For the voice clarity test, we chose a location with maximum signal strength. The hands-free microphone test gauged the ability of the mic to separate the user's voice from the ambient sound. The response of the menus to key-presses was noted, and also the bootup time of the phone without a SIM card; this constituted the speed test. Photos and videos were shot in well-lit locations for the photo and video quality test; zoom was not used, and the default settings were maintained. The quality of captured photo and video was, naturally, a subjective test. We did, however, consider the opinions of multiple reviewers.

ing camera. Zoom is an attractive feature for many, but more is not always better. The Nokia 3250 comes with an impressive-sounding 20x zoom, but the fact is it requires a pair of very steady hands to shoot at anything above 4x without motion compensation. Further, this is digital rather than optical zoom, which means image quality rapidly degrades as the zoom increases.

The SE K550i is branded "CyberShot", which is the brand name of Sony's camera line-up. As you might expect, it has the best camera, and the auto-focus feature only serves to enhance the already good photo quality. The lens is protected by a sliding cover (it's the only phone with such lens protection). The W710i also gives good photo quality, followed by the Nokia 3250 and the MotoKRZR. The SE K550i is also the only camera in this range that comes with a flash.

Multimedia

The most notable of multimedia features is the media control buttons that let you easily access music without having to navigate slowly through the menus to the media player. The SE Walkman phone W710i and the Nokia 5300 have rubber-coated, large media buttons—very comfortable.

MP3 was not the only music format supported; AAC, too, is supported by all the phones. The Nokia 3250 even supports other formats such as WMA. FM radio is common on all the phones.

Extras

We didn't actually test battery life, and we'll state them as the manufacturer did. The Nokia 3250 has the lowest talk time of three hours, and the 6131 has the lowest standby time of 200 hours. The SE W710i has the highest talk time of 10 hours and a standby time of 350 hours. The Nokia phones probably drain the batteries faster because of their larger display sizes.

The MotoKRZR, Nokia 6131, and SE W710i

have external LCD displays that let you keep track of things such as time, missed calls, etc. Other features such as Organizer, Calendar, Alarm, etc. were standard fare with all the phones.

Accessories

Premium phones come with premium accessories. The Nokia 3250 XpressMusic comes with a hands-free, which has media player controls in addition to the basic hands-free buttons. It also has in-ear type earphones, which effectively cut off surrounding sound (by passive noise reduction), and gives a more immersive music experience. To store music, photos, and videos, these mobiles (except for the Nokia 6131) come with memory cards. The MotoKRZR, Nokia 3250, and the SEs come with 512 MB cards, though you'll probably soon require a larger card. The SE K550i comes with a paltry 64 MB card, as good as nothing these days. The Nokia 3250's hands-free has a 3.5-mm stereo jack through which you can connect regular (better) earphones, while the Nokia 5300 is provided with a 3.5-mm stereo adapter.

Performance
Signal Reception

As we'd anticipated, the Nokia mobiles boasted of the best signal reception. While the Motorola and SE phones lost signal when we entered the basement of our building, the Nokias held on.

Voice Clarity

Through the earpiece, voice clarity was not much of an issue with any of the phones, though in noisier environments, the MotoKRZR, Nokia 3250, and SE W710i will prove to be a better choice. The speaker-phones of the Nokia 3250 and SE W710i have the best audibility. The SE has

Nokia 5300
All about music and colour

Enhance your low budget mobile

Morange is a mobile application for J2ME-based phones. It can unleash new possibilities for a budget phone. Note that you require a working GPRS connection, and with that taken care of, you can enjoy the following features with Morange on your phone.

Push Mail: Morange retrieves mails from your e-mail accounts and "pushes" them to your mobile: your e-mails follow you wherever you go, and you'll never miss any. Generally, you can only get to know about new e-mails when you check for them, but with Push Mail, the mails are sent to your mobile as soon as they arrive on the mail server. Attachments are also supported, and you can send and receive mails using both POP3 and IMAP.

Chat: After you register for free on Morange.com, you can start chatting with contacts on Google Talk and MSN Messenger using your mobile. Yahoo! Messenger and ICQ will shortly be supported.

Remote Desktop Access: By installing the desktop client from Morange on your computer, you can remotely access your computer and browse the files and folders on it using

MORANGE
Your Mobile Edge

your mobile phone. You can also view document in formats such as Word, JPEG, text, and Excel.

You can transfer these files to the 5 MB of free space offered by Morange.com. Furthermore, you can even access your PC's Webcam.

Push RSS: Enjoy RSS on your mobile phone: get the latest updates on news, stocks, etc.

PIM Synchronisation: Using Morange, you can synchronise wirelessly with your Desktop or laptop, and extend this facility to the address book, Calendar, and Tasks in Microsoft Outlook.

Morange can be downloaded from www.morange.com, and is currently free. Check www.morange.com for pricing details when it goes paid! The only cost you incur (as long as it is free) is the data charges for mobile Internet use, which will be levied by the mobile service provider as applicable.

a problem: its hands-free microphone picks up too much ambient sound, and it seems it doesn't filter noise.

Speed

The Nokia 3250 takes very long to boot—23 seconds to be precise, though this is not, of course, a major irritant. The SEs boot the fastest, in as little as 5 seconds. The user interface of the Nokia 5300 is amazingly fast; that of the Nokia 3250 is slow, probably because of its ageing processor. The SEs have their tried and tested interface, which is pretty fast, too.

Imaging Quality

No prizes for guessing this one: the SE CyberShot K550i has the best photo quality. This can be attributed to its auto-focus and protected lens (meaning fewer scratches) in addition to better optics. In video mode, the Nokia 3250 exhibited better quality, though it slowed down significantly every time the zoom level was changed.

Sony Ericsson Walkman W710i
A sporty mobile

TALK AND CLICK

The phones in this category are not too expensive, and at the same time, they come with many of the features of their more expensive brethren, such as a camera and multimedia capabilities. These present the best of both worlds.

For this test, we decided to test some new entrants into the mobile market. We left out some of the more popular brands—those generally perceived as the best—and we'd like to see if these newer players can beat what we've seen earlier on the more popular brands!

The phones we reviewed that fell in this group were the E61 and CL71 from BenQ-Siemens, the bleu 550X, 551X, 651X and 651Z, and the Intex AURA i1224 Black.

Features
Design And Ergonomics

The BenQ-Siemens CL71 and the bleu 651Z are the only slider phones and are the most stylish. The slider makes them look smaller because the keypad gets pulled in, but these are, in general, thicker and not easy to carry in a pocket. The rest of the phones were candybars; of these, the Intex AURA i1224 Black

was the sleekest and thinnest. The bleu 551X was the lightest phone at 71.4 grams.

The BenQ-Siemens held the edge with better build quality, while the user interfaces of all the phones were equally easy to use. The keypad of the BenQ-Siemens CL71 was a little difficult to use because, they are caved in to accommodate the slider mechanism. All the bleu phones have a plastic body with a glossy piano-black finish.

Basic Features

Barring the BenQ-Siemens E61, bleu 550X and 551X, which had a 128 x 160 display with 65 K colours, all the rest had a display resolution of 176 x 220 with 256 K colours. The BenQ-Siemens CL71 can store up to 1,000 numbers in its phone book, while the E61, bleu 651Z and the Intex, which were next-best, can each store 500.

Frequent SMS-ers will love the predictive text feature which is featured on all these phones. This feature allows you type in your SMS in a fewer number of key-presses by predicting the word as you type, using an inbuilt dictionary.

The BenQ-Siemens and Intex phones support Themes that let you alter the looks of the display interface. All these phones have MP3 ringtone support.

Java applications are supported on all the phones, and you can either connect to the mobile Internet to download and install these (all the phones support this too), or use Bluetooth, IR, or USB, as applicable. The BenQ-Siemens CL71, bleu 551X, and the Intex AURA support Bluetooth, which is already a connectivity norm with most phones these days. Bluetooth allows you to exchange data at a rate faster than infrared.

In addition to having internal memories, all the phones supported memory expandability. The BenQ-Siemens E61 and bleu 651X support miniSD, while the rest support microSD. Except for the BenQ-Siemens E61 and bleu 550X, all supported the convenient hot-swappability of memory. All the phones connected to a PC and showed up as removable USB drives without the need to install any drivers.

The Camera

The 651X and 651Z from bleu are the only two in this category with 2-MP cameras. The rest have 1.3 MP, while the BenQ-Siemens E61 comes with a VGA camera. The bleu 550X, 651X, and 651Z also have a flash. This is interesting: in the feature-rich category, there is only a single phone with a flash. In this category, the BenQ-Siemens E61 is the lone phone without support for video capture.

The phones in the "Talk and Click" category are not too expensive, and present the best of both worlds

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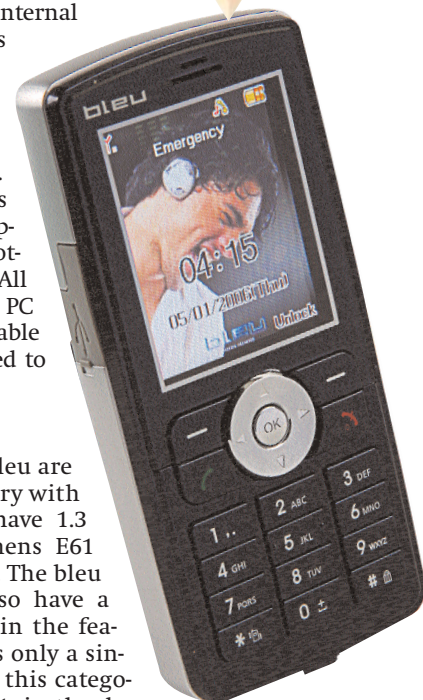
bleu 651X
A phone or a webcam?

Scoreboard — The Upper Crest (Rs 10,000 - 17,000)

BRAND	Motorola	Nokia	Nokia	Nokia	Sony Ericsson	Sony Ericsson
MODEL	MotoKRZR K1	3250 XpressMusic	5300	6131	CyberShot K550i	Walkman W710i
Features (Out of 55)	**34.84**	**38.83**	**39.20**	**34.69**	**39.73**	**38.30**
Design and Ergonomics						
Form Factor	Clamshell	Candybar	Slider	Clamshell	Candybar	Clamshell
Dimensions L x W x D (mm)	103 x 42 x 16	103.8 x 50 x 19.8	92.4 x 48.2 x 20.7	92 x 48 x 20	102 x 46 x 14	88 x 48 x 24.5
Weight (gm)	102	130	106	102	85	101
Build Quality (So10)	8	7	8	6	7.5	7.5
Ease of Use of User Interface (So10)	6	7	7	7	7	7
Keypad Layout / Comfort (So10)	7/7	7/7	7/6	6/6	6/5	7/7
Basic Phone Features						
Support for Network Bands	Quad-band	Tri-band	Triband	Quad-band	Quadband	Quad-band
Display Resolution (Pixels)	176 x 220	176 x 208	240 x 320	240 x 320	176 x 220	176 x 220
Display Colours (K)	256	256	256	256	256	256
Operating System	Proprietary	Symbian OS v9.1	Symbian S40	Symbian S40	Proprietary	Proprietary
Predictive Text (Y/N)	✔	✔	✔	✔	✔	✔
Number of Profiles	3	6	5	6	7	7
Themes Support (Y/N)	✔	✔	✔	✔	✔	✔
MP3 Ringtones (Y/N)	✔	✔	✔	✔	✔	✔
Support for Installing New Applications / Games (Y/N)	✔	✔	✔	✔	✔	✔
Internet: GPRS/HSCSD/EDGE	✔/✗/✔	✔/✗/✔	✔/✔/✔	✔/✔/✔	✔/✔/✔	✔/✗/✔
Connectivity: IR/Bluetooth/USB/Wi-Fi	✗/✔/✔/✗	✗/✔/✔/✗	✔/✔/✔/✗	✔/✔/✔/✗	✔/✔/✔/✗	✔/✔/✔/✗
Memory						
Memory Type(s) Supported	microSD	microSD	microSD	microSD	MS M2	MS M2
Hot-Swappable (Y/N)	✗	✔	✔	✔	✗	✗
Works as USB Mass Storage Device (Y/N)	✔	✔	✔	✔	✗	✗
Camera						
Zoom (X)	8	20	8	8	4	4
Image Resolution (MP)	2	2	1.3	1.3	2	2
Image Resolution (Pixels)	1600 x 1200	1600x1200	1280 x 1024	1280 x 1024	1600 x 1200	1600 x 1200
Autofocus/Flash/Lens Cover (Y/N)	✗/✗/✗	✗/✗/✗	✗/✗/✗	✗/✗/✗	✔/✔/✔	✗/✗/✗
Multimedia						
Audio Formats	MP3, AAC	MP3/AAC/WMA	MP3/SpMidi/AAC	MP3/MP4/AAC	MP3, AAC	MP3, AAC
Media Player Button(s) (Y/N)	✗	✔	✔	✗	✔	✔
FM Radio (Y/N)	✔	✔	✔	✔	✔	✔
Extra and Miscelleneous Features						
Voice Recorder / Dialling (Y/N)	✔/✔	✔/✔	✔/✔	✔/✔	✔/✔	✔/✔
Talk Time (Minutes)/Standby Time (Hours)	360/300	180/245	190/223	240/200	420/350	600/350
Other	External Colour LCD	Rotating keypad	NA	External Colour LCD	NA	Ext. LCD, Motion sensor
Accessories						
Data Cable / Hands-free/Charger (Y/N)	✔/✔/✔	✔/✔/✔	✔/✔/✔	✔/✔/✔	✔/✔/✔	✔/✔/✔
Memory Card Provided (MB)	512	512	256	✗	64	512
Drivers and Software	✔	✔	✔	✔	✔	✔
Performance (Out of 35)	**21.79**	**22.22**	**21.72**	**19.51**	**22.40**	**22.93**
Signal Reception (So10)	6	7	7	7	6	6
Voice Clarity from Earpiece (So10)	7	7	6	6	6.5	7
Voice Clarity from Hands-free Mic (So10)	7	7	7	5	6	6
Voice Clarity from Speakerphone (So10)	7	8	7	6	7	8
Bootup Time Without SIM (sec)	18	23	11	10	5	5
Processing Speed (So10)	7	6	8	6	7	7
Quality of Captured Image / Video (So10)	7/5	6/7	5/5	5/4	8/6	7/6
Price Index (Out of 10)	**8.47**	**6.05**	**7.49**	**9.00**	**8.40**	**6.73**
Overall Score (Out of 100)	**65.09**	**67.10**	**68.41**	**63.21**	**70.53**	**67.96**
Price (Rs)	**11,898**	**16,639**	**13,439**	**11,191**	**11,995**	**14,963**

+ Gorgeous looks	+ Good for music	+ Responsive UI	+ Sleek design	+ Excellent camera	+ Music, Camera
- No music buttons	- Very expensive	- Poor imaging	- Unprotected LCD	- Sub-par reception	- Sub-par reception

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Scoreboard — Talk And Click (Rs 6,000 - 10,000)

BRAND	BenQ-Siemens	BenQ-Siemens	bleu	bleu	bleu	bleu
MODEL	E61	CL71	550X	551X	651X	651Z
Features (Out of 50)	26.57	29.86	24.63	27.36	30.89	28.27
Design and Ergonomics						
Form Factor	Candybar	Slider	Candybar	Candybar	Candybar	Slider
Dimensions (mm) L X W X D	101 x 44 x 17	97 x 46.5 x 17.8	108.4 x 45.6 x 16.6	105.5 x 44 x 12.2	100 x 46 x 15.9	95 x 47.2 x 18.2
Weight (gms)	88	115	90	71.4	93	96
Build Quality (So10)	7	7	6	6	6	6
Ease of Use of User Interface (So10)	6	6	6	6	6	6
Keypad Layout / Comfort (So10)	5/4	7/5	6/6	6/6	6/6	5/6
Basic Phone Features						
Support for Network Bands	Tri-band	Tri-band	Dual-band	Dual-band	Dual-band	Dual-band
Display Resolution (Pixels)	128 x 160	176 x 220	128 x 160	128 x 160	176 x 220	176 x 220
Display Colours (K)	65	256	65	65	256	256
Address Book Capacity	500	1000	300	300	300	500
Operating System	Proprietary	Proprietary	Proprietary	Proprietary	Proprietary	Proprietary
Predictive Text (Y/N)	✔	✔	✔	✔	✔	✔
Number of Profiles	5	5	5	1	1	1
Themes Support (Y/N)	✔	✔	✗	✗	✗	✗
MP3 Ringtones/Vibrations (Y/N)	✔/✔	✔/✔	✔/✔	✔/✔	✔/✔	✔/✔
Support for Installing New Applications/ Games (Y/N)	✔	✔	✔	✔	✔	✔
Internet: GPRS/HSCSD/EDGE	✔/✗/✗	✔/✗/✗	✔/✗/✗	✔/✗/✗	✔/✗/✗	✔/✗/✗
Connectivity: IR/Bluetooth/USB/Wi-Fi	✗/✗/✔/✗	✗/✔/✔/✗	✔/✗/✔/✗	✗/✔/✔/✗	✔/✗/✔/✗	✗/✗/✔/✗
Memory						
Memory Type(s) Supported	miniSD	microSD	microSD	microSD	miniSD	microSD
Hot-Swappable (Y/N)	✗	✔	✗	✔	✔	✔
USB Mass Storage Device (Y/N)	✔	✔	✔	✔	✔	✔
Camera						
Zoom (X)	5	4	4	4	4	4
Image Resolution (MP)	VGA	1.3	1.3	1.3	2	2
Image Resolution (Pixels)	640 x 480	1280 x 1024	1280 x 1024	1280 x 1024	1600 x 1200	1600 x 1200
Flash (Y/N)	✗	✗	✔	✗	✔	✔
Multimedia						
Audio Formats	AAC/MP3/MIDI/WAV/XMF	MP3/AAC/WMA	MP3	MP3	MP3	MP3
Media Player Button(s) (Y/N)	✔	✗	✗	✗	✔	✔
Audio Equalizers (Y/N)	✔	✔	✔	✔	✔	✔
FM Radio (Y/N)	✗	✔	✗	✔	✔	✔
Extra and Miscelleneous Features						
Voice Recorder/Dialing (Y/N)	✔	✔	✔	✔	✔	✔
Speaker Phone (Y/N)	✔	✔	✔	✔	✔	✔
Talk Time (Minutes)/Standby Time (Hours)	215/200	170/140	240/120	240/120	240/120	210/120
Other	NA	NA	NA	Webcam	Webcam	Webcam
Accessories						
Data Cable/Handsfree/Charger (Y/N)	✔/✔/✔	✔/✔/✔	✔/✔/✔	✔/✔/✔	✔/✔/✔	✔/✔/✔
Memory Card Provided (MB)	128	✗	✗	✗	✗	✗
Drivers and Software	✔	✔	✗	✗	✗	✗
Performance (Out of 35)	19.69	22.49	19.95	19.95	21.18	21.53
Signal Reception (So10)	6	5	6	6	6	6
Voice Clarity from Earpiece (So10)	6	7	6	6	6	6
Voice Clarity from Handsfree Mic (So10)	6	7	7	7	7	7
Clarity from Speakerphone (So10)	6	7	6	6	6	7
Bootup Time Without SIM (sec)	9	12	5	5	5	5
Processing Speed (So10)	6	6	5	5	5	5
Quality of Captured Image / Video (So10)	6.5/NA	5.5/6	5/4	5/4	6/6	6/6
Price Index (Out of 15)	13.50	9.10	13.29	11.47	10.09	9.30
Overall Score (Out of 100)	59.76	61.44	57.87	58.78	62.15	59.10
Price (Rs)	6,200	9,200	6,299	7,299	8,299	8,999

+ **Good for music**
- **No video capture**

+ **Good voice clarity**
- **Expensive**

+ **Decent performance**
- **No FM radio**

+ **Webcam, Bluetooth**
- **Poor imaging**

+ **2 MP camera**
- **No Bluetooth**

+ **Stylish looks**
- **No Bluetooth**

Intex
AURAi1224 Black
30.48
Candybar
107.6 x 46.6 x 11.8
90
6
5
5/6
Dual-band
176 x 220
260
500
Proprietary
✔
6
✔
✔/✔
✔
✔/✗/✗
✗/✔/✔/✗
microSD
✔
✔
5
1.3
1280 x 1024
✗
MP3
✗
✔
✔
✔
✔
150/200
Webcam
✔/✔/✔
1024
✔
19.78
5
7
6
7
6
5
5/5
10.74
61.00
7,790

+ 1 GB memory card
– Sub-par performance

Multimedia

The BenQ-Siemens phones support the most audio formats, with the CL71 even supporting WMA. The BenQ-Siemens E61 sport media player buttons on the top; good because they won't get accidentally pressed when in a pocket. The bleu 651X and 651Z also had media player buttons, along with a good-looking media player. The BenQ-Siemens E61 and bleu 550X do not have an FM receiver, which is an important component—while being just too inexpensive to be left out!

Extras

There is voice dialling on the BenQ-Siemens CL71 and Intex AURA. Voice dialling lets you record a voice command and associate it with a number in the address book, so you can just speak the command to dial that number.

We didn't test the battery life of the phones; in what follows, we're mentioning what's been specified by the manufacturer. The talk time of the Intex AURA i1224 Black is the lowest, at two and a half hours. Strangely, its standby time is the highest (along with that of the BenQ-Siemens E61) at 200 hours. All the bleu phones have a low standby time of 2 hours, while the talk time is comparatively higher at 4 hours.

The bleu 551X, 651X, and 651Z, along with the Intex AURA, had a special feature which we hadn't anticipated on any phone in the test: when these were connected to a PC, the phone gave us a choice of whether to use them as mass storage devices or as webcams. When Webcam Mode was selected, they began working as regular webcams. The best thing is, these don't need any drivers, *and* the video quality is better than that of most of dedicated webcams!

Accessories

All the mobiles in this category come with the required data cables, hands-frees and chargers, so you won't need to spend extra on these—as used to be the case earlier (especially for non-premium mobile phones). The Intex AURA comes with a 1 GB microSD card, something we'd have liked to see in the Premium category.

Performance
Signal reception

This was decent in most cases, though not as good as we had seen with the Nokias in the Premium segment. The BenQ-Siemens CL71 and Intex were weaker in this test, though only marginally.

Voice clarity

The BenQ-Siemens CL71 and Intex AURA seemed to us to have better earpiece clarity than the rest. The speakerphones on the BenQ-Siemens CL71, bleu 651Z, and Intex produce clear and sufficiently-audible sound. All the hands-free microphones seemed to have some sort of noise reduction that cut off ambient sound.

BenQ-Siemens CL71
The stylish slider

Speed

The BenQ-Siemens phones had a faster response time in regards the user interface. Once again, this is only marginally better than that of the other phones.

Image quality

The BenQ-Siemens E61, even with its VGA camera, did a commendable job as far as still image quality was concerned. The photos were sharp, and colours, vibrant. The bleu 651X and 651Z were also good with their 2-MP cameras. The BenQ-Siemens CL71 and the bleu 651X and 651Z were the only ones with acceptable video recording quality: all the rest brought up choppy videos.

JUST A PHONE

Mobile phones meant just to provide the basic function of communication feature in this category. Value-added features are not expected, though they certainly earn brownie points. The mobiles in this category cost below Rs 6,000. The bleu 250X and 450X, Intex infi and King, Motorola MotoFONE F3 and W220, and the Nokia 2310 and 2626 comprised this segment of our test.

Features
Design And Ergonomics

The Motorola W220—a clamshell—is undoubtedly the most stylish. This is the phone that has been heavily advertised on TV as the low-cost RAZR. The other Motorola phone is the MotoFONE F3: it is the thinnest at just 9 mm, but is also the longest (11.4 cm)—it's therefore

a little uncomfortable to carry it in the pocket of your jeans. The Intex phones were the lightest at 68 grams each. The Motorolas and Nokias seem extremely rugged, good enough to survive some falls.

The plastic lid of the bleu 250X is one of the most difficult to open, so much so that we once felt we might end up breaking it!

The Motorola W220, the Nokias, and the bleu 450X have easy-to-use interfaces. The MotoFONE F3 has a monochrome alphanumeric display, and navigating the phone is quite difficult because there's no graphical interface. Thankfully, there is voice help that narrates to you what button to press to achieve a certain task (and believe us, this is critically essential with this phone).

The Intex phones have tacky keypads, and this could be tiring if you SMS a lot. The Motorolas have their trademark feather-touch keypads, which are a joy to use. The keys also happen to be placed well apart. The 4-way rocker on the Nokia 2310 seemed flimsy; that on the 2626 seemed a little better.

Basic features

All the mobiles with colour displays have a resolution of 128 x 128 with 65K colours. Both the bleu phones and the Intex infi have better-looking displays. The Intex King has a monochrome display. The most interesting was the MotoFONE F3 with its alphanumeric monochrome display, which is based on a new technology known as "electric ink" or EPD. The display offers high contrast and is easily visible even in bright sunlight.

The Intex infi has the largest phonebook, specified as 1,000 entries, while unofficially, the bleu 450X has the largest phonebook, only limited by the phone memory. In contrast, the bleu 250X can store only 100 numbers. Predictive text

is supported by all the bleu mobiles, Intex infi, Motorola W220, and also the Nokias.

MP3 ringtones are supported by the bleu 450X, Intex infi, and both the Nokias. The rest of the phones can only use inbuilt ringtones. Vibrations are supported by all the phones excluding the Intex King.

GPRS connectivity has been provided with the bleu 450X, Intex infi, Motorola W220, and the Nokia 2626. Java applications are supported by the bleu 450X, Motorola W220, and Nokia 2626.

The bleu 450X is the only phone here that has expandable memory (by means of a microSD slot).

Camera and multimedia

There were only two camera phones in this category: the bleu 450X and the Intex infi. Naturally, these are more expensive, but we included them in this category because the price difference isn't too much.

The bleu 450X has a VGA camera, while the Intex infi is a step ahead with a 1.3-MP camera. These were also the only two phones that support MP3 music playback. FM radio is present on both the Intex phones, both the Nokias, and the Motorola W220.

Extras

The bleu 450X, Intex infi, and Nokia 2626 have voice recorders, which can serve as makeshift memo devices and also record phone conversations.

Again, we didn't test battery life: we'll only state what's been mentioned by the manufacturers. The Motorola W220 has the longest talk time of 6 hours; the MotoFONE F3, just 4.5 hours. The Nokia 2310 has the longest standby time of 6 hours.

The Motorola W220 even has an external indicator display that alerts you about missed calls and SMSes.

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bleu 450X
Trendy and feature-rich

Control Your Spending

Many of you are probably shocked each time you receive your mobile bill... no matter how hard you try to curb your bills, you invariably end up in the same situation month after month, wondering where you went wrong. Worse, the bills come with much technical jargon and fine print, and that only adds to the confusion. A close study of your bill is your first step out of this predicament, and we have a few tips for you.

Billing Plans: Choose your billing plan according to your usage pattern. Most mobile service providers have a one-month starter pack that lets you analyse your usage, and service providers even recommend plans that suit you. You can then choose whether you should go with pre-paid or post-paid.

SMS or call? A common misconception is that SMS is always cheaper than a call. With certain talk plans, calls are actually cheaper. Most service providers have mobile-to-mobile plans of 50 paise or less per minute at a nominal monthly rental. This makes it cheaper to make short calls rather than exchanging four to five SMSes that cost a rupee each. Also, a minute's conversation is more effective and efficient than sending even a single SMS!

Whom do you call? Scrutinise your bill to see if you make a lot of calls to subscribers to a particular service provider. If this is the case, it makes sense to switch to that provider; most

providers have subscription plans that provide discounts on same-service-provider calls.

SMS Addicts: If you believe that mobile phones were invented so you could send SMSes, take advantage of special SMS packages, some of which let you send SMSes at just 10 paise each.

Roaming: If you are a frequent traveller (or even if you aren't), it's a good idea to activate national roaming, since this has recently been made rent-free by many providers (check with your provider). Calling landlines while roaming is more expensive than calling to mobiles. Calls are generally cheaper than SMSes in this case as well—SMSes generally cost around Rs 3.50, while calls can cost anywhere between Rs 1.40 and 2.40 depending on the plan.

Here's a note about service providers while you're roaming. For example, if you are a BPL Mobile subscriber in your hometown, manually select the BPL Mobile network in your mobile phone's network settings when you are in a different city. In case that network is unavailable, select an allied network (which you can find on your service provider's Web site). If you use a different network, you could end up paying heavy interconnect charges.

Mobile Internet: Indispensable to many on the move, but it

The Intex and Nokia phones have support for sending as well as receiving SMSes in Hindi. The MotoFONE F3 has a speaking tutor that can not only guide you through the phone setup, it can also help you achieve basic phone tasks. And this localised version of the phone has these voice instructions in Hindi and Punjabi too!

Performance
Signal reception

Unlike in the other categories, we found that here, there were quite a few mobiles that were able to catch the signal as good as the Nokias. The Intex infi and the bleu 250X were the only exceptions.

Voice clarity

All the models had decent audibility from the earpiece except for the bleu 250X, which was sub-par. With the hands-free plugged in, the Intex King was the only phone which posed audibility problems for the listener at the other end. The speaker-phone clarity of the Nokia mobiles was exceptionally good.

Motorola MotoFone F3
A good first-time purchase

Speed

The Nokias were the only ones with a sophisticated OS (Symbian Series 40). But these have a slower processor, and the OS seemed to overwhelm them—resulting in sluggish response to key-presses. The Intex infi was much faster; marginally behind it was the Motorola W220.

can drain your wallet in a big way if used unwisely. If you do not need to download stuff, WAP is the way to go, because most mobile service providers offer it at just Rs 49 per month, while GPRS starts at Rs 199. Some service providers charge for data transfer at a rate of 10 paise per 10 KB. While this may seem insignificant, you should realise that you'd almost never realise how many pages you surf during an Internet session. You can reduce the amount of data transfer by disabling images and sounds in the Internet settings of your mobile phone. Better still, you can go with certain service providers who do not charge for downloads at all, though the Internet speeds will be slower. If you are a heavy Net user and need GPRS, it's better to go with a flat-rate, unlimited subscription.

Value-Added Services: Be careful when you subscribe to Value-Added Services such as Horoscope, Dating, Cricket Updates, Contests, etc. You might well end up not knowing how much you're paying.

BEST BUY digit MAY 2007

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Scoreboard — Just A Phone (Below Rs 6,000)

BRAND	bleu	bleu	Intex	Intex	Motorola	Motorola
MODEL	**250X**	**450X**	**King**	**infi**	**MotoFONE F3**	**W220**
Features (Out of 50)	**15.22**	**33.01**	**15.98**	**32.18**	**14.31**	**25.11**
Design and Ergonomics						
Form Factor	Candybar	Candybar	Candybar	Candybar	Candybar	Clamshell
Dimensions (mm) L x W x D	105.3 x 44 x 15.8	108 x 44 x 15.2	99x44x18	100 x 43 x 12.5	114 x 47 x 9	95 x 46 x 16.7
Weight (gms)	80	90	68	68	70	93
Build Quality (So10)	5	6.5	6	5	8	8
Ease of Use of User Interface (So10)	5	6	4	5	3	6
Keypad Layout (So10)	6/6	6/6	5/5	5/4	7/6	7/7
Keypad Backlight (Y/N)	✔	✔	✔	✔	✔	✔
Basic Phone Features						
Support for Network Bands	Dual-band	Dual-band	Dual-band	Dualband	Dualband	Dual-band
Display Resolution (Pixels)	128 x 128	128 x 128	NA	128 x 128	2 x 6 chars	128 x 128
Display Colours (K)	65	65	Monochrome	65	(Monochrome)	65
Address Book Capacity	100	Depends on memory	300	1000	NA	600
Operating System	Proprietary	Proprietary	Proprietary	Proprietary	Proprietary	Proprietary
Predictive Text (Y/N)	✔	✔	✘	✔	✘	✔
Number of Profiles	1	1	4	5	1	1
Themes Support (Y/N)	✘	✘	✘	✔	✘	✔
MP3 Ringtones (Y/N)	✘	✔	✘	✔	✘	✘
Vibrations (Y/N)	✔	✔	✘	✔	✔	✔
Support for Installing New Applications/ Games (Y/N)	✘	✔	✘	✘	✘	✔
Internet: GPRS/HSCSD/EDGE	✘/✘/✘	✔/✘/✘	✘/✘/✘	✔/✘/✘	✘/✘/✘	✔/✘/✘
Connectivity: IR/Bluetooth/USB/Wi-Fi	✘/✘/✘/✘	✘/✘/✔/✘	✘/✘/✘/✘	✘/✘/✔/✘	✘/✘/✘/✘	✘/✘/✘/✘
Memory						
Expandable Memory (Y/N)	✘	✔	✘	✘	✘	✘
Memory Type(s) Supported	NA	microSD	NA	NA	NA	NA
USB Mass Storage Device (Y/N)	NA	✔	NA	✔	NA	NA
Camera						
Zoom (X)	NA	2	NA	2	NA	NA
Image Resolution (MP)	NA	VGA	NA	1.3	NA	NA
Image Resolution (Pixels)	NA	640 x 480	NA	1280 x 960	NA	NA
Multimedia						
Audio Formats	NA	MP3	NA	MP3	NA	NA
Media Player Button(s) (Y/N)	NA	✔	NA	✘	NA	NA
Audio Equalizers (Y/N)	NA	✘	NA	✔	NA	NA
FM Radio (Y/N)	✘	✘	✔	✔	✘	✔
Extra and Milleneous Features						
Voice Recorder (Y/N)	✘	✔	✘	✔	✘	✘
Speaker Phone (Y/N)	✔	✔	✔	✔	✔	✔
Talk Time (Minutes)	120/150	240/150	180/300	150/150	270/300	480/290
Accessories						
Data Cable/Handsfree/Charger(Y/N)	✘/✘/✔	✔/✔/✔	✘/✔/✔	✔/✔/✔	✘/✘/✔	✘/✔/✔
Performance (Out of 30)	**9.24**	**16.29**	**13.58**	**16.65**	**12.90**	**15.55**
Signal Reception (So10)	5	6	7	5	7	7
Voice Clarity from Earpiece (So10)	4	6	5	6	6	6
Voice Clarity from Handsfree Mic (So10)	NA	7	6	5	NA	NA
Clarity from Speakerphone (So10)	5	6	6	6	6	8
Bootup Time Without SIM (sec)	7	7	4	6	3	11
Processing Speed (So10)	4	4	4	7	5	6
Quality of Captured Image/Video (So10)	NA/NA	5/4	NA/NA	5/6	NA/NA	NA/NA
Price Index (Out of 20)	**12.38**	**5.60**	**14.49**	**5.45**	**18.00**	**7.22**
Overall Score (Out of 100)	**36.83**	**54.90**	**44.04**	**54.28**	**45.21**	**47.87**
Price (Rs)	**2,399**	**5,299**	**2,050**	**5,450**	**1,650**	**4,114**

+ Sleek
− Poor performance

+ Good performance
− Expensive

+ Good reception
− Mono display

+ 1.3 MP camera
− Expensive

+ Innovative concept
− Difficult interface

+ Stylish design
− No MP3 Player

	Nokia 2310	Nokia 2626
	24.57	26.90
	Candybar	Candybar
	105.4 x 43.9 x 19.05	104 x 43 x 18
	85	91
	8	8
	6	6
	6/6	6/6
	✔	✔
	Dual-band	Dual-band
	128 x 128	128 x 128
	65	65
	200	300
	Symbian	Symbian S40
	✔	✔
	6	6
	✔	✔
	✔	✔
	✔	✔
	✘	✔
	✘/✘/✘	✔/✘/✘
	✘/✘/✘/✘	✘/✘/✘/✘
	✘	✘
	NA	NA
	NA	NA
	NA	NA
	NA	NA
	NA	NA
	NA	NA
	NA	NA
	NA	NA
	✔	✔
	✘	✔
	✔	✔
	400/360	300/180
	✘/✔/✔	✘/✔/✔
	15.75	15.00
	7	7
	6	6
	7	7
	8	8
	2	9
	3	4
	NA/NA	NA/NA
	8.61	6.62
	48.94	48.51
	3,449	4,489

+ Good UI
- Flimsy 4-way rocker

+ Good UI
- Expensive

Contact Sheet — Cell Phone Test

Brand	Company	Phone	E-mail
BenQ-Siemens	BenQ-Siemens India Pvt Ltd	9810718821	Sales.EnquiryIn@BenQ.com
bleu	Pratham Telecom	022-28769381	avinash@sagemindia.com
Intex	Intex Technologies	011-41610190	amitsaxena@intextechnologies.com
Motorola	NA	NA	NA
Nokia	Nokia India	0124-41990000	www.nokia.co.in
Sony Ericsson	Sony Ericsson Mobile Comm. Int. AB	022-39011111	questions.in@support.sonyericsson.com

Image quality

Of the two contenders here, we found the still image quality similar, while the video capture quality of the Intex infi was better than that of the bleu 450X.

The Winners!

The SE CyberShot K550i is the only phone that specialises in the camera department, with features such as a 2 MP camera with flash and auto-focus. This was reflected in its imaging scores. It supports high-speed Internet standards such as HSCSD and EDGE. This sleek phone with its equally sleek interface, in addition to good performance and at a decent price of Rs 11,995 has been adjudged the winner of the Digit Best Buy Gold award in the The Upper Crest category.

Close behind was the colourful slider, the Nokia 5300, which has one of the fastest interfaces. It has media control buttons to enhance accessibility to your music, and also comes bundled with a good pair of in-ear earphones which sound really good. Voice clarity is good, and signal reception, excellent. We award it the Digit Best Buy Silver in the The Upper Crest category.

The candybar bleu 651X has almost everything you'd expect from a multimedia phone. It has a 2-megapixel camera with flash, and a good-looking media player that can be controlled via the media control buttons. It even doubles up as a webcam when plugged into a PC. And good signal reception, good looks, and a not-too-heavy price tag of Rs 8,299 means the bleu 651X takes the Digit Best Buy Gold in the Talk And Click category.

The beautiful BenQ-Siemens CL71, a slider, is the only one with a large address book capacity (1,000). Good keypad layout, speed, and superior audio clarity mean the BenQ-Siemens CL71 wins the Digit Best Buy Silver in the Talk And Click category.

In the Just A Phone category, the two camera phones scored the highest. The stylish bleu 450X, which is a multimedia phone with support for MP3, good voice clarity, and a decent interface, while being the only one with expandable memory in this category wins the Digit Best Buy Gold.

The Intex infi, the other camera phone, has a better camera with 1.3-MP resolution. Though priced the highest in this category, this mobile has good voice clarity, and supports Hindi SMSes. The media player is decent, and is the only one that has graphics equalisers. It wins the Digit Best Buy Silver in the Just A Phone category.

If a camera is not very important, you can

BEST BUY digit MAY 2007

Intex infi
A very affordable camera-mobile

definitely go with either of the two Nokia phones: they offer almost everything else. They look decent and have better user interfaces than the rest of the phones. Built ruggedly, supporting Hindi SMS and with FM radio, these are definitely worth a look.

A Closing Note

We have left out the crème-de-la-crème of mobile phones, which will be reviewed in a separate shootout later. But as has been the trend, it is only a matter of months before this category trickles down to mass-affordable levels.

As more players enter the mobile arena, competition is forcing cuts in subscription costs. CDMA coming in has served as catalyst to the already speedy process of plummeting call rates, which are already rivalling those of landlines.

Landlines are still more affordable than mobiles, but they aren't, well, mobile! But they have started offering services such as ADSL. The landline will never die, we think, and these technologies will continue to co-exist for a long time to come.

We hope we've cleared, in this article, some of the fog for you when it comes to choosing a phone. Even if you upgrade your phone often, worry not-we'll most likely carry a shootout at about the same time next year! ∎

jayesh_limaye@thinkdigit.com

FIRST L**O**K

Samsung BD Writer SH-B022A
Ahead Of Its Time?

We got to review Samsung's new Blu-ray writer, the SH-B022A. It writes the largest-capacity on discs that *Digit* has seen thus far—50 GB Blu-ray discs! You can back up your entire hard drive with just a handful of discs.

The drive looks like an ordinary IDE optical drive with the BD marking on the bezel being the only differentiator. Build quality is average compared to the drives we have tested thus far, but the tray mechanism seems smoother, and is quite noiseless. Going well with "Blu-ray" is the blue LED that glows behind the Eject button.

Blu-ray burning speed is 2x (8.78 MB/sec), a tad faster than 6x DVD (8.1 MB/sec). This doesn't sound too good, since the much faster 16x (21.6 MB/sec) DVD writing is common today. Burning 25 GB to a 2x BD-RE (Blu-ray Disc Recordable Erasable) disc took us 47 minutes—agonisingly slow. But yes, the technology is still being improved, and given a few months, we'll see faster Blu-ray drives.

Backward compatibility has been taken care of, with support for writing to CD as well as DVD recordable media of all kinds—except DVD-RAM. The 8 MB buffer is sufficient to preclude buffer underruns. Sequential DVD-R burning took 505 seconds, while burning to a DVD+R took more than 8 minutes, both at 12x. This is slower than today's DVD-Writers, which get the same job done in not more than 360 seconds.

The drive comes bundled with CyberLink BD Solution, a software suite for burning as well as video editing, playback, and backup software. Sadly, the suite lags behind Nero by miles.

Ultimately, the price takes the fun out of everything: an obscenely high Rs 22,000, keeping it out of reach of most of us. Also, A 25 GB disc is about Rs 1,500, and they aren't easily available. But then, remember that DVD-Writers were priced at $1,500 in the early 2000s!

Specifications
Reading: BD-ROM, BD-R, BD-RE: 2x; DVD+R, DVD-R, DVD-ROM: 12x; CD-R, CD-ROM: 40x. Writing: BD-R, BD-RE: 2x; DVD+R, DVD-R: 12x; DVD+R DL, DVD-R DL: 4x; DVD+RW, DVD-RW: 4x; CD-R: 32x; CD-RW: 24x. Buffer: 8 MB; interface: IDE

Contact: **Samsung India Electronics Pvt Ltd**
Phone: **011-41511234**
E-mail: **hari.pandey@samsung.com**
Web site: **www.samsungindia.com**
Price: **Rs 22,000**

RATINGS	
Performance	★★★○○
Features	★★★★◗
Build Quality	★★★○○
Value for Money	★★◗○○
Overall	★★★○○

Transcend T.sonic 630
Feature-rich

The T.sonic 630 is trendy-looking and small enough to carry around. It is being targeted at college students on the lookout for a feature-rich music player. It is available in three flavours—1 GB in orchid, 2 GB in pod white, and 4 GB in black. The bright white four-line OLED display is clearly readable in diverse lighting conditions.

The menu is simple to navigate, but the keys have a hard tactile feel. There are six inbuilt equaliser profiles and a five-band customisable equaliser. The player supports one-touch recording, which is one-touch even when the power is off. WAV recording can be from three sources—radio, microphone, and line-in, and the recordings are automatically stored in three different folders. Recorded files are named in month / date order. Two recording environments are provided, meeting and memo; the former is more sensitive. The voice activation detection works well only in silent surroundings, and allows for gapless recording.

Playback quality is definitely not the best in its class. The earphones have good overall response, but bass lacks depth. The FM tuner stores up to 20 stations. The player does not require proprietary software to load songs: simply drag and drop. It supports USB 2.0, but in our tests, it took five minutes to transfer 600 MB of data—very slow.

There's bundled utility software as well: the boot-up function makes the music player USB-bootable, and the PC-lock makes the player an access key to your computer. The partitioning function allows creation of a partition with password protection. The recovery function allows you to reset the player to factory settings.

The 2 GB white model retails at Rs 4,500. Though the player lacks great playback quality, it's good enough for the price.

Specifications
Size: 73 x 33 x 12.5 mm (L x W x H); weight: 30 gm; compression rate: 32 Kbps–320 Kbps; supported music formats: MP3, WMA, WMA DRM -10; charging and data transfer: USB mini port; 15 hrs playback when fully-charged

RATINGS	
Performance	★★★★◗
Features	★★★★★
Build Quality	★★★★○
Value for Money	★★★★○
Overall	★★★★○

Contact: **Mediaman Group of Companies Pvt LTD.**
Phone: **022-23823100**
E-mail: **sales@mediamangroup.com**
Web site: **www.transcendusa.com**
Price: **Rs 4,500**

Integral USB 2.0 Flash Drive
About Average…

Integral's (1 GB) USB 2.0 Flash Drive is encased in a flashy sky-blue rubber exterior. This means it's not only rugged enough to be reasonably shock-proof, it's also splash-proof. One problem: the rubber coating tends to attract dust.

Performance was slow compared to that of other 1 GB Flash drives. Writing 700 MB of assorted data to the drive took 5 minutes, and reading the same data from the drive took a minute. (As a comparison, the Corsair Flash Voyager 1 GB, which is similarly rugged, writes 700 MB to the drive in 34 per cent of the time we've mentioned, and reading takes 37 per cent of the time.) Random access time, though, was 5.2 ms, which is quite good.

The drive comes with SecretZip, a compression software that compresses data with password protection. SecretZip can only be run on Integral's USB Flash drives.

But that's just about as much security as the software provides: the compressed files can be easily deleted… If ruggedness is of prime importance, you'll like this drive, else there are better-performing products available at better prices.

RATINGS	
Performance	★★★☆☆
Features	★★★★☆
Build Quality	★★★★⯪
Value for Money	★★★☆☆
Overall	★★★⯪☆

Contact: Goldstone Imaging Pvt. Ltd
Phone: 011-41530501
E-mail: integral@goldstoneltd.com
Web site: www.integralmemory.com
Price: Rs 1,550

Specifications
USB 2.0; software bundle: SecretZip

XFX nFORCE 680i LT
680i On A Diet

Let's face it… Sure nFORCE 680i motherboards are blazing performers, feature-rich, and future proof (read 1333 MHz FSB support), but they aren't exactly wallet-friendly! Neither is the nFORCE 650i a very viable option for enthusiasts. NVIDIA finally acknowledges this and coughs up a "budget" variant of their top-end 680i, with the "LT" as a suffix.

XFXs' 680i LT uses the reference NVIDIA PCB layout, which is now designated "Designed for NVIDIA." One major annoyance: the power pins are squeezed between the memory modules, the four pin auxiliary power connector, and the IDE connector. This makes accessing the pins extremely difficult, and it's not a good idea to have wires around the memory slots either. XFX has provided cooling fans for both chipsets; however, the Northbridge heatsink is quite large (which shouldn't be necessary when actively cooled as in this case), and as a result, intrudes upon the CPU region. This will probably preclude installation of larger coolers like Thermalright's XP-120 and Ultra 120, or Scythe's Ninja and Infinity coolers.

The BIOS on this board is the same as a regular 680i, minus a few SLI memory profiles, and some extra options like a PCI-Express slot (the 680i has three, while the LT version has two).

So what's different between the 680i and its LT version? Three main things. First, there's no third PCI-Express slot between the two SLI x16 slots. Second, there's one Gigabit LAN instead of two, making NVIDIA's DualNet impossible. And third, SLI profiles are only supported up to 800 MHz (the 680i goes up to 1200 MHz). What you get in exchange is a much lower price tag, taking the 680i LT well and truly into Intel's P965 territory price-wise.

For Rs 11,000, the 680i LT offers very good value for money for the enthusiast audience who wants features, performance, and decent overclocking potential—not to mention SLI. In fact, if you don't plan on a physics card and two 1 Gbps LAN connects, you can overlook the 680i altogether and pick a board based on the 680i LT chipset. Hardcore overclockers will still look at the 680i and Intel's P965, while casual users will settle for lower solutions like NVIDIA's 650i and Intel's 965G, which are slightly lower-performing options and sans a few features.

RATINGS	
Performance	★★★★☆
Features	★★★★☆
Bundle	★★★★⯪
Value for Money	★★★★⯪
Overall	★★★★⯪

Contact: Rashi Peripherals Pvt Ltd
Phone: 022-67090909
E-mail: navinderc@rptechindia.com
Web site: www.xfxforce.com
Price: Rs 12,500

Specifications
nFORCE 680i LT chipset, Socket 775, Core 2 Duo/Quad ready, 1066/1333 FSB, DDR2 800 MHz support, six SATA 2.0 ports, eight USB 2.0 ports

SAHARA MC765124-MK1O
Media Center For The Living Room

Riding the Media Center wave comes Sahara's MK10. Finished in luxurious black with a huge brushed aluminium dial, it looks more like a DVD player than a Media Center PC.

The volume knob has a bright blue backlight and could have been designed to move smoother. A blue-lit alphanumeric display is slotted on the front; it displays the status when playing media files. A pull-down flap covers the media control keys and also provides access to card readers and the other regular PC ports.

The media player has a functional IR for the remote control built in the front panel. An additional two wire lead is provided which can be set at convenient angle allowing the remote to be used in a wider range

On the media front, the PC comes bundled with a TV-Tuner card, FM radio, a DVD player, and a 160 GB hard drive. There's onboard 7.1 audio for connecting a surround sound system; however, Sahara has only bundled an Altec Lansing 2.1 speaker set.

On the PC front, you have the Pentium D805 processor, which is good enough for media and typical PC usage. There's 512 MB of RAM, and a 17-inch LCD. The wireless keyboard is a cute piece of hardware with an inbuilt mouse tracker; we sorely missed a separate mouse.

Performance-wise, the integrated 945G provides playable frame rates in most of games -not for serious gaming. The 16X DVD Writer dose a fine job of popping out burnt DVD's at a decent pace. The 7200 rpm SATA hard disk is fast enough for its intended use as a Media Centre PC.

At Rs 51,999 is hard to justify: you can get a powerful system for the same price. Still, the form factor is unique, and will blend well into the décor of a nice living room.

Specifications
Processor: Pentium D 805; motherboard: PIC PTM945G/P; 512 MB 533 MHz DDR2 RAM; 160 GB 7200 rpm SATA HDD, 16x DVD-RW; 17-inch 4:3 LCD monitor; 2.1 Altec Lansing 121i 20 W speakers; wireless keyboard with integrated tracker ball; IR remote; Hauppauge (Conexant chipset) TV-Tuner

RATINGS	
Performance	★★★○○
Features	★★★○○
Ease of Use	★★★★⯪
Value for Money	★★★○○
Overall	★★★○○

Contact: **Sahara Computers and Electronics Limited**
Phone: **022-30303838**
E-mail: **info@saharacomputers.co.in**
Website: **www.saharacomputers.co.in**
Price: **Rs 51,999**

TOP UPS
Very Functional

In an increasingly "me-too" product world, the TOP-UPS stands apart. It adheres to the "Form should follow function" design philosophy perfectly.

Shaped like a small helmet, the TOP UPS has nifty features that enhance its usability. First, it has slots on top for storing CD cases. Second, there is a little flap in front with a bright white LED, which can act as a torch during power failures. Third, there is a digital clock at the front. A small socket at the front provides an alternative way of charging cell phones.

Wipro has provided six different adapter plugs used by major cell phone manufacturers such as Nokia and Sony Ericsson.

The operating range for the UPS is specified as 140 to 280V, and with a transfer time of below 10 ms the UPS kicks in during power failures. Two power outlets are driven via the battery, while other one is surge-protected and not driven off the battery. The colour coded power outlets eases installation. The maintenance-free battery is rated at 12V, 7AH is user-swappable.

On our test-bed consisting of a Pentium 4 3.06 GHz, Foxconn 945G7MA motherboard, and a 17-inch CRT, we got a backup time of 12 minutes—quite typical.

At Rs 3500, the TOP-UPS is priced higher than UPSes with similar specs. However, considering the extra features on offer, we think the price is justified, though we'd have liked to see a better (read more sober) colour scheme.

Specifications
Dimensions: 184 (W) x 235 (D) x 236 (H) mm; weight: 6 kg; 600 VA, 360 W; supports cold start ;transfer time: <10ms; input voltage: 140 ~ 280 V; output voltage: 230 V ffl 5 per cent (battery); RJ11 port surge suppression; typical recharge time 6 hrs to 90 per cent capacity

RATINGS	
Performance	★★★★⯪
Features	★★★★○
Build Quality	★★★★○
Value for Money	★★★★○
Overall	★★★★○

Contact: **WeP Peripherals Ltd**
Phone: **1800-4256446**
E-mail: **top.ups@wepindia.com**
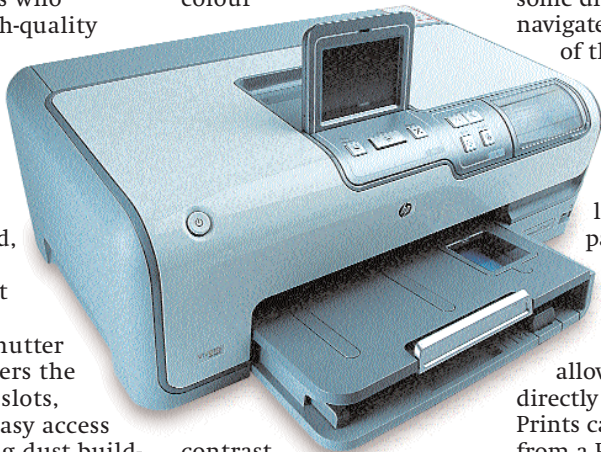Website: **www.wepindia.com**
Price: **Rs 3,500**

HP PHOTOSMART D7368
A photographer's companion

The HP Photosmart series is targeted at photographers who demand a high-quality photo printer. The Photosmart D7368 looks tidy; the design is elegant. Build quality is good, with sturdy, neatly-laid out trays. A transparent shutter gracefully covers the memory card slots, allowing for easy access and preventing dust build-up.

The printer took about 6 minutes to print an A4 size photo at best quality. The colour prints were some of the best we've seen with an inkjet printer! Finer aspects were reproduced in detail, and throughout the test procedure, the prints had a neutral tone. In addition, colour contrast ratio is notably good, allowing for more vivid colour reproduction. Textures were reproduced in detail, and even metallic shine was rendered with the proper lustre on photo paper. In draft mode, black was reproduced as a dark shade of grey, but this was rectified when we switched to normal print quality.

The low-resolution touch-screen is easy use, but still requires the use of some discrete keys to navigate certain menus. All of the printer's functionality can be easily accessed via the touch-screen. Basic help for procedures such as loading cartridges, paper loading, and paper jam is provided as animations. The memory card slot allows taking prints directly from memory card. Prints can even be taken from a PictBridge-compatible digicam via USB. The software bundle makes printing as well as basic editing a simple process even for novices.

Notable is Photosmart Premier: it is a slightly advanced image-enhancement application, and allows for taking customised prints in varying sizes.

Photographers and even photo enthusiasts who click a lot, and require a neutral toned, high-quality printer, should certainly consider this printer a good buy to suit their needs.

Specifications
4800 x 1200 dpi; 3.4-inch touch-screen; internal memory 64 MB; dimensions (W x D x H): 462.5 x 387.3 x 172.9 mm, weight: 8 kg; tray capacity: 100 sheets

RATINGS	
Performance	★★★★○
Features	★★★★○
Ease of Use	★★★★○
Value for Money	★★★○○
Overall	★★★★○

Contact: **Hewlett-Packard India Pvt. LTD**
Phone: **1800 42 54 999**
E-mail: **vibhor.bansal@hp.com**
Website: **www.hp.com**
Price: **Rs 10.999**

XFX 8600GTS and 8600GT
Mrs Green just got twins!

FIRST LOOK

NVIDIA's G84 comes to life as we present 2 cores based on it a.k.a the 8600GTS and the 8600GT.

One can immediately tell these are minnows compared to the colossal 8800GTX. Both cards are based around a 32-shader unit core, fed by 256 MB of GDDR3 memory. The difference is only in clock speeds, both core and memory.

From its look, the 8600GTS is the higher-end card, with a larger heatsink. Heating doesn't seem to be an issue with either card, at least from preliminary tests. Unfortunately, the GT version doesn't support HDCP. Pitched as mid-range cards, these are expected to replace the 7600GT and GS Direct X 10 support. Driver support is spot-on with current-gen games, we played 10 games - no issues.

XFX 8600GTS uses electrolytic capacitors in contrast to the solid-state ones on the 8600GT. Why such a backward step? Did XFX expect users to buy the 8600GT and overclock beyond GTS speeds?

As features go, these cards are identical, expect Priced as they are (below) the 8600GTS is costly for a mid-range solution, and considering that clocks aside they're identical. The 8600GT really hits the sweet spot in this regard.

Specifications
8600GTS/GT - 32 shader units; core speed 675/540 MHz; memory speed 2000/1400 MHz; shader unit clock - 1450/1180; 289 million transistors; 256 MB GDDR3 memory (128-bit)

Comparisons

Frames Per Second	
Prey (1280x1024) 4x AF, High Detail	
Prey (1024x868) 4x AA, 4x AF, High Detail	
Doom3 (1280x1024) 4x AA, High Detail	
F.E.A.R. (1024x768) AA and AF On	

Legend:
- XFX 7950GX2
- EN 8800 GTX
- MSI7600GT Diamond
- XFX 8600GT
- XFX 8600GTS

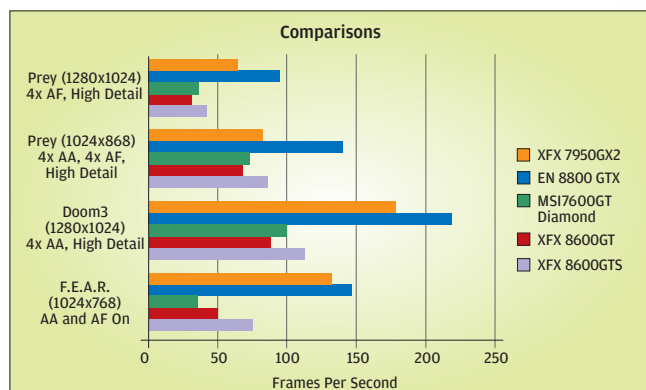| RATINGS	
Performance	★★★★○
Features	★★★★○
Bundle	★★★½○
Value for Money	★★★○○
Overall	★★★★○

Contact: **Rashi Peripherals**
Phone: **022-67090909**
Web site: **navinderc@rptechindia.com**
Price: **Rs 16,000 (8600GTS)**
Rs 10,000 (8600GT)

Dragon Naturally Speaking 9
Close-To-Perfect Voice Recognition!

Speaking to your computer might seem silly, but it might just be the most sensible thing to do with Dragon Naturally Speaking 9. Let's take a quick look at how effective it really is.

We installed the software on our test bed: an Intel Pentium 4 HT, 1 GB of RAM, and a Creative Audigy2 sound card.

Training is, of course, required, and it involves a good amount of patience on your part—it can take days. Any mumbling or drop of quality in your speaking style can mess it up.

We used the software for over a week to gauge performance. The detection is close to perfect, but occasional error corrections are needed. Small words confused it even during the training ses-sions. The numerical voice recognition, however, was both fast and accurate.

The application consumed around 200 MB of RAM, with some 50 to 60 per cent CPU utilisation. Very long sentences can cause slowdown and inaccuracy.

Moving on to fea-tures, the software has the ability to let you use voice commands to handle almost all Windows applica-tions. There are five modes for various types of dictation, such as numerical entry, text entry, and voice commands.

Making random selec-tions can be done by saying "Select" followed by the words. This is helpful in fixing mistakes in the text. You can add custom words to the database if the soft-ware fails to recognise them.

The text to speech conversion isn't impres-sive, and sounds like the Microsoft Speech Engine.

Good help is provided by both the printed booklet and also the good number of voice tutorials, which explain many fea-tures in detail. The bundle includes a small headset which is OK, but very uncomfortable for long sit-tings because of its small size.

Vista support was recently added in the 9.5 update of the software.

Overall, the voice recog-nition is effective once you've gone through the training. We think it could have been lighter on the system, and that a better headset could be supplied. Overall, highly recom-mended for people who are slow at typing or hate typing a lot.

RATINGS	
Performance	★★★★◯
Features	★★★★◯
Ease of use	★★★★⯪
Value for Money	★★★◯◯
Overall	★★★★◯

Contact: **M/S ICONS**
Phone: **022-26351063/022-26324801**
E-Mail: **mrg@icons.net.in**
Web site: **www.nuance.com**
Price: **Rs 11,542**

Symantec Backup Exec System Recovery—Desktop Edition
Wish Backup Worries Away!

Symantec has released an excellent product to automate all your system backup and restoring tasks—a product that might well kill Windows' System Restore!

The main feature is, it lets you create a backup of your entire hard drive, or a partition, to an image. The inbuilt scheduler automates the backup process. You can schedule a backup for any date and time.

The software also lets you create new backups and only store the last, set number of updates.

Backed-up disk images can be restored onto a disk or partition. You can use the Recover Files or Folders task, where only selected folders and files will be extracted to a specified destination. Mounting of the disk images as a partition without actually restoring the image to a location is also possible.

The software CD can be used as a recovery disk. Network services are enabled as the CD boots.

A lot more can be done through the recovery disk—everything from altering partitions to scanning your machine for viruses using an external virus definition database.

Installation is so simple, it can be done by a five-year-old. And if you're expecting a complicated interface, you'll be relieved to see that it's anything but.

Still, an advanced mode is in place for those who want more control. A sidebar contains the task list as well as help topics.
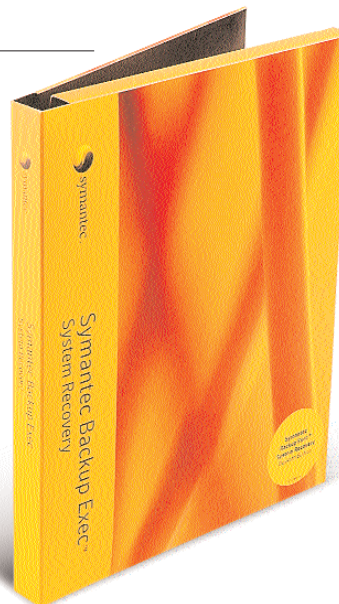
The electronic manual and the printed documentation are the same; overall, the help is comprehensive and easy to understand.

Simply set the software to back up data every day when you log off, or whenever new software is installed on your PC—and never worry about losing data any more!

In sum, Symantec Backup Exec System Recovery is Norton Ghost with a few added features and a non-complicated interface.

Regular home users will like it, though the price tag of $69 (Rs 3,100) is a bit on the higher side.

RATINGS	
Performance	★★★◯◯
Features	★★★◯◯
Ease of use	★★★★◯
Value for Money	★★★◯◯
Overall	★★★★⯪

Contact: **Ingram Micro India (P) Ltd**
Phone: **080-26564445**
E-Mail: **Deenu.m@ingrammicro.co.in**
Web site:**www.symantec.com**
Price: **Rs. $69 (Rs 3,100)**

Active WebCam 8.3
The Roving Eye

There are surveillance applications aplenty, but Active WebCam is different. This easy-to-use application not only lets you use multiple cameras to monitor activity. You can also record the footage for later use.

Wizards guide you through the camera setup process. You can then choose to send video with audio to any computer on your network that has the app installed, soundless video to HTTP users, and screen captures to FTP servers.

Live audio and video can be broadcast to the PY Software Web server (subscription to Dynamic IP Service is necessary, which comes as part of the 30-day trial), and Active Webcam can be configured to set permissions for users and groups, as also the maximum number of allowed visitors. For when the camera(s) detect(s) motion, it can be configured to sound an alarm, or e-mail the video footage / snaps it records, or start broadcasting live images and videos.

So who can benefit? You can transmit live videos of your friends' reunion parties over the Internet. You can use it as a surveillance mechanism at your front door. Jewellers will benefit from the multi-camera capabilities: keep an eye on multiple customers at the same time! You can set it to monitor your children while you're away. Record simple video presentations… just use your imagination and think of more uses!

In addition to all the above, you can use the Tools menu in Active WebCam to create and design a Web page to where you post videos and stills. Two nifty applications come bundled: a video player that can play captured videos in the native format, and a video editor that can convert captured videos to AVI with any installed compression, or to MPEG-1.

Active WebCam works with any camera detected by Windows. For $29, this is a steal—no gripes!

RATINGS	
Performance	★★★☆
Features	★★★★☆
Ease of use	★★★☆
Value for Money	★★★★☆
Overall	★★★★

Contact: **PY Software**
Web site: **www.pysoft.com**
Price: **$29 (Rs 1,300)**

VirusBuster Professional 2006
Funky looks, basic functionality

This is an anti-virus program from Hungary… but don't let that put you off! Let's take a look at what it offers in comparison to other anti-viruses…

Post-installation, the first thing you see is the unconventional interface. There are no menus, and the icons are cartoonish! In addition, you end up going through multiple windows and clicks before actually scanning something.

VirusBuster Professional has the standard set of features—the main file scanner, a shield that looks at background processes, and an Outlook scanner. There is support for scanning network shares as well; the same interface is used for this.

Different levels of sensitivity are available for each feature, and these can be altered by the user.

The Quarantine feature lets you scan the quarantine folder after a virus database update, and there's automated restoring of cleaned files. The updater lets you choose from different locations such as HTTP, FTP server, CD, etc.

Security features were kept in mind as well. You can set an administrator so other users don't tamper with the settings. The Rights Management lets you set permissions to the various components of the program.

CPU utilisation spiked between 30 and 50 per cent, but the memory consumption hovered around the 30 MB mark, which is pretty OK.

The help file is detailed, but is low on screenshots. The downloadable PDF manual, however, has plenty of screenshots for every feature and menu.

VirusBuster Professional 2006 isn't a market leader among anti-virus software for sure. It doesn't come cheap either: Rs 1,400 for a year. For a similar price, there are plenty of other choices available. Most free anti-virus software sport smarter interfaces.

RATINGS	
Performance	★★★★☆
Features	★★★
Ease of use	★★★★☆
Value for Money	★★★
Overall	★★★★☆

Contact: **Karvid Technologies**
Phone: **020-27641650**
E-Mail: **sanket@karvid.com**
Web site: **www.virusbuster.hu/en/**
Price: **Rs 1,400**

Of Boredom And Big Questions

Featuring things to do when nothing excites, some community service, and life lessons

Prakash Ballakoor

www.bored.com

So there you are, sitting at your computer late at night twiddling your thumbs, and what do you do? Type in "bored" and press **[Ctrl] + [Enter]**, of course. Good move. Bored.com is good enough for such times. We should warn you, though, that it's *only* good when you're really bored. It's quite silly otherwise!

Play games online here—jigsaw puzzles, tic-tac-toe, Sudoku, and many others, or get links to hundreds of online gaming sites. Music (not yet) on your mind? There's a section called "musicmania" to entertain you—learn how to play music on a cell phone by punching in numbers, find the lyrics and meanings of songs and other such silly pursuits.

Of course there'd be a jokes section on such a site. A sampler: the best

Bored.com: do you really need more?

excuses for being late for school, work, church, and more. If this weren't fun enough, there's even a separate category for fun. Here, "fun" means fun of the silliest kind—be warned—but then, you're bored, aren't you? Type in a word or phrase and watch them spelt out in different fonts or photo collages. Then there's an age-guessing game: figure out the true age of the person in a photo. Challenging, even mildly addictive.

If you're up late at night because you've been dumped and are feeling suicidal, read through funny yet real "Bad Date Stories."

About enough of a review—you get the general idea. The site's design and layout could have been better, we must say. It's animation-less and not-so-colourful to boot. Having said that, the site *is* constantly updated, and there's a section called "Coming Soon"

on the main page. More inane stuff... but fun in an unhealthy kind of way!

www.scribd.com

This is a free online library where anyone can publish and discover documents that are non-copyrighted and not considered illegal in the United States. These documents could be personal documents like school papers, PowerPoint presentations, research articles, funny pictures, free online books, commentaries, spreadsheets... whatever you can think of. Scribd started off as a project to share documents in different file formats residing on different systems, viewable online without the need of a particular software on the viewer's system. You can upload documents without signing up. This encourages casual users to share stuff, in turn making Scribd a large storehouse of information.

Apart from potentially benefiting the world, why publish? Well, a need to make public a piece of writing arises when the subject or document is controversial, when a review is needed for an article, to promote unpaid work, and so on. You can publish documents in the Word, PowerPoint, PDF, Excel, and PostScript formats (loosely speaking), and to view the documents, you just need a Flash-enabled browser.

Scribd also allows you to upload a document and keep it private. When this is done, you get a secret URL that can be shared with whomever you'd care to include in your privy group. Only, you need to sign up to be able to do this, but that process isn't time-consuming or difficult in the least.

Other than uploading and viewing documents online, you can also convert between the Word, PDF, plaintext, HTML, JPEG, PowerPoint, and Excel formats—and even convert documents to audio (text-to-speech)! The audio format is MP3, allowing you to put it on a portable player.

Scribd: spreading joy to the world and all that

"How to design a good API and why it matters," and "Why men won't dance." Those were the two documents at the top of the list exactly when we wrote this. It's as random as it gets—and it's not a blog either. You'll get a clearer picture when you visit the site. There's a search, so don't worry.

www.lifetips.com

"Life tips" sounds vague; it could sound like the site might lecture you on how to lead a good life. The thing is, these are actually *tips*—as in "tips and tricks"—for almost anything you can think of, insofar as you're a regular human being. The site boasts of more than 95,000 tips. Advice is in all the typical topics—like entertainment, events, food and drink, home and garden, and such. The cool thing is, you get specific pointers. Did you know bedrooms at between 20 to 22 degrees C are good for promoting sleep in people suffering from allergies? If you're buying a vacuum cleaner, what exactly should you keep in mind? Need to understand the signs of a cheating spouse?

Lifetips—when you can't figure yours out!

There are tips on serious stuff like Business, Employee Management, Religion and Spirituality, and more, as also in unheard-of categories like "Gay Marriage tips," "Cigar tips," and "Body Jewellery tips." Tips can be rated and commented upon, too, to add to the fun. Registering allows you to submit your own tips, and send tips on the site to your friends and feed them to your MySpace, Google, Yahoo!, and Friendster pages.

The site takes itself pretty seriously, which we can't fault: you can compile your favourites to create an e-book that you can download for free. You can have this e-book printed in paperback with your name and a personalised message on the cover, and have it sent to a friend for a fee! ∎

prakash_ballakoor@thinkdigit.com

Tips & Tricks

WINDOWS XP

Vista has already been released, but most of us still use XP—and so, we bring you yet another compilation of tweaks and tips to enhance your experience with XP. Do make a backup of your Registry before trying *any* tip involving Registry changes.

Scheduling Connecting And Disconnecting From Your ISP

With many ISPs using PPPoE-based connections, and many ISPs having awkward schemes such as night-unlimited starting at 2 AM, it's a good idea to schedule your dialling process
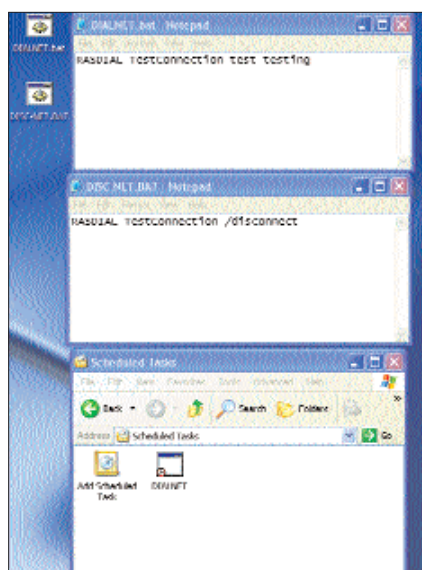
Schedule the dialling to your ISP

rather than staying up late at night. Once connected, your downloads can start. You can also schedule to connect to VPNs.

First we create a batch file. Start Notepad (or any other text editor). Enter the following:

RASDIAL <Connection Name> <Username> <Password>
<Connection Name> should be your exact connection name. Save the file using a suitable name such as "DIALNET.BAT".

Now create a schedule by clicking on Scheduled Tasks in the Control Panel. Double-click on Add Scheduled Task. Click Next. Browse and choose the path of the BAT file. Choose the type of frequency you want the task to run at. Next set the time and date. Finally enter the password for the account running the dialler. You can further make changes to the schedule by right-clicking on the newly-created scheduled task and clicking on Properties.

So why would you want to make changes? Well, many more settings can be applied, and multiple schedules can be allotted. Say you connect between 12 and 8 AM, and then you want it to connect at 1 PM again. Such options are available only once you're done adding the schedule through the Wizard.

Similar to scheduling a connection, disconnection can be done in the same manner. Some alterations in the batch file creation are needed. First, create a new text file and enter
RASDIAL <Connection Name> /disconnect
Save the file as a BAT file, for example, "DISC-NET.BAT". Be sure to

enter your exact connection name in place of **<Connection Name>**. Once again, like the connection schedule, create a schedule in the same manner only this time choose the Disconnecting BAT file.

Disable Expiring Of Windows Passwords

Windows XP Professional's password expires after 42 days. You can disable expiring of Windows passwords if this
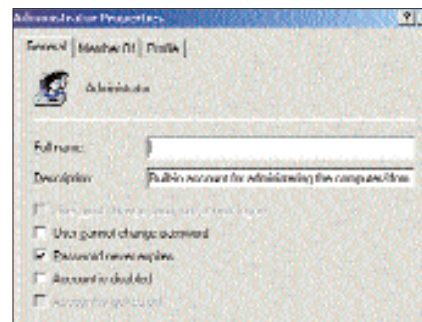

Passwords will never expire again

is a bother. In the Control Panel, double-click on Administrative Tools, then Computer Management. Expand Local Users and Groups. Under Users, right-click on the account of your choice and click Properties. Check the box for "Password never expires".

Enable "Pin to Start menu" For Folders

As it stands, it is only possible to pin programs or shortcuts to the Start Menu, but no folders. To add this, in the Registry Editor, browse to **HKEY_CLASSES_ROOT\Folder\shellex\ContextMenuHandlers**. Create a new key by
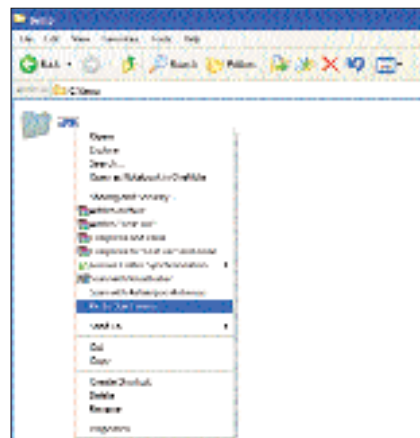

Now you can pin folders to the Start Menu

right-clicking in the right pane and selecting **New > Key**. Enter "**{a2a9545d-a0c2-42b4-9708-a0b2badd77c8}**" as the key name. Now that's done, right-click on any folder in Windows Explorer, and you will see a "Pin to Start menu" option.

Change The Internet Key's Functionality

Almost all keyboards, cheap or costly, come with special keys including an Internet key. You can choose to make that key load another application instead of the browser. (The keyboard drivers often provide this capability, but sometimes they don't.)

To change this, in the Registry Editor, go to **HKEY_LOCAL_MACHINE\ SOFTWARE\Microsoft\Windows\CurrentVersion\Explorer\Appkey\7**. Create a new String Value by right-clicking in the right pane and selecting **New > String Value**. Enter the name as **"ShellExecute"**. Double-click on the newly-created String Value and enter the Value as the path of the file you want to run when you press the Internet Key. Click OK.
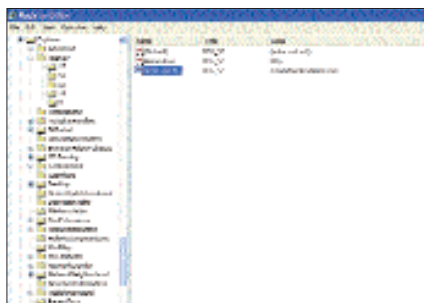
Changing key functions

### Enable The Windows ZIP tool

Windows XP comes built in with a compression tool that reads ZIP files as folders. When you install Windows, you can open ZIP files using that tool. Then, say you install WinZip or WinRAR, and then uninstall it. You'll then need to re-enable the inbuilt ZIP file reader.

To enable Windows ZIP files as a folder feature again, you can use a simple command. At a command prompt, enter **"regsvr32 %windir%\ system32\zipfldr.dll"**. Press **[Enter]**.

Adding Safe Mode To Your Boot List

At times you might need to switch to Safe Mode to fix a problem such as a virus infection or uninstalling drivers. You can add an entry to the boot list. To do this, go to **Control Panel > System** (or simply press **[Windows]** + **[Pause/Break]**). Click on the Advanced tab. Then, click on the Settings button under the Startup and Recovery section. Click on Edit under System Startup to indirectly edit the boot.ini file. Add the following entry: **multi(0)disk(0)rdisk(0)partition(2)\WINDOWS="Microsoft Windows XP - Safe Mode" /fastdetect /safeboot:minimal /sos /bootlog**

You can add more entries if needed to boot any Windows installations on other disks or partitions.
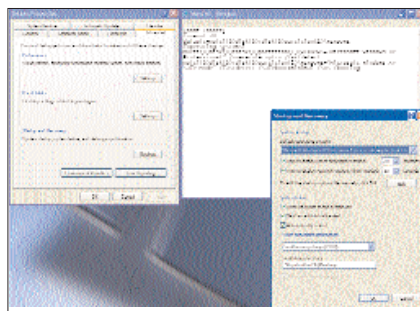
Add Safe Mode to the boot options

A Prettier Volume Control

Few people know that the Volume Control has a hidden, compact-looking profile. You can create a shortcut with the command as **"sndvol32 /s"** or by pressing **[Ctrl]** + **[S]** with the Windows Volume Control running. Press **[Ctrl]** + **[S]** again to revert to the original size.

To open a minimal volume control with only the single slider, you can create a shortcut by first right-clicking at the location you want to add the shortcut, then click **New > Shortcut**, and type in **"sndvol32 /t"**.
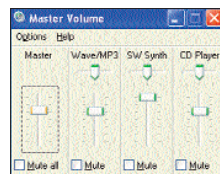
A small Volume Control

Remove Default Shared Folders

Windows XP comes with a shared folder called Shared Documents which is visible when you open My Computer. You can remove the folder by removing a key in the Registry. (You might want to do this because, for example, viruses can end up there through an infected network.) Browse to HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion\Explorer\MyComputer\NameSpace\DelegateFolders\. Here, delete the key with the name "{59031a47-3f72-44a7-89c5-5595fe6b30ee}". The shared folder will disappear.

Access Desktop From Taskbar

One of the easiest ways to access programs is to use Quick Launch. In the cases of My Documents or Desktop icons, it's not possible to copy all these into the Quick Launch: instead, right-click on the taskbar, click on Toolbars, and choose Desktop. Your Desktop will appear on the taskbar. Now you no
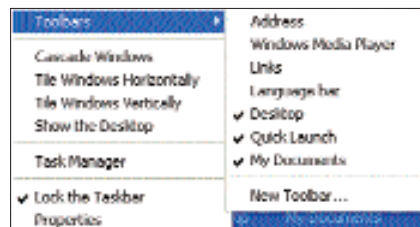
Access the Desktop from the Taskbar

longer have to minimise all your windows to access items on the desktop.

Similarly, you can also first create a folder with a suitable name with shortcuts for your favourite programs. Next, right-click on the taskbar and then on **Toolbars > New Toolbar**. Point to the folder containing your shortcuts and click OK.

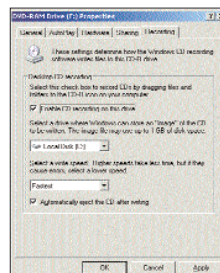### Automatically Terminate Hung Programs

When programs lock up or stop responding, you are forced to **[Ctrl]** + **[Alt]** + **[Delete] > End Process**. This tweak lets Windows automatically shut down hung programs. In the Registry Editor, browse to **HKEY_CURRENT_USER\Control Panel\Desktop**. You will find a String Value called **AutoEndTasks**. Double-click on it and change the value to **"1"**. You can also set the timeout value by double-clicking on the **WaitToKillAppTimeout** String Value and changing its value to the time in milliseconds before Windows kills the task.

Disable The Windows CD Writing Function

Windows XP comes with CD writing software which can be used if you don't have any third-party program to do that. If you do use the third-party software, you can disable the inbuilt writing feature. Go to My Computer. Right-click on your CD

Stop XP from writing your CDs

or DVD writer and click Properties. There, click on the Recording tab, and uncheck the box "Enable CD/DVD Recording on this drive".

Disable Sending Of Windows Error Reports

When a program crashes, it gives you an error, then asks you to send a error report to Microsoft—which you usually abort or ignore. You can disable the popping up of the option altogether: **[Windows]** + **[Pause/Break]**, click on the Advanced tab and then on the Error Reporting button. Here, you can click the Disable Error Reporting radio button, or choose the programs you want to exclude from getting the error reporting option. Click on Choose Programs to do this.

Add Additional Time Servers

Windows lets you synchronise your system clock with a server on the Internet. If you didn't know about it, double-click on the time and click on the Internet time tab. Check
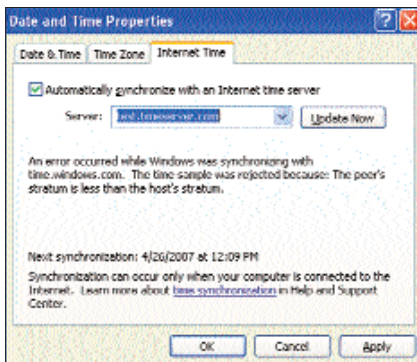
Get your PC to tell time better

"Automatically synchronize with an Internet time server" to enable it. At times, the servers may be down. To add servers, in the Registry Editor, browse to **HKEY_LOCAL_MACHINE\SOFTWARE\ Microsoft\Windows\CurrentVersion\ DateTime\Servers**. Here, create new String Values with names like 3 , 4, and so on. Double-click on them to enter the Value(s), and enter the server address(es).

Windows Hard Drive Optimisation

Windows has a system idle process that optimizes your hard drive using when you're away from the PC. In the Registry Editor, browse to **HKEY_LOCAL_ MACHINE\SOFTWARE\Microsoft\Windo ws\CurrentVersion\OptimalLayout**. Add a new key by right-clicking in the right pane and clicking **New > DWORD Value**. Name it "**EnableAutoLayout**", and give it the value "**1**".

Set Windows To Use Memory

Windows often spills data over into the page file even when there's free memory available, which can cause a drop in performance. You can't entirely rectify this, but you can do the following to reduce the number of accesses to the page file. In the Registry Editor, browse to **HKEY_LOCAL_MACHINE\SYSTEM\ CurrentControlSet\Control\Session Manager\Memory Management**. Double-click on the DWORD "**DisablePagingExecutive**" and change its value to 1.

Unload DLLs From System Memory

After a certain amount of time, Windows starts caching DLLs into memory, which can be a waste. You can get Windows to automatically unload the DLLs. Start the Registry Editor and browse to **HKEY_LOCAL_MACHINE\ SOFTWARE\Microsoft\Windows\Curre ntVersion\Explorer**. Create a new key called "**AlwaysUnloadDLL**". Change the (default) string value to "**1**".

Hide And Show Accounts

Every account created on Windows XP will show up on the logon screen. If certain accounts are inactive, you can hide them from just the logon screen. In the Registry Editor, browse to **HKEY_LOCAL_MACHINE\SOFTWARE\Mi crosoft\Windows NT\CurrentVersion\ Winlogon\SpecialAccounts\UserList**. Here, for every account you want to hide, right-click in the right pane and select **New > DWORD**. Give it the exact name of the account. Double-click on it and set a value of "**1**" to show it or "**0**" to hide it. Administrator accounts are usually hidden; you can enable the Administrator account in a similar manner.

Limit Logon Hours For Users

Parents might want to limit their children's computer usage, so they can set a time limit only between which they will be automatically allowed to log into their Windows account. Limited usage for particular users for certain time periods can be set through commands. The command for doing this is:
net user <Username> /time:<Parameters>. For example, "**net user DIGIT /time:M-F,08:00-17:00**" will only let the user DIGIT log in between 8 and 5 from Monday to Friday.

Remove Windows Messenger

Most people use Windows Live Messenger (MSN) instead of Windows Messenger, and the latter can often be an annoyance. You can remove Windows Messenger by typing the following command at a command prompt: **rundll32 setupapi,InstallHinfSection BLC.Remove 128 %SystemRoot%\INF\ msmsgs.inf**

Assign A Shortcut Key To Any Program

Any program can be launched using the keyboard by assigning a shortcut key to it.

Right click the program's shortcut (the program to which you want to assign a shortcut key). In Properties, under the Shortcut tab, "Shortcut key" is, by default, "none". Just click in the box and chose an alphanumeric key to be assigned as the shortcut key. Windows will assign [Ctrl] + [Alt] + [(Alphanumeric Key)] as the shortcut key.
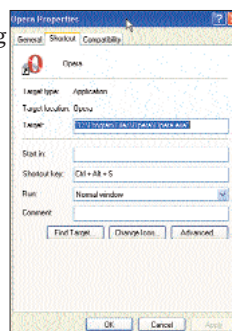
Shortcuts to anything

Shutdown, Restart, And Logoff Icons On The Desktop

You might want to have shortcuts on the Desktop for shutdown, hibernation, etc.

Right-click on the Desktop and make a new shortcut by selecting **New > Shortcut**.

Then in the Type the location of the item: box, enter "**shutdown.exe -s -t 00**", where "**00**" is the delay in seconds. (You can increase it.) You will then be asked to select a name (call it "Shutdown", for example).

After creating the shortcut, you can change the icon assigned to it by right-clicking on the shortcut and selecting Properties. The window that comes up next has a "Change Icon" option, which is easy to use.

For a Restart shortcut, use "**shutdown.exe -r -t 00**". Replacing -r by -l gives the code for logging off: "**shutdown.exe -l -t 00**". Fast user switching is also possible; the code for that is "**Rundll32.exe User32.dll, LockWorkStation**". Similarly one can also make a shortcut for Standby/Hibernation. If Hibernation is enabled, the computer will hibernate, else it will go into Standby. For this, use "**%windir%\system32\ rundll32.exe PowrProf.dll, SetSuspendState**".

Get Rid Of The Windows Update "Restart Later"

To get rid of that nag screen, run the command "gpedit.msc" to launch the Group Policy Editor. Navigate to Local Computer Policy > Computer Configuration > Administrative Templates > Windows Components > Windows Update. Select "Re-prompt for restart with scheduled installations", right-click on it, and choose Properties. Check the enable option, and select the restart interval (in minutes) to be long enough not to bother you.

Restore The Show Desktop Icon

Did you know you can "Show Desktop" by using [Windows] + [D]? That apart, sometimes, the Show Desktop icon in the Quick Launch bar goes missing. The following is the manual method to re-create the Show Desktop icon. Copy the following into Notepad:
[Shell]
Command=2
IconFile=explorer.exe,3
[Taskbar]
Command=ToggleDesktop
Save this file as "Show Desktop.scf", and then drag it to the Quick Launch bar. You can even use the Regsvr32 command for the same thing. At a command prompt, type in the following:
regsvr32 /n /i:U shell32.dll
The Show Desktop icon should now be visible in the Quick Launch bar.

30 Minutes Expert

Bash it up!
Get started with writing your own Bash scripts

Jayesh Limaye

Bash—an acronym for Bourne-again Shell, is a Unix shell written for the GNU Project and is the default shell for Linux and Mac OS X. The beauty of Bash scripts is that they let you accomplish a group of tasks quickly and without much intervention from the user—much like batch files in Windows. The syntax is similar to structured programming languages like C, and will be easier to understand for people with prior knowledge of any such programming language. We assume that you are familiar with GNU/Linux commands and with the fundamental concepts of programming.

Saving And Running Your Scripts
You can use any text editor to write your Bash scripts—any Unix-based OS you work on should have Vim installed. Save the scripts with the .sh extension anywhere on your computer. After saving it, open the terminal (as root, if necessary) and go to the folder where you saved the file. To run your script, type **bash yourscriptname.sh** in the terminal prompt.

A Very Simple Script
The first thing that anyone new to programming learns is how to print "Hello World" on the screen:
echo Hello World
This is a one line script where the action performed by the script is to print "Hello World" on the computer screen.

Variables, Functions and If
Variables can be used in Bash as in any other programming language. It is simpler here, since there are no data types to worry about—a variable can be a number, character or string. They need not be declared as in structured languages; they're created as soon as you assign a value to them.

Variables are of two types: *global*, which are recognised throughout the program, and *local*, whose recognition is limited to a function. If you have a block of code that you may want to execute a number of times, you write a function instead of the entire block all over again, saving time and resources in the bargain. Take a look at the example below:
#!/bin/bash
HELLO=Hello
function hello

```
{
local HELLO=World
echo $HELLO
}
echo $HELLO
hello
echo $HELLO
```
In the second line, the global variable **HELLO** is assigned a string value "Hello". The third line declares a function called "hello", which runs the code between the braces every time the function is called. Here a local variable **HELLO** is assigned a string value "World" which is valid only during the execution of the function "hello". Notice that we have used the common name **HELLO** for both Local and Global variables just to show that this is possible. In the sixth line, the function declaration is complete. Line 7 displays "Hello" on the screen; in the next line, the function "hello" is called which prints "World" on the screen. The ninth line, however, prints "Hello" again. The string "World" is stored in the local variable **HELLO** but does not overwrite the value of the global variable of the same name.

You can add comments to your script to make it easier others to understand—any line starting with a "#" is interpreted as a comment and is not processed.

The "if" command lets you decide the direction in which the script should proceed depending on conditions you set. The syntax is as below:
if *condition*
then
*condition* **is true**
execute all commands up to else statement
#The else block is optional
else
 # *condition* **is not true**
 execute all commands up to fi
fi

Some Basic Tasks
1. Renaming multiple files
The following script renames all the files with extension .txt to .bak.
#Use the "for" structure to run through all files
for f in *.txt;
do
mv "$f" "${f%.txt}.bak";
done
Similarly, to remove the prefix "prefx" from a group of files, the following script is used.

```
for f in prefx-*;
do
mv "$f" "${f#prefx-}";
done
```
Here ${f#prefx-} removes the prefix "prefx" from the filename.

2. Backing up files modified within the past 24 hours
Here, we will back up the files created in the current directory within the past 24 hours in a ".tar.gz" file.
#!/bin/bash
FILEBACKUP=backup-$(date +%m-%d-%Y)
incrback=${1:-$ FILEBACKUP}
tar cvf—`find . -mtime -1 -type f -print` > $incrback.tar
gzip $incrback.tar
echo "The directory $PWD has been backed up in archive file \"$incrback.tar.gz\"."
Line 2 of this script embeds the date in the backup filename. Line 3 introduces the string variable **incrback** as the filename of the archive. Line 4 tar condenses the current directory into a single tar file, while the fifth line gzip compresses the resultant tar file to the final tar.gz output file. The last line prints to the console that the current directory has been backed up to the archive file.

3. Mount and unmount drives as you please
You may wish to mount and/or unmount your drives swiftly and at one go:
 # mounting the drives
 # This mounts a partition of your hard drive
mount /dev/hda2 /hd -t ext3
 # This mounts the floppy
mount /dev/fd0 /mnt/floppy
 # This mounts the CD-ROM
mount /dev/cdrom /mnt/cdrom

And for unmounting:
 # unmounting the drives
umount /dev/hda2
umount /dev/fd0
**umount /dev/cdrom**

Ready to Bash?
We hope that you've warmed up to the concept of Bash scripting by now. This is barely the surface—Bash scripting becomes more interesting and powerful as you delve deeper, and practice is the best way to take your Bash programming skills to new levels. ∎

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ADOBE LIGHTROOM

Adobe's Lightroom is an amazing new tool for pretty much anyone with a
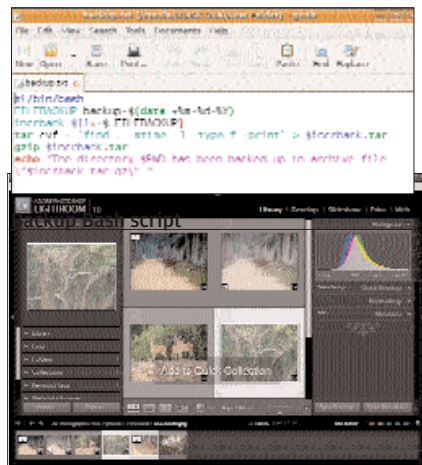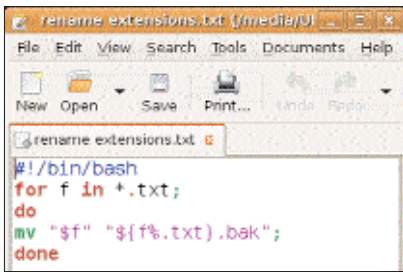
Configuring the Quick Collection

digital camera, and needs to do post-processing tasks. It acts like your own little photo studio and helps handle large collections of images. It has many of Photoshop's features put into an easier-to-use, smaller package. Here are some tips that can help unleash its features.

Add/Remove From Quick Collection

The first step is to import images into the Lightroom library by clicking on **File > Import Photos**. There's also a special library called Quick Collection, where you access your set of important or favourite photos from. You can access Quick Collection by starting the Library module and then clicking on Quick Collection in the drop-down. To add photos to your Quick Collection, you can right-click on a particular photo in the Library module, or click on "Add to Quick Collection". Alternatively, you can move the mouse to the top right of the thumbnail or image until a small circle appears. It acts as a toggle to Add or Remove images from Quick Collection.

Disable / Enable Panels

To quickly hide and unhide panels on the screen, click on the arrows at the edge of the screen. Once they're hidden,

you can unhide them by clicking on the same arrow again. Moving the mouse pointer over the same arrow will temporarily display the panel.

Hide All Panels

Export presets to other computers

To completely hide all the panels in a single move, press [**Shift**] + [**Tab**]. It acts as a toggle, so pressing it again will show all the panels. Similarly, to hide all the side panels, press [**Tab**]. Press [**Tab**] again to toggle the hide. The same commands are accessible by selecting **Windows > Panel**.

Easily Export Presets

Once you've started processing a certain image under the Develop module and want to apply the same values to other images in the future, you can save the preset by clicking on the Presets panel on the left. Clicking on the "+" sign will open up a window asking you to enter a name for the preset. This newly-saved preset and all other presets will be saved in **Documents and Settings\YourUsername\Application Data\Adobe\Lightroom\Develop Presets**. Similarly, the settings for some of the other features are saved in **Documents and Settings\Administrator\Application Data\Adobe\Lightroom**. You can move these to another machine for later use.

Remove Red-eye

You can fix red-eye in photos by using the red eye tool in the Develop module. Zoom into the area of the eye. Simply click on the Remove Red Eye button, and click and draw a box around the eye. Lightroom will remove the red-eye effect. You can further alter
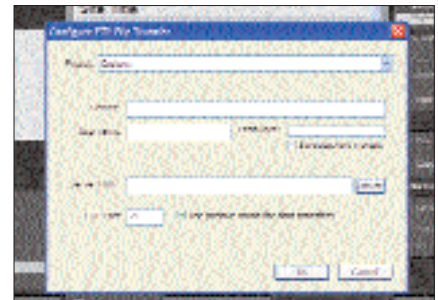

Creating Web galleries

the size of the effect and the darkness by using the sliders for pupil size and darkness.

Create Web Gallery Using HTML / Flash

One of Adobe Lightroom's features is to allow users to export your images as Web galleries to the Internet. To do this, click on the Web module button. Choose from one of the Web templates

Upload to an FTP server with ease

available in the templates browser at the left. Any customisations to the web template such as colours can be done to it. Click on "Preview in browser" to get a preview, and then on Export to export the gallery to a folder on your hard drive.

Export To FTP Servers

Exporting of image galleries to an FTP server can be done directly through Lightroom. Click on the Web module button. Scroll down the right panel to the Out section. Click on the drop-down for "FTP server" and click Edit. Here you can specify the

Auto-importing images

address for the FTP server and the authentication information. Click the Upload button to upload the Web gallery to the FTP server.

Quick Switch To Modules

Lightroom is split into modules—Library, Develop, Print, Slideshow, and Web. You can click on the buttons on the module selection panel on the top, but there are keyboard shortcuts: [**Ctrl**] + [**Alt**] + [**1/2/3/4/5**] to access the modules.

Set Up Auto Import

The Auto import feature makes Lightroom watch a particular folder for any new images, so you don't have to manually keep adding images to your gallery. To set up Auto Import, go to **File > Auto Import > Auto Import Settings**. Choose a folder to watch, and a destination for the imported photos. You can choose to set some effect presets to
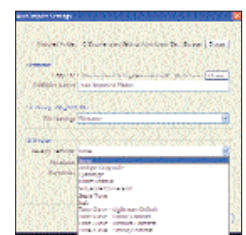
the imported images as well. Click OK. Then select **File > Auto Import > Enable Auto Import** to make Lightroom monitor the specified location.

Rejecting And Deleting Images

You'll often find several bad photos in your collection that you want to remove. You can set flags to photos, one of them being "Rejected". To reject a photo, right-click on the thumbnail in the panel at the bottom or in the library mode, and select **Set Flag > Rejected**. The shortcut is [**X**]. To delete the rejected images, you can either go to the Photo menu and click on Delete Rejected Photos, or simply use the shortcut [**Ctrl**] + [**Backspace**].

Image Filter

Picked images are images you would like to access at a different time. A filter for the flags as mentioned above is available in Lightroom so you can easily view all the rejected photos or the picked ones. ("Picked" is one of the flags.) This can be accessed by clicking on the buttons on the bottom panel under the Filter section. The same filter can be used to display only images above a certain rating.

Full-Screen Mode

You can switch to full-screen mode to hide the title-bar and taskbar, thus
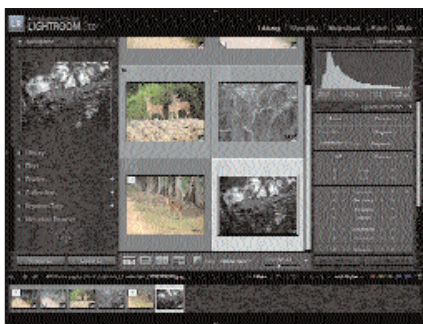
Quick Develop automatically improves pictures

increasing your workspace. Press [**F**] once to hide the title bar. Pressing [**F**] again hides the taskbar; pressing it again brings you back to the normal mode.

Quick Develop

Quick Develop is a feature in the Library module. It lets you quickly set the optimum parameters for a particular image. Click on the Library button. Scroll down to the Quick Develop section in the right panel. You can select one of the available presets, or click on Auto Tone. Auto Tone will use the best parameters for your image. The presets are where you can directly click to make an image greyscale or sepia, for example.

Keeping Track Of Edited Images

While making changes to multiple images, without saving them, you can lose track of which images have been edited.

It's quite easy: on the thumbnails of the images which have had modifications done to them, there's a small box at the bottom right of the thumbnail. You can reset the modification by right-clicking on the thumbnail, clicking on Develop settings, and clicking Reset.

Apply A Preset On All Images

Once you've applied a set of filters for a single image, you might want to apply the same effects to a batch of images. The Synchronize tool can be used for this. First, in the Develop module, you select the image you want to modify. Add effects and filters to it. You then press [**Ctrl**] + [**A**] to select all the images, or use [**Ctrl**] to manually select the images. Next, click on the Sync button in the right panel. You will then be prompted to choose—from a window with checkboxes for all the parameters—which effects you want to replicate on the other images. Unselect the ones you don't need and click Synchronize.

Metadata Browser

The Metadata browser lets you easily browse through photos in a better-sorted manner. To access the Metadata browser, enable the Library mode, then on the left panel, scroll down till you come across "Metadata browser". Here you can choose to access images by categories such as camera, lens, date, location, etc. Such information typically comes from the "EXIF" information that digicams embed into images.

Assign And Remove Keywords

Keywords will help improve the functionality of the Metadata browser. Most people enter keywords for an image through the "Keywording" section in the right panel in Library mode.

Using the Keyword Stamper

An easier and more efficient way is to click on the Grid View button in the Library mode. Enable the keystamping tool by right-clicking on the arrow pointing down, which is on the same bar as the Grid View button. Enable Keyword. A keyword stamper

will appear on the bar. Click on the text entry box next to the stamper and enter the keywords. Click the keyword stamper tool and click the thumbnails of the images you want to apply the keyword to. Click on the keyword tags section in the left panel, and you can now choose from the list of keywords to show the corresponding images.

Virtual Copies

Creating duplicates of an image— so you can try out variations—can take up a lot of space. Virtual copies store the parameter information and effects that you add and apply it to the original image thus acting as a proxy. This can save a lot of disk space. To create a virtual copy, right-click on an image or thumbnail and click on Create Virtual Copy. A new image with a little paper-fold tag at the bottom left of it will appear. Make as many modifications to it as you like, and finally, when you're satisfied, you can convert the virtual copy into a real image by exporting it to a file.

Fix Crooked Pictures

Photos sometimes end up a little tilted. Lightroom helps you fix this problem very quickly. Switch to the Develop module by clicking on the button in the module selection panel. Click on the Crop Overlay button and draw a box around the selection you want to straighten. Use the Straighten slider to the right to rotate the image. An even easier method is to use the Straighten tool and draw a line between two points on the photo, for example, the feet of a person, assuming he's standing on a flat surface, and Lightroom will straighten the image for you.

Compare Results

It's a good idea to compare the images you're working on with the original to get a clearer idea of progress. Click on the Before and After View button to have a real time preview while in the Develop module.

Lights On, Lights Off!

Lightroom has a feature that lets you temporarily mask off the toolbars so the images being worked on are prominent. Do this by clicking on the Window menu and then on Lights Out. Press [L] will cycle through the various light modes such as Dim Lights, Lights On, Lights Off.

Open An Image In Third-party Applications

In cases where Lightroom isn't doing enough for you, or you need a feature

Beyond All Recognition

Start with foobar2000's Notepad-like interface and work your way up to a media player that's right up there with the rest

Rossi Fernandes

Foobar2000 has been around for a while, but people tend to be turned off by the interface, which looks a lot like Notepadwith a few buttons. Here, we'll give you a gist of the possibilities and things to do to reduce your Winamp withdrawal symptoms.

One step closer to Audiophilia

One of things you might hear from users of Foobar2000 is that it's far better than Winamp when it comes to quality of music. One of the reasons for these claims could be the 32-bit output depth ceiling—which, however also needs to be supported by your hardware. Higher bit
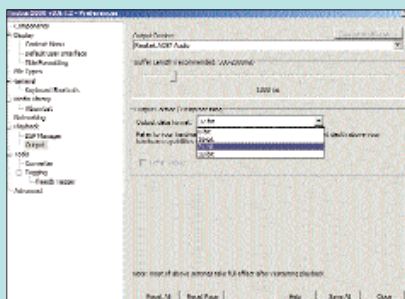

Set the output depth your hardware supports

depths mean more information can be recorded and played back. 32-bit is still pretty far-fetched even now, and most cards like the Audigy can only do upto 24 bits. Winamp is limited to a maximum of 24 bits as well but foobar2000 works with 32-bit float point, which along with dithering and noise shaping can give the tiny advantage that hardcore audiophiles want. To do this, go to **File > Preferences** and click on Output under Playback. You can alter the output data format to the bit depth supported by your hardware.

Note: Your sound card needs to support the bit depths you choose to use.

Equalizer

You also have an 18-band equalizer at your disposal, as opposed to Winamp's 10-band equalizer, which lets you get more accurate audio results. You can access the equalizer by going to **File > Preferences > Playback > DSP Manager**. Add Equalizer to Active DSPs and click on Save All. Click on Configure to open the Equalizer. Once added, you can access the equalizer from the main window by clicking on **View > Equalizer**.
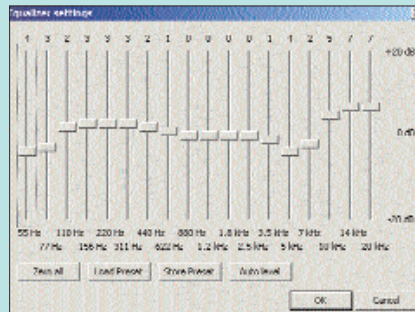

The 18-band equaliser

Kernel Streaming

Kernel Streaming skips the Windows mixer and is supposed to give better sound results than DirectSound. It also means that any volume control change in Windows will not alter foobar's volume.

The Kernel Streaming plugin does not come with Foobar2000 any more. You can download it from the Optional components section on Foobar2000's site—**www.foobar2000.org**. To install this plugin, download the zip files and unzip them into the components directory: **\foobar2000\components**. To enable Kernel Streaming, click on **File >**
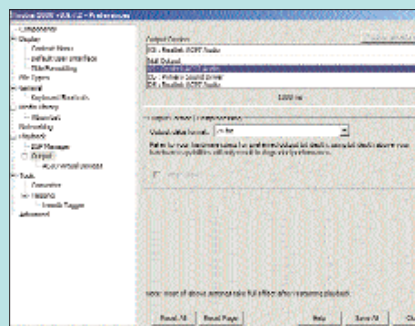
Kernel Streaming: Leave Windows out of it

Preferences > Playback > Output. Click on the Output Device dropdown and choose KS: "Your Sound device". Click on Save All.

Enhancing The Interface

The biggest drawback of Foobar2000 is the dull interface. There are plenty of interface-enhancing plug-ins to give foobar2000 a complete makeover—one of the most famous is ColumnsUI.

ColumnsUI

Get ColumnsUI from **http://yuo.be/ columns.php**. The installation of the plugin is as before—unzip the file into foobar2000's components directory, restart foobar2000 and you'll be

prompted to choose between the default foobar2000 interface and ColumnsUI. Volume control can be used by clicking on the current volume on the bottom-right of the window.

You can get readymade themes from the foobar2000 forums.
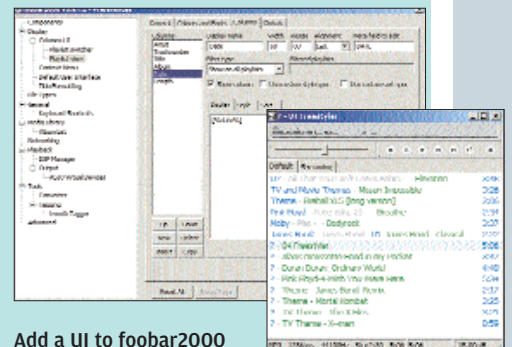
Add a UI to foobar2000

ReplayGain

Normalization is a process by evening out the differences in volume in either single tracks or albums. ReplayGain is a feature to do just this. ReplayGain is built into Foobar. You can alter the ReplayGain of tracks by right clicking on a particular track and clicking on **ReplayGain > Edit ReplayGain Info (advanced)**. Here you can manually enter the amount of amplification you want. Normalization for multiple tracks or albums can be done in a similar manner.

Keyboard Warrior

It's best to use the keyboard shortcuts to quickly change volume or track or start playing a random track. There is a default set of shortcuts already, and you can change or add more in **File > Preferences > General > Keyboard Shortcuts**. Create as many global shortcuts as possible—they will let you do tasks even while foobar2000 is minimised to the system tray.

There is a *lot* more to Foobar—a good place to start finding out is on the Foobar forums—**http://forums.foobar 2000.org**. You'll find plenty of plugins and customised layouts to try out and modify for yourself. You can spend plenty of hours having fun with on Foobar—all you'll need is some patience and a willingness to experiment.■

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YAHOO! MUSIC JUKEBOX (MUSICMATCH JUKEBOX)

Musicmatch Jukebox, or Yahoo! Music Jukebox as it is better known now, was known as an alternative to Winamp a long while ago. Yahoo! has breathed fresh life into Music Jukebox; we speak about ways to make the best of its capabilities.

Set Ratings For Tracks, Albums, And Artists

To enter ratings, just move your mouse to the number of stars you want to assign in the ratings panel at the top. You can also set ratings by clicking on the stars next to each track in the playlists.

Tag Your Music

Often, a lot of our music is never tagged properly because we are too lazy to enter information manually for each of the tracks. Yahoo! Music Jukebox, like most other media players, has a built-in feature which first analyses the track and then looks up a database on the Internet called Gracenote.

Click on the Playlists tab and then on one of the playlists. Click on a particular song, artist, or All, and click Edit Track Info or **Edit > Song Information**. Click on Suggest, and a suggestion for the track will be displayed. Click on an appropriate one and click Accept Selected Tags if it's right, or else choose Skip.

Create And Share Playlists

You have the choice of creating multiple playlists in Yahoo! Music Jukebox. It can be for the purpose of separating various genres of music, or for organising your music. To create a new playlist, right-click on the Playlists tab to the left and choose New Playlist (or press **[Ctrl] + [N]**). Sharing playlists is an easy way to tell your friends what you're playing, and if they've got the same songs, they'll be in sync with you... you get the idea.

Sharing a playlist is simple. Click on a newly-created playlist, and the upper panel will display options to share the playlist with others through e-mail, instant messenger, or a Web link that can be mailed to your friends or posted on your blog. You can also enter a description for the playlist.

Enabling Visualisations

Visualisations in Music Jukebox are disabled by default. You can enable them by clicking on the View menu and then on Show Visualizations. The main playlist region of the player will be replaced with the visualisation. It can be disabled by using the same menu, or by clicking on another tab. You can switch visualisations by double-clicking on the current one.

Encode And Compress Your Music Collection

Music Jukebox provides you a selection
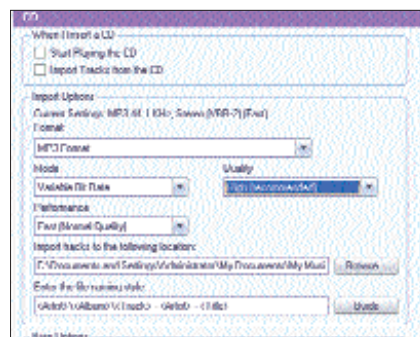
Encoding your music collection

of four formats to select from. Other than MP3, you can choose Ogg Vorbis for good compression, or FLAC for lossless compression and highest quality. You can set your preferences for encoding by clicking on the Edit menu and then on Preferences. Click on CD, and the settings can be found under the Import Options.

Monitor Your Music Database

You have the option to let Music Jukebox scan your music collection for any new entries. Select **Edit > Preferences**. Click on My Music, then on Add, and choose the paths you wish to add. You can then choose the
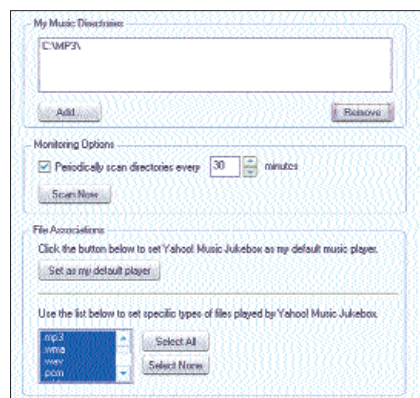

Monitor all the music you have

frequency of scans or manually scan the folder.

Find Similar Music

Yahoo! Music Jukebox uses an online feature that lets it suggest songs and artists similar to your taste. Click

on Y! Unlimited, and enter an artist or song name. Next, right-click on one of the results and click Create Similar Song Playlist. Here, you can hear a sample of the song, or buy the complete track or album.
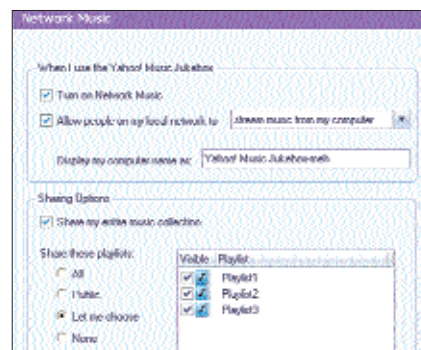
Share selectively over a network

Share Specific Music Over A Network

Yahoo! Music Jukebox can act as a music server on a network. Here you can choose to only share a couple of playlists instead of your entire collection. Select **Edit > Preferences**. Scroll down to the Network Music section. Uncheck "Share my entire music collection", and click on "Let me Choose". Here you can choose specific playlists to be shared for network access.

Compact Mode

You can quickly switch to the Mini mode by clicking [**Alt**] + [**N**], or by going to **View > Mini mode**. While in the mini mode, you can select from one of the mini skins by right-clicking on the interface, then clicking on Change Skin and selecting the skin of your choice.

The Mini Yahoo! Music Jukebox

Quick Shortcuts

Here are some tips to make manoeuvring around Yahoo! Music Jukebox a lot easier. ■

Yahoo! Music Jukebox	
Play/Pause	[Ctrl] + [Spacebar]
Stop	[Ctrl] + [S]
Next Song	[Ctrl] + [Right Arrow]
Previous Song	[Ctrl] + [Left Arrow]
Volume Up	[Ctrl] + [Up Arrow]
Volume Down	[Ctrl] + [Down Arrow]
Mute	[Ctrl] + [F12]

Q&A

PCs restarting randomly... pen drives acting weird... if it is broke, fix it!

Peculiar Ping Problem!

Q For the past few days, I have faced a peculiar problem—my computer restarts when I key in the "ping" command!

Kiran Jambhekar

A Either your network card drivers are corrupt or your network card is damaged. Try to uninstall and then install the latest network card drivers to see if the problem goes away. If not, you will have to get a new network card, which should cost about Rs 300.

Illustrations **Harsho Mohan Chattoraj**

Nokia Know-How

Q How can I use my Nokia 3230 as a modem to surf using my PC? What PC configuration do I require? How can I transfer downloaded games to a Nokia 6600?

Raj Raj

A In order to use your phone as a modem to surf the Internet, you need to first install the modem drivers for the Nokia 3230 on your PC. These drivers are provided on the CD that came with the phone; if you do not have it, you can download and install them from **http://europe.nokia.com/A4144325**. You will then have to subscribe to a GPRS plan from your mobile service provider, who will send you an SMS message with the required settings—just open this message and accept the settings, and they will automatically be saved on your phone.

Connect the phone to the PC using the

DKU-2 cable when the PC Suite prompts you to do so. After the installation completes, the Get Connected wizard will launch to help you set up your connection. A dial-up connection will be created inside Network Connections. Your service provider will give you the number you need to dial. You should then be able to connect to the Internet.

When you download a game to your Nokia mobile, it will be saved as a message with attachment (the game in this case), which you can install later. You can therefore forward this message to the 6600, and that user will be able to install and play the game you downloaded.

Setting It Right

Q The left and right audio channels seem to be swapped in my games. I can correct this problem in movies by custom mapping in Media Player Classic. But how can I do this in games?

Neyo Kiran

A A simple workaround for your problem would be to simply switch your speakers around, that is, interchange the right and left speakers—but if you want to really get to the root of the issue, read on. Most games allow you to swap audio channels from within the in-game audio options. There is no way to do it in Windows, except in certain cases where the sound card is bundled with a software utility that can let you do so. A probable solution for this problem would be to update to the latest drivers for the sound card. If the sound card is an old and obsolete one and no driver updates are available, then purchasing a new sound card would be your option.

One Two Ka Four!

Q I'm running Windows XP SP2. When I plug my Transcend 512 MB pen drive into the computer, a message pops up in the notification area: "Hi Speed USB Device plugged into a non Hi Speed USB hub." Where can I get drivers to make it Hi-Speed? I have four USB 2.0 ports.

Is there any method to automatically transfer all the messages I receive in Outlook Express to my e-mail ID at Yahoo?

Can you mention any freeware or trialware that converts Real Media files (like *.rmj) to MP3?

Devraj Santosh

A The message you've mentioned appears when you plug in a USB 2.0 device into a USB 1.1 port, so the first thing you should do is check the motherboard manufacturer's Web site to make sure that you have USB 2.0 ports. If you're sure about the four USB 2.0 ports, the problem is probably that Windows does not recognise the ports as USB 2.0. You should install the latest drivers for your motherboard from the manufacturer's Web site. After this, Windows should recognise the ports as USB 2.0, and this in turn will allow it to recognise your pen drive as a USB 2.0 device. If your ports are USB 1.1, however, you can install a USB 2.0 PCI card.

Then, do you really need to download e-mail to Outlook Express? Most e-mail providers let

Genuine Disadvantage?

Q I have a Compaq laptop and Windows XP with 512 MB of RAM. Recently, when I was surfing the Net, a Windows update was available and I was asked whether to update it or to reject it. I selected the option of updating it, as it was free of cost. Now the problem is that every time I start Windows, it gives me a warning that the Windows what I use is not a genuine one and says that I am a victim of software counterfeiting, and I will be asked to either get genuine or to resolve later. What can I do to avoid that message? Is it possible to cancel that update or delete that?

Dr. Spoorthi

A Windows Update installs the Genuine Windows Component, which verifies whether the copy of Windows XP you are using is legally licensed. If this is the copy of Windows XP your laptop came with, contact Compaq and have them resolve the issue. If, however, it was installed by someone else or you did so yourself, your copy might be illegal. This is a common case in India, because bootleg copies of Windows XP are often installed by computer "engineers" without the knowledge of the customer.

The solution to this problem is, of course, to buy a legal copy of Windows XP. If you did buy a legal copy of Windows, read on.

On validation failure, you are directed to a page where you are given the details about why the validation failed and what are the recommended steps to be taken to fix the problem. One of the steps lets you check whether you can use the online Product Key Update Tool. If you have Genuine Windows, but it was improperly installed using an invalid product key, this tool allows you to convert your computer to a genuine status without having to purchase a new copy of Windows. If this fails, you should contact the Microsoft Customer Service at **http://support.microsoft.com/gp/contactwga**.

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you forward all incoming e-mail to an address of your choice, thereby eliminating the need for Outlook Express altogether. If you do wish to have Outlook Express in the picture, you can set
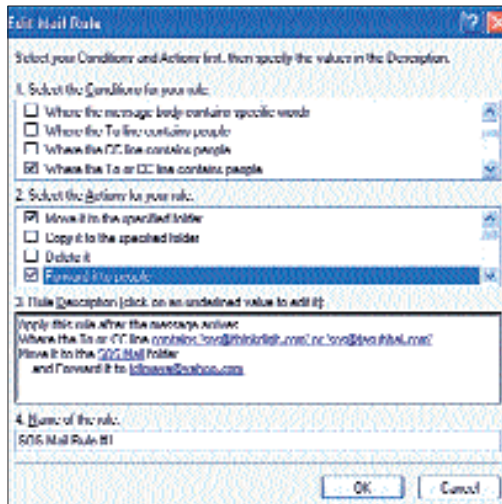
Forward your messages in Outlook Express by setting up rules

up a message rule. Go to **Tools > Message Rules > Mail**. Under "Select the Conditions for your Rule", choose "For all messages", and under "Actions", choose "Forward it to people". In the text box below, the word "People" will be a hyperlink—click on it and you'll be able to enter your Yahoo! e-mail address.

There are quite a few tools that can convert Real Media files to MP3—for example, SUPER from **www.erightsoft.net/S5FO1.html**, and WavePad from **www.nch.com.au/wavepad**.

Installation Imbroglio

Q I have a system with a PIV 2.4 GHz processor, Intel chipset Mercury board, 128 MB RAM, 40 GB hard drive. I have a problem installing any software to Win98 SE; also, while installing from the mainboard CD, I get the error 0x80070725: "Incompatible version of the RPC stub." This started while installing jetaudio-6.

Sudhan Kum

A The error is caused by an incompatible version of a DLL file that was installed on the system by different programs. Oleaut32.dll, Olepro32.dll, Asycfilt.dll, Stdole2.tlb are some of the common DLL files.

The jetAudio installation error

The error is most likely a bad version of oleaut32.dll. Follow the directions below to remove and reinstall this file. Since this resolution requires you to modify the System folder, we advise you to observe extreme caution: one wrong step may cause serious problems.

Download the following DCOM (Distributed Component Object Model) file: **http://support.installshield.com/kb/files/ Q105810/dcom98.exe** Select **Start > Shutdown > Restart in MS-DOS mode**. Enter the following commands at the command prompt:
CD c:\windows\system
rename oleaut32.dll oleaut32.old
exit

Windows will restart automatically. Ignore the error message "A required .DLL file, C:\windows\ system\oleaut32.dll, was not found." Log in as you normally would, and double-click on the DCOM file to install the new version of oleaut32.dll. Restart after the installation is complete.

Poof!

Q On pressing [Ctrl] + [Alt] + [Del], I find that the Task Manager button has gotten disabled.

Arnab Deb

A There could be two reasons for this. One of the reasons: the account you use has been blocked via the "Local Group Policy" or "Domain Group Policy". To re-enable the Task Manager, run Gpedit.msc. Navigate to **User Configuration > Administrative Templates > System > Ctrl+Alt+Del Options**. Set the

Make A Torrent Tracker!

Whether you want to start your own pirate empire (we take no responsibility) or contribute to the community, this is where you start!

Sumedh Phalak

You've been using torrents to download large files like Linux distribution images and movies from the Internet, and already know that BitTorrent is the fastest and best way to share files among large numbers of users. But have you considered sharing home videos, office clips, etc. with your friends and relatives using torrents?

Most of us know that .torrent files require a tracker to keep track of who (peer clients) has which piece of a particular torrent file. Azureus is a popular Java-based BitTorrent client with an inbuilt tracker.

Getting The Basics Sorted Out

You will require the Azureus Vuze client; get it from the *Digit* April 2007 DVD, or download it from **http://azureus. source-forge.net**. If you don't have the Java Development Kit, you could get it off the *Digit* January 2007 CD, or let Azureus download it for you. Azureus prevents basic users from creating a torrent tracker, so you'll need to switch to the advanced user mode. Under View, select Advanced, and then in Mode, select Advance User proficiency.

Coming Down To It

For your torrent to work, you have to create a server (tracker). To do so, navigate to **Tools > Options > Tracker > Server**. If you have a static IP, key it in. If you're on a dynamic IP, things are a
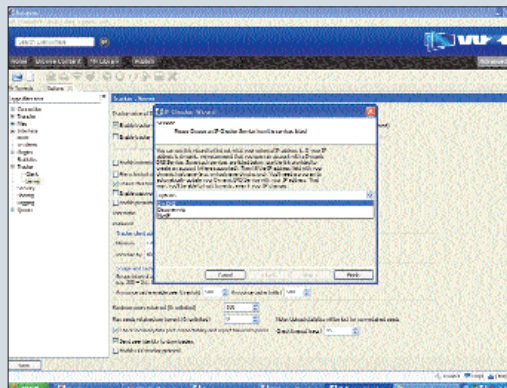
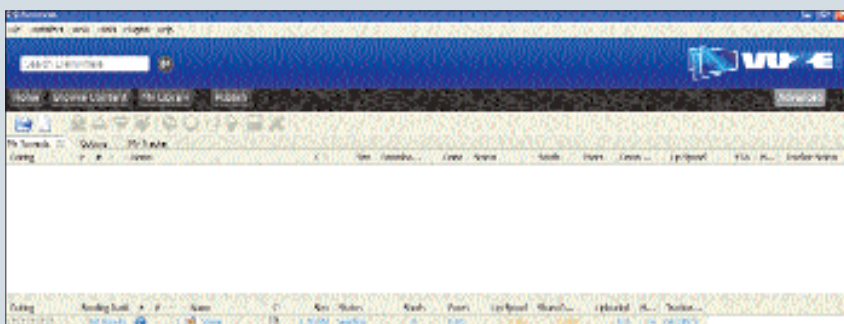Select a service if you're using a dynamic IP address

little more complicated—you will have to use Azureus along with dynamic DNS services such as DynDNS, Discoveryvip and No-IP; register with them free of cost to use them. Once that is done, key in the dynamic host name given to you during registration. You

Keep the tracker healthy by seeding it continuously

will also have to keep the dynamic DNS client running in the background while your tracker is up.

Azureus then automatically checks if the dynamic IP is being resolved or not. Enable the tracker using the checkbox, and let it use the default 6969 HTTP port. To let others host their own torrents using your tracker, turn on Enable External Torrents. You can even force these external torrents to use the default port by selecting the appropriate option. The tracker also lets you enable the UDP protocol, which will trouble your server less than HTTP, but you won't be able to control clients' download
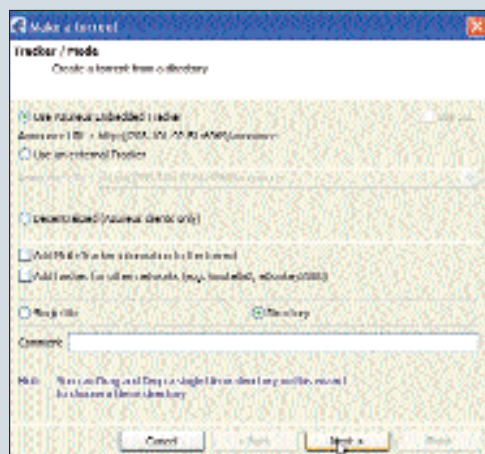
ratios—beware of leechers!

The Windows XP SP2 Firewall will require you to forward the ports used by Azureus. The simplest way to do it is by adding an exception for Azureus in the firewall. Switch your Control Panel to Classic View and open Windows Firewall. Under the Exception tab, select Add Program. Browse to the directory where Azureus is installed, select Azureus.exe, and apply the changes.

Creating The Torrent

To create a torrent, use [**Ctrl**] + [**N**] or go to **File > New Torrent**. Make sure that "Azureus Embedded Tracker" is selected; you can also share a directory in accordance with your requirements. On the third page of the "Make

a torrent" interface, don't forget to check the option to open the torrent for seeding when done. Azureus will then create the .torrent file in the directory selected.

Distributing The Torrent

Completing all the above steps properly will make Azureus seed the file. Seed your file for a long time to prevent peers from being left with incomplete files. Finally, you can distribute the torrent to your friends using e-mail or IM.

If you're releasing your personal videos or an amateur film using torrents, don't use your PC as a tracker—it won't be able to handle the traffic. Instead, opt for an external tracker service. ■

sumedh_phalak@thinkdigit.com

Remember to select the type of tracker while creating it

"Remove Task Manager" option in the right side to "Disable" or "Not Configured". Close Gpedit.msc. Then run "**gpupdate /force**".

The second possibility: the problem could be because of a change in the Registry settings, which can be corrected thus:

Open Regedit.exe, and navigate to and correct the keys as below (you should be Administrator on your machine):

[HKEY_CURRENT_USER\Software\Microsoft\Windows\CurrentVersion\Policies\System]
  "DisableTaskMgr"=dword:00000000

[HKEY_CURRENT_USER\Software\Microsoft\Windows\CurrentVersion\Group Policy Objects\LocalUser\Software\Microsoft\Windows\CurrentVersion\Policies\System]
  "DisableTaskMgr"=dword:00000000

[HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion\policies\system\]
  "DisableTaskMgr"=dword:00000000

[HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows NT\CurrentVersion\Winlogon]
"DisableCAD"=dword:00000000

A Shadowy Presence

Q I have a 256 MB pen drive. When I plug it into a system with Windows XP—it doesn't get detected in other versions—it responds by showing "New hardware found", "Installing device", and "Ready to use". Even in My Computer, the drive appears, but on opening it, it says "Please insert drive". How do I rectify this?

Joel Jose

A It seems that your pen drive is not formatted. Try to format it by opening Windows Explorer, right-clicking on it and selecting Format. If this does not seem to work, try using the HP Disk Storage Format Tool, which can be downloaded from **http://selfdestruct.net/misc/ usbboot/SP27213.exe**. If this doesn't work either, your pen drive is probably damaged.

Driving Me Nuts!

Q My system configuration is 1.2 GHz Intel Celeron, 256 MB RAM, 80 GB hard drive with six Windows partition of 10 GB each, and in the rest of the space, I'd installed Red Hat Enterprise Edition. I have dual-booting of Windows—Windows 98 SE on the C: drive and Windows XP on D:. My BenQ CD-Writer connected as secondary master, and Samsung combo drive connected as secondary slave, don't work in Windows XP, but work fine in Windows 98. The icons cannot be seen in My Computer, and when I go to Device Manager, it shows a yellow exclamation mark. I've tried uninstalling and restarting the PC, and also clicking on the option scan for hardware changes.

Manish Gupta

A This problem occurs when the chipset drivers for the motherboard get corrupted. You can go to **www.intel.com** and download the latest version of chipset drivers for your motherboard and install them. You should be able to access your optical drives on the next boot.

Giving Vista The Boot

Q I installed the beta version of Windows Vista on my computer, dual-booting with Windows XP Professional. How do I it?

Raghu Kolhe

A We're assuming you installed Vista on a separate partition with nothing else on it. Boot into Windows XP. Insert your Vista DVD into the drive, or load the image in DVD emulation software. Run "X:\boot\bootsect.exe /nt52 ALL /force" (where X is your Vista DVD drive letter). Restart the computer and you will find that the old XP boot menu has returned. Format the partition where installed Vista, and remove Boot.BAK and Bootsect.BAK.

Got A Minute… Or More?

Q The default time limit for recording in the Windows Sound Recorder utility is one minute. Is there a way to increase this to, say, 15 minutes?

Kallol Das

A To increase Sound Recorder's time limit, you need to follow this (somewhat tedious) procedure.

Open Sound Recorder and click on the Record button. Let it record for a period of one minute until it stops. Now click on **File > Save** and save the file as Blank.wav. Next, click on **Edit > Insert File…** and insert the blank.wav file you just created. You will see that the recording time limit increases by one minute. In this way, if you wish to increase it to 15 minutes, insert this file 15 times. If you wish to make 15 minutes as the default recording length, do the following: save the file you created in the previous step (this will be a 15-minute blank WAV file). Go to **Start > All Programs > Accessories > Entertainment**, right-click on Sound Recorder, and click Properties. In the Target box, you will see "%SystemRoot%\ system32\sndrec32.exe"; change it to "%SystemRoot%\ system32\ sndrec32.exe C:\Sound\blank.wav" (without the quotes), assuming you saved the blank.wav file to C:\Sound. When you start Sound Recorder the next time, this file will open automatically. After recording your audio, you can click on **Edit > Delete After Current Position** to remove the blank space after the recording is done. Don't forget to save this newly-recorded file with a new filename, because if you accidentally overwrite the blank.wav file, the recording limit will become equal to the time for which you just recorded the audio.

This is just a workaround; you can use other utilities such as Nero Wave Editor (bundled with Nero) or Goldwave from **www.goldwave.com**, for making the task easier—or even WavePad from **www.nch.com.au/wavepad**. ■

For Fine Footage

Here's what you should be looking at when you've decided to go beyond still photos

When I was recently packing for a trip abroad, my must-pack list included a handycam (camcorder if you will)—a piece of hardware I've never owned.

Now as you probably know, a handycam is quite different from a digicam. Although technology is blurring the boundaries, a digicam is for taking great still shots and not for serious video shooting. Conversely, while all handycams will take still shots, that's not what they're good at. A mediocre digital camera will outdo a good handycam at photo shooting.

When shopping for a handycam, look at a three-CCD sensor, which makes more sense than a single CCD sensor. One CCD sensor is used for each colour component—red, green, and blue—resulting in much crisper colours and true-to-life images. And make sure to skip the digital zoom specification as a decider—look at optical zoom. Now if you plan on shooting mostly family and friends—that is, close-range shooting—optical zoom will not be as significant, and 10x will suffice. For when you're holidaying, you might need a much longer optical zoom; in such cases, 30x is the norm.

Handycams that offer as much as a 40x optical zoom are available, and these don't cost too much more, though as a general rule, a handycam with a lower optical zoom identically priced to a longer optical zoom model will perform better. Another feature is wind-noise reduction, which, if not present, can render any speech useless. As with still cameras, look for image stabilisation (IS) and specifically for optical IS. Sadly, optical IS costs a lot. (The models I came across featured only digital IS.)

Most handycams around still feature mini-cassettes (mini DV tapes). Though models supporting mini DVD (8 cm, 1.4 and 2.8 GB DVD-RW media) are also around, they're quite a bit costlier. Most handycams will also feature support for additional memory cards for taking photos. You cannot store videos on the expansion cards, only photos.

You just shouldn't buy a handycam without an inbuilt flash (Night-Shot mode). Also look for flash rails to accommodate an add-on flash unit; most handycams do not have very effective flash ranges on the default unit.

All handycams have some default auto-exposure modes. They also have manual settings, which you will have to explore. Remember, you need to spend time with a handycam before reaching a purchase decision. This is truer for handycams then for digital cameras, simply because you can click again if your photo doesn't turn out right, but you can't usually re-enact an entire scene if a video doesn't turn out the way you want it to be!

Accessories like shoulder straps and carry cases are standard with most models, and some vendors like Canon and JVC also provide MMC cards, albeit tiny 8 or 16 MB ones.

You will need to invest in the mini DVDs or DVs—these aren't bundled.

I stopped by InOrbit mall and later Hypercity mall, two large ones in Mumbai's western suburbs.

From what I could gauge talking to the first attendant, Sony and Panasonic models are hot sellers, in that order, trailed by JVC. The stall had a limited range of models—the Panasonic NV-GS180 and the NV-GS47 priced at Rs 31,990 and 20,490 respectively. The man also showed me an impressive-looking Sony DVD-755 for Rs 39,990, with a touch-screen interface. There was a Samsung VP-D361i for Rs 21,990—poor on build quality, though.

The second stall I stopped by had many more options, and I could see I'd be spending a few hours here. First I saw Canon's range—the MV880i and MV850i at Rs 28,990 and 25,990 respectively. I wasn't impressed by the 1.33 megapixel sensor on the MV880i; neither was the 14x optical zoom enough for me. The MV850i had a more useful 22x optical zoom. The DVD-RW-supporting DC20 and DC100 were also on display for Rs 37,299 and 28,499. The DC20 supports a 2.3 MP CCD sensor but only 10x optical zoom. It's been designed for close range video shooting, and offers very good quality. The 25x optical zoom on the outdoor specialist—the DC100—was appreciated, but quality wasn't as good as that of the DC20.

Sony was a strong presence; their entry-level DCR-HC38E retails at Rs 20,500. It's newbie-friendly, with the "easy" button simplifying shooting under various lighting conditions. Features like 40x optical zoom and touch-screen operation mean the HC38E is excellent value for money. The DCR-SR80 is Sony's hard drive based handycam. It costs a staggering Rs 54,500, but offers a 60 GB HDD. Video quality was, unfortunately, not as good as those of some of the other models available, especially the Canon DC20.

Finally, I came across JVC, which specialises in video recorders. The GR-D370 at Rs 23,799 boasted 32x optical zoom. Looking at its performance, though, I realised this was one of JVC's value models. The GZ-MG21 at Rs 38,699 was one of the smallest models on offer. Performance was better than that of the GR-D370, though compactness would definitely be its selling point. The third JVC on display was the GR-DF570, featuring 1.92 MP for photos and 15x optical zoom.

After weighing my options, I settled for the Canon MV850i as a good compromise between optical zoom and image quality. It comes bundled with a wide (0.6x) lens, excellent for both indoor shooting and panoramic views. I haggled and haggled and got a Rs 1,000 discount. I also picked up a 512 MB SD card for still shooting, though I'll still be carrying my trusty Canon A710IS around. ∎

Want more of Agent 001? Turn over to read his answers to your buying questions

Throwing RAM At The Problem

Q I'm assembling a PC with the following specifications:
- Intel Pentium D945 (3.4 GHz)
- Intel D965RY motherboard
- ViewSonic 17-inch TFT Monitor
- Kingston 1 GB DDR2 533 MHz RAM
- 320 GB Western Digital HDD
- 20x Lite-On DVD-Writer

I want a suitable graphics card at Rs 4,000 to 6,500, and have zeroed in on the Forsa 7600GS which was featured in *Digit*, November 2006. Please give me a dealer address in Mumbai. Also, do I need a graphics card if I have 2 GB of DDR2 RAM instead of 1 GB?

Amit Puri

Forsa's 7600GS will cost about Rs 5,500 in Mumbai. Try Shree Sagarmatha Pvt Ltd, the official distributors for Forsa cards in India. The number is 011-26428541, and I'm sure they'll be able to direct you to a dealer near you.

A graphics card is essential for a good multimedia PC, especially if you plan on gaming. This is regardless of the amount of RAM you have installed. If you are using integrated graphics instead of a graphics card, the more RAM the better, because system memory is utilised as graphics memory by the VGA controller.

A suggestion regarding the above system: I'd suggest you opt for a Core 2 Duo E6300 instead of the Pentium D CPU. The performance hike is well worth the premium—around Rs 2,500 more.

Double Whammy

Q I run an AMD64 3000+ (939) PC. My motherboard is an MSI RS480M2-IL, ATI Radeon x200 based. I'm looking to buy a graphics card in the Rs 4,000 to 5,000 range. I've heard about NVIDIA cards having issues with this chipset. Should I buy an ATI card in light of this? More importantly, my primary OS is Ubuntu Dapper 6.06. I also use Windows XP. Do ATI's drivers work well under Linux?

Sudhindra

Your problem is two-pronged, Sudhindra! The MSI RS480M2-IL has issues with any NVIDIA graphics card, so you're left with ATI as an option. Now ATI has very bad driver support for Linux. There are both 32-bit and 64-bit drivers available, but they are buggy at best, especially since they are generic Linux drivers. I'm afraid you will not be able to use Ubuntu 6.06 as an OS unless you're prepared to change your motherboard and buy an NVIDIA card. Incidentally, NVIDIA's 7300GS and ATI's X1300 Pro should both be around the Rs 4,500 mark.

Of Cells And Dells

Q I am going to take up an animation course for which I have decided to buy a laptop since I will be travelling. I need something powerful, something I can use for projects as well as something that will suffice for entertainment. Right now I am thinking of Dell's XPS M1210 and the Dell Inspiron 9400. The GPU is my main concern, though storage also figures.

Also, I am using a Nokia 6630, and am planning to upgrade. My budget is around Rs 20,000. Should I buy a Nokia N80 or wait for the N93 to become cheaper? I am looking for a good camera, music, and for Web browsing.

Bapan Mazumder

If graphics is a major concern and price isn't, then you should consider the Inspiron 9400, which is available with a GeForce 7900GS graphics solution (not available on the XPS M1210), although this will cost you extra. A safer bet is a GeForce 7400 graphics solution that is available on both models, the XPS M1210 and the Inspiron 9400. Since you've mentioned multimedia as a possible use, I'd advise against the XPS1210 because of its small screen.

The Inspiron 9400 will give you storage options all the way to 200 GB.

The N80 has a decent camera and good music playback quality. The real advantage for you will be integrated Wi-Fi, which means you can connect wirelessly to your laptop and surf.

Notebook Needs

Q I need to get myself a laptop that will be used to handle my e-mail, office paperwork, and presentations at conferences. I also need a webcam. My budget is around Rs 45,000.

Dr N N Chowdhury

I'd suggest a Dell Inspiron 6400. Not only will you get one within Rs 45K, you will also get decent service and support. Dell's toll-free number is 1800-425-4026. You can also call 080-2506-8026. In terms of specifications, the Inspiron 6400 is configurable. A word of caution—it doesn't have an integrated webcam. HP's DV6000T has the option of a webcam; it offers similar specs. The DV6000T is also configurable, so your budget will be easily matched. Even if you cannot manage a Core 2 Duo within Rs 45,000, try to go with 1 GB of RAM. The same goes for the Inspiron 6400.

Nokia Connects

Q I want to buy a mobile for connecting my PC to the Internet. My budget is Rs 3,500 to 4,500. I am considering Nokia's 6030, referring to your test last year. But newer models like the Nokia 2626 also seem attractive. A camera is of no concern, but FM is a desirable feature.

Anil T K

Nokia's 6030 is an old model now. Let's talk about the 6070, which should cost you around Rs 5,000. I'd suggest this model because it has a class 10 GPRS receiver. The Nokia 2626 in comparison has a class 6 GPRS receiver, and is therefore slower than the 6070. While this may not be noticeable while browsing the Internet now, the fact that your cell has a class 10 GRPS receiver may be of importance later. You'll also get a slightly higher-resolution screen and a little more inbuilt memory. You'll also get a VGA camera, even if you don't need it, and the phone has FM inbuilt. ∎

▶ Ask Away!

Want a tech product, but don't know how to go about buying it? E-mail agent001@thinkdigit.com with your complete contact details, and he might answer them here! Please note that Agent001 only answers purchase-related questions in this space.

Audio Standards

You've heard all those terms and seen all those logos—now find out what they mean!

Asfaq Tapia

So many standards, logos, and you don't really know what it's all about! Well, digital standards for the audio industry are divided into two distinct mediums, Dolby and THX.

Dolby Pro Logic IIx

The era of 7.1 surround sound is upon us, and the Dolby Pro Logic IIx helps us come even closer to replicating original sound quality. This format is not only reserved to play movies encoded in the surround sound format; what it essentially does is expand any existing stereo or 5.1 channel audio to a 7.1 channel output.

There are three distinct listening modes integrated into this format—Movie, Music, and Game—which allow you to tailor the audio to your listening preferences. Dolby Pro Logic IIx also comes with other patented technologies such as *Dolby Center Width,* which adjusts the balance of the main vocals in the centre and front channels. Another option is *Dolby Panorama*, which creates a complete, wrap-around surround sound effect, which gives better audio clarity to any surround sound media. *Dolby Dimension* lets you set a deeper or shallower surround sound field depending on the size of your room.

Dolby TrueHD

This is Dolby's next-generation lossless technology developed for high-definition disc-based media. It delivers realistic and identical sound reproduction comparable to the studio master copy.

The main features here are 100 per cent lossless coding technology; the standard supports up to eight full-range channels of 24-bit/96 kHz audio, though theoretically, it can support more. This will ensure a better audio surround sound experience. Since it uses High-Definition Media Interface cables, there is no loss of data between player and speakers.
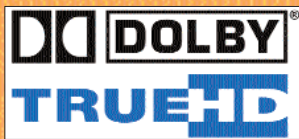
The Dynamic Range Control technology incorporated into TrueHD allows you to customise audio output to reduce peak volume levels, so that there are no loud surprises.

THX

It's important to note that THX is only a measure of quality that works together with various surround sound formats (like Dolby Digital TrueHD) to increase the quality of the sound presentation to its highest standards. THX in itself is not an audio standard; it's a quality assurance system.

To ensure the highest possible audio quality in home systems, THX defines stringent soundtrack requirements for audio transfers from DVD/CD to speakers. Such DVD/CD albums are labelled "THX Digitally Mastered for superior sound and picture quality" or simply "THX Certified". THX also defines these standards for audio components such as DVD/CD players, receivers, preamplifiers, power amplifiers, speakers, interconnect cables, speaker cables, etc.

For the everyday consumer, the "THX" label means that the highest standards have been used, whether the product is a DVD/CD-Audio title, or an audio component.

2.1 THX Ultra2

One of the latest benchmark certifications for audio performance in the home surround sound genre. This certification is reserved for receivers that have the power to deliver sound to a wide viewing area in large home theaters and media rooms. The recommended room size for THX Ultra2 Certified AV receivers is 3,000 cubic feet or larger, with a minimum 12-foot distance from video display to primary seating positions.

THX Ultra2 uses 7.1 specifications, and in the newer THX Ultra 2 Cinema mode or THX Music-Mode automatically converts 5.1 channel sound or higher to be playable through four surround speakers—two at the side and two at the back. The THX Ultra2 certified receivers and controllers feature Boundary Gain Compensation, which improves bass when the listener is near a wall.

THX Select2

Audio components certified with this standard are designed for small-to medium-sized residential living rooms, approximately 2,000 cubic feet in size with a 10-foot distance from video display to seating position. THX Select2 Certified receivers incorporate product design and performance specifications that ensure superior audio quality, product usability, and interoperability. Every THX Select2 Certified receiver features THX playback technologies designed to compensate for the acoustical errors that occur when movies, music, and games are translated from the professional studio to the home environment. THX Select2 also has listening modes—*THX Cinema*, *THX Music,* and *THX Games Mode,* which allow you to tailor the audio to your preferences. THX Select2 addresses the needs of those who need DVD/CD quality music and video game experiences, but don't require a home theatre surround sound system. ■

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Imaging **Pradip Ingale**
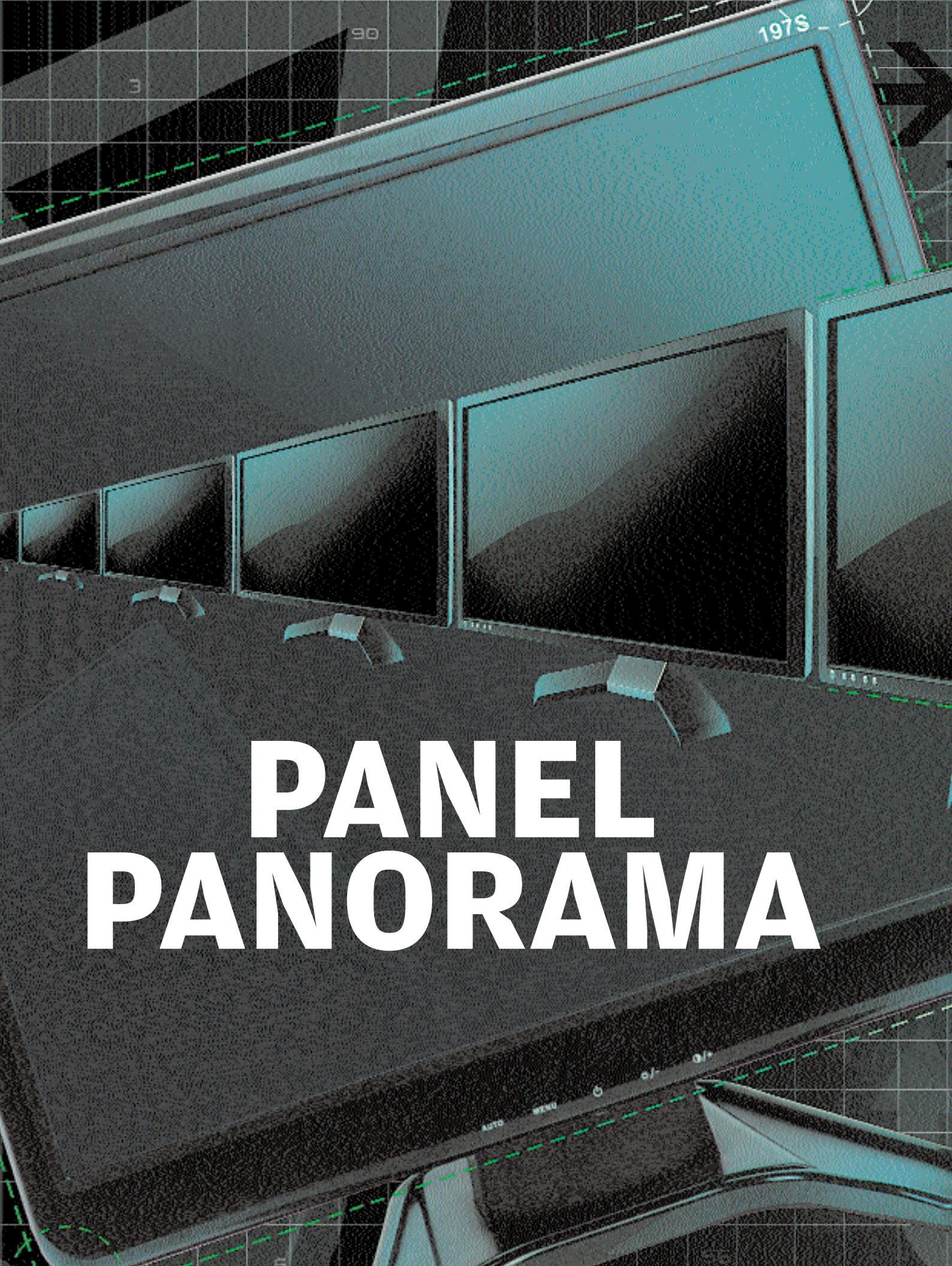
PANEL
PANORAMA

As we storm TFT shores are we really aware of what's good or are we just grasping straws? Here's some graphic advice to a flatter computing experience...34 Display Mates in our labs!

Michael Browne

If seeing is really believing, there has been sharp appreciation in the performance of LCD's since our last test way back in April last year, and this trend will continue over the next few years as manufacturers are constantly innovating flat panel technology. Then there's the binary of declining prices. Sounds too good to be true, doesn't it?

Consider this—a 19-inch LCD cost approximately Rs 25,000 last year, and sported a typical response time of 12 ms. Today, a 19-inch widescreen LCD will cost you around Rs 14,000, and sport a response time of 4 ms or thereabouts.

Domestic India has gotten onto the flat wave, and an increasing number of people have been replacing CRTs with LCDs. OEM PC manufacturers like HP, Dell, LG and Acer have been offering LCDs with their PC's for some time now. The latest craze to emerge in 2006, and continue this year, is widescreen monitors. Widescreen LCDs (with an aspect ratio of 16:10) have come out of the blue, priced lower than regular 4:3 LCDs, thanks to lower production costs. The reason for their quick adoption besides the attractive pricing is the growing adoption of multimedia PCs for movies and 3D games—all of which benefit from widescreens. DVDs and all HD sources, as you know, are typically wide aspect ratio sources, and viewing them on a widescreen monitor translates to a greater viewing area and smaller ugly black strips on the top and bottom of your screen.

Another trend we've noticed is the growing affection for larger panels—which is of course a function of their steadily declining prices. The proverbial hot cakes (15-inchers) have lost much of their fan following, and the entry level purchase has become a 17-inch LCD. The 19-inch category is sought after by enthusiasts and those heavily into Web browsing and multimedia; the 20.1-inch and above category is a favourite among demanding gamers and enthusiasts with fatter wallets.

Market trends generally reflect in our tests, which is why we received no 15-inch LCDs. What we did get was a bevy of 17- and 19-inch monitors—14 and 15 respectively. In smaller numbers were the bigger boys—the 20.1-inch (one from ASUS), 22-inch (three models) and one humongous 24-inch from BenQ. That's right—we got LCDs that are bigger than traditional TV's!

19-INCH LCDS

Fluctuations were at their wildest with prices ranging from as low as Rs 11,300 (the Intex 1904w), to a wallet-busting 35,000 (the NEC MultiSync 1990FX). As expected, specifications were quite close to each other (at least on paper), though there were quite a few additional features here and there.

A 19-inch monitor represents the best possible price point for someone interested in multimedia, but wanting something larger than a 17-inch panel. The cost difference between an entry level 17- and 19-inch monitor is as low as Rs 3,000, and as you'll see a bit later, there were 17-inch panels that cost much more than many 19-inch ones. Once you go above 19-inches, prices go haywire as you approach the realm of 20.1-inch and above panels.

A 20.1 inch LCD will cost at least Rs 4,500 more than a 19-inch, though there is hardly a difference in resolution between the two (note that 17-inch and 19-inch monitors have the same native resolution). Also most of the high-end panels—S-IPS and PVA/MVA—fall in the 20.1-inch and above size categories—monitors sporting these panels will be costlier still.

If your usage is for multimedia—games, movies, etc.—skip the 17-inch category and invest that extra bit in a 19-inch screen; the sheer visual real-estate will be worth the extra cash. In fact, a 19-inch monitor will benefit even regular office applications—Excel, most notably.

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AOC 197S
Sturdy, wallet friendly performer

Feature Rich, But Not Fancy-free

This category had the biggest price range, so it was natural to expect a lot of different features. If we were to choose a looker, it'd have to be the ASUS PG191—superb build quality, and a very classy looking buffed metal stand with a piano-black bezel topping things off. A pity the thing weighed about as much as a hippo. The stand also integrates a dedicated speaker driver unit, just behind the panel mount. Sound quality was very good—not tinny as one would expect from integrated speakers. Add to the kitty a good 1.3 Megapixel webcam that's better than the generic webcams in the market. Beauty doesn't come cheap though, and the TN panel-based PG191 costs Rs 28,000, and has touch-sensitive menu controls.

How We Tested

The Test Bench
Processor: Core 2 Extreme X6800
Graphics Card: Geforce 8800GTX
OS: Windows XP Professional SP2

All tests were performed at the LCD's native resolution, and monitors have been categorised according to panel size.

We calibrated all the LCD's using Display Mate Video Edition calibration suite. Once calibrated, no adjustments followed.

Display Test Software
1. DisplayMate Video Edition
2. PassMark's MonTest

Real World Tests
1. Animated Video file (HD 1080p clips)
2. HD movie clips
3. Game tests
   a. **Oblivion** (game played in three different environments—dungeon, outdoor and planes of Oblivion)
   b. **F.E.A.R** (fixed length demo)

Parameters Tested
DisplayMate Video Edition
1. Sharpness and Resolution Tests
2. Pixel Resolution Tests
3. Colour and Greyscale Tests
4. Miscellaneous Tests

PassMark's MonTest
Although most of the MonTest suite is similar to DisplayMate, there was one important test that it adds—the Pixel Persistence test. Here, the monitors' ability to draw and redraw a pixel is checked, which basically gives us an idea to its response time, and hence its suitability for gaming and movie-watching.

Multimedia Tests
The movie clips give as an idea of the test subjects' suitability to multimedia, by testing and judging on parameters like
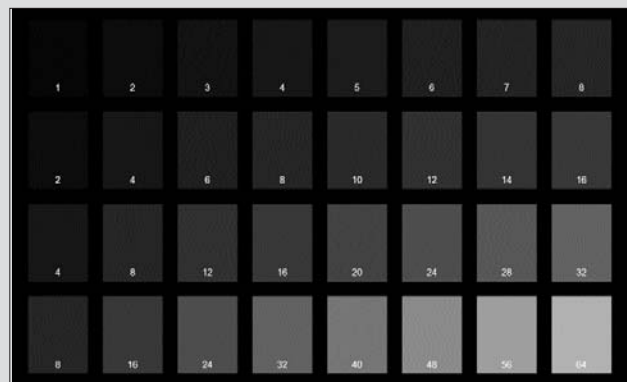
The Gray Card test in DisplayMate

Reverse Text Test - DisplayMate

brightness levels, contrast, pixel response, and colour rendition.

The Game Tests allow us to ascertain the suitability of the display to playing games. We play identical timed benchmarks across all the screens and look for input lag, ghosting, brightness and contrast, rendition of special effects like HDR, explosions, bullet time effects (in F.E.A.R) Oblivion provides us a good opportunity to judge these monitors rendition of outdoor scenery as the game has one of the best environments (graphically) in the business.

Among the others, the Intex 1904w and both the ViewSonic models looked quite sleek; the latter had better colour combinations while the 1904w had a slimmer bezel. Another beauty that caught our eye was AOC's 197S—very good build quality and top notch fit and finish. The quality of moving parts was also up there. The two big boys from NEC (MultiSync 1990FX and MultiSync 1970NXp) also sport excellent finish and supreme build quality.

The HP L1940T features height adjustment—a feature all other 19-inch monitors (besides NEC's duo mentioned above) missed out on. One welcome feature on the MultiSync 1990FX was the presence of portrait mode and you can actually tilt the screen to view web pages vertically, so there's less scrolling. The MultiSync 1990FX had one of the slimmest bezels of all, the only lament was the finish—while excellent in quality it looked rather plain.

The NEC MultiSync 1970NXp featured a very cell phone-like 5-way joystick for menu selection and navigation. It works very well, and reduces the time taken to tinker with the monitors settings—once you get used to it. Another nifty feature unique to this monitor is a trick horizontal swivel. The 1970NXp has a heavy metal base covered with plastic trim. Now when you attempt to turn the screen left and right the entire screen turns, while the metal base remains firm on the table. We say 'trick' because it doesn't appear at first to be able to swivel horizontally.

Exploring connectivity options the ViewSonic duo (VG921M and VA1912W) were in the limelight for the wrong reasons this time—they don't have DVI connects—very shocking for the 19-inch category. Also guilty of this offense by omission were AOC's 197S, HP's L1916, Intex's 1904w, LG's 1952S, and NEC's own LCD190V. None of the 19-inchers featured HDCP support, which means HDCP protected content will not work on these monitors.
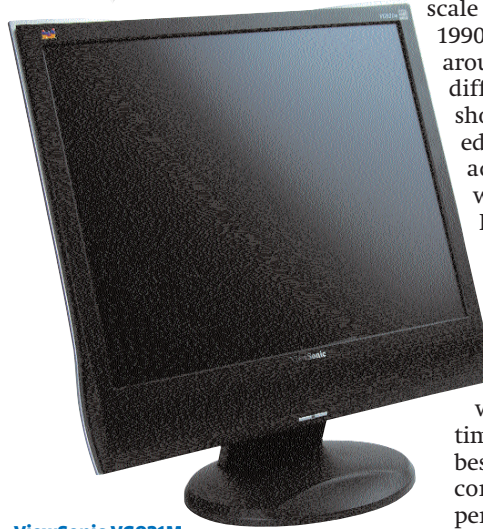
ViewSonic VG921M
A birds eye view

Of Speed And Visual Quality

DisplayMate may be Jurassic to some, but it sure helps separate the wheat from the chaff as far as quality goes. One monitor that left the others wallowing in its wake with its sheer dominance in DisplayMate's colour and gray-scale tests was NEC's MultiSync 1990FX. It was the only LCD based around an S-IPS panel, and the difference in colour rendition shows clearly. If you're an image editing professional who wants accurate colour rendition when working with Photoshop or want accurate point-scaling when rendering, the MultiSync 1990FX is the monitor for you. Gamers will also notice the difference in colours, although S-IPS panels are plagued with slower pixel response times, and this may not be the best solution for games (cost considered). The 1990FX also performed commendably in the sharpness and resolution tests, just short of the MVA panel-based MultiSync 1970NXp.

Though most people will prefer widescreen monitors for movie-watching, the wide viewing angles that S-IPS and MVA panels provide are much better than TN panels—meaning both these NECs are capable multimedia solutions. The bitter pill in both cases is the price.

A (hefty) notch lower in performance are the offerings from ViewSonic (VG921M) and HP (L1916, L1940T)—both monitors offered some very good results throughout the tests. These were very closely trailed by the LCDs from AOC, BenQ and ASUS. The PG191 had vivid and crisp colours, but the intensity of the colours seemed artificially rich—some tuning was in order. The dark horse was BenQ's FP92W. Despite the fact that it won no accolades it performed reasonably well in DisplayMate, it really came into its own with the movie and game tests. The HDR effects in Oblivion were literally eye-hurting—this smacks of a good contrast ratio—just what the doctor ordered for multimedia activities. The fact that this is a 16:10 (widescreen) monitor just adds to its appeal for the said audience.

HP's L1916 despite being a good scorer had one niggling issue—slight backlight bleeding. This killjoy makes its presence felt on a dark background.

There were no "really bad performers" this time round—all manufacturers are focusing on capturing the flat panel market, so they wouldn't dare introduce sub-standard stuff. However, there were those monitors which had minor issues, or performed consistently behind the others—sometimes both. Jetway's JM1941DF was one such monitor. We were unlucky to get a piece with an eyesore of a dead pixel. However, this is a one off issue, and dead pixels usually mean immediate replacements—so peace! There were also some issues with the black shift test—there were noticeable differences in the grey-coloured

▽ Jargon Buster

Backlight Bleeding: The surface of an LCD is backlit by CCFLs (Cold Cathode Fluorescent Lamps). The liquid crystals inside the panel orient themselves to block out all light when off, and re-orient so to allow light to pass through when on. The angle of this orientation determines the colour of the light we see.

Backlight bleeding occurs when this light is not completely blocked out, allowing some it to "bleed" through. It's noticeable on a black background, where some areas will have lighter flecks or bands than other areas. It's a problem that plagues a majority of LCDs out there. The good thing is that it's not very visible during regular work.

Pixel Response Times: This is the time taken for liquid crystals to switch on and off. Liquid crystals orient themselves to switch on and off by application of an electric current, and the time taken for this orientation is called Pixel Response Times.

Dithering: Dithering is nothing but digital noise introduced to simulate many shades of colour, starting with fewer shades. In LCDs, 6-bit panels (262,144 colours) are dithered to display 16.7 million colours (8-bit). Dithering is, simply put, interpolation and will never be as effective as true 24-bit colour. However, 6-bit panels are cheaper to manufacture making it a price-performance trade-off of sorts.

Nits: Nits is better known as candela per square meter. It is a measurement of screen brightness for all displays. Mathematically, Nits is Cd/m^2.

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Scoreboard — 19 Inch LCDs

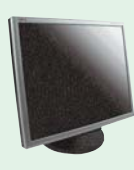| BRAND	Acer	AOC	ASUS	ASUS	BenQ	HP	HP
MODEL	AL1916	197S	PG191	VW192T	FP92W	L1916	L1940T
Features (Out of 25)	6.85	8.09	12.19	8.76	6.83	6.34	11.14
Contrast Ratio	700:1	700:1	800:1	800:1	700:1	500:1	500/700:1
Type of Panel (TN/IPS/MVA/PVA)	TN	TN	TN	TN	TN	TN	TN
Native Resolution	1280X1024	1280x1024	1280x1024	1440x900	1440x900	1280x1024	1280x1024
Response Time (ms)	8	5	2	5	5	NA	8
USB Hub (Y/N)	✗	✗	✔	✗	✗	✗	✔
No. Of Ports	NA	NA	3	NA	NA	NA	3
Card Reader (Y/N)	✗	✗	✗	✗	✗	✗	✗
Type of Memory cards supported	NA	NA	NA	NA	NA	NA	NA
Built-in Speakers (Y/N)	✗	✔	✔	✔	✗	✗	✗
Sound Quality (So 10)	NA	6.00	7.75	6.25	NA	NA	NA
VESA Wall Mount	✔	✔	✔	✔	✔	✔	✔
Swivel Base (V/H Axis)	✔/✗	✔/✗	✔/✗	✔/✗	✔/✗	✔/✗	✔/✗
Height Adjustment (Y/N)	✗	✗	✗	✗	✗	✗	✔
Portrait (Y/N)	✗	✗	✗	✗	✗	✗	✗
Power Consumption (Watts)	45	50	85	45	45	33	40
HDCP Support (Y/N)	✗	✗	✗	✗	✗	✗	✗
Inputs (D-Sub/DVI)	✔/✔/✗/✗/✗	✔/✗/✗/✗/✗	✔/✔/✗/✗/✗	✔/✔/✗/✗/✗	✔/✔/✗/✗/✗	✔/✗/✗/✗/✗	✔/✔/✗/✗/✗
Extra Features	✗	✗	Webcam	✗	✗	✗	✗
Design & Usability (So 10)							
Bezel Thickness	7.50	7.50	6.75	7.25	7.5	7.00	7.00
Quality Of Moving Parts	6.00	7.50	8	7.5	5.75	7.00	7.25
OSD Usability	6.75	7.75	6.00	7.25	7	7.25	7.25
Performance (Out of 60)	39.99	40.61	40.35	38.82	40.76	41.15	41.00
Displaymate Video Edition (So 10)							
Sharpness And Resolution Tests	6.50	6.50	6.50	6.30	6.45	6.65	6.55
Pixel Resolution Tests	6.13	6.38	6.25	6.00	6.13	6.75	6.63
Colour And Gray-Scale Tests	6.38	6.38	6.44	6.29	6.60	6.46	6.71
Miscellaneous Tests	6.31	6.50	6.25	5.88	6.56	6.69	6.44
Passmark MonTest (So 10)							
Pixel Persistence Test	7.25	6.50	7.25	7	7.25	7.00	6.50
Multimedia Tests (So 10)							
Movie Clip Pixel Persistence	7.5	7.25	7.5	7.25	7.50	7.25	7.00
Colour Rendition	7	7.25	7.25	6.25	7.25	7.25	7.00
Contrast	6.5	7.00	6.5	6	6.75	7.00	6.75
Overall Viewing Experience	6.25	7.00	6.75	6.25	6.75	7.00	6.75
Game Tests (So 10)							
F.E.A.R							
Pixel Response	7.5	7.00	7.5	7.5	7.5	7.50	7.50
Bullet Time Effects	7	6.75	7	7	7	7.25	7.00
Shadows	6.25	6.50	6.5	6	6	6.75	7.00
Particle Effects	6.25	6.75	6.75	6.5	6.5	6.75	6.75
HDR and Contrast	6.5	6.75	6.5	6	6.5	6.75	7.00
Oblivion							
Foilage, Scenery, Texturing On Grass	6.5	6.75	6.5	6.75	6.5	6.50	6.75
HDR Effects	6.5	6.50	6	5.5	6.5	6.75	6.50
Transparency Effects	6.5	7.00	7	6.75	6.75	6.75	6.50
Viewing Angles (So 10)							
Viewable Angle Test (Text)	7.75	7.50	7.75	6.75	7.75	7.75	7.75
Viewable Angle Test (Movie)	6	5.75	6.5	5.75	6.25	6.00	6.50
Features (Out of 25)	6.85	8.09	12.19	8.76	6.83	6.34	11.14
Performance (Out of 60)	39.99	40.61	40.35	38.82	40.76	41.15	41.00
Price Index (Out of 15)	10.50	13.13	5.63	12.12	11.25	7.88	7.00
Final Scores (Out of 100)	57.34	61.82	58.16	59.70	58.84	55.36	59.14
Price	15,000	12,000	28,000	13,000	13,999	19,999	22,490

+ Good performance, slim bezel
- Slightly costly

+ good performance and looks
- gloss finish catches smudges

+ feature rich
- too costly

+ Looks
- Lacks performance

+ Good performer, decent price
- None in particular

+ too costly
- pricey

+ good performance
- very pricey

19 Inch LCDs

	Intex	Jetway	LG	NEC	NEC	NEC	ViewSonic	ViewSonic
	1904w	JM1941DF	L1952S	MultiSync 1990FX	MultiSync 1970NXp	LCD190V	VG921M	VA1912W
	7.48	8.04	6.28	9.63	9.62	6.21	7.65	7.53
	700:1	700:1	1600:1	800:1	800:1	NA	700:1	700:1
	TN	TN	TN	S-IPS	MVA	TN	TN	TN
	1440X900	1280x1024	1280x1024	1280x1024	1280x1024	1280x1024	1280x1024	1440x900
	2.6	8	8	14	20	8	8	5
	✗	✗	✗	✗	✗	✗	✗	✗
	NA	NA	NA	NA	NA	NA	NA	NA
	✗	✗	✗	✗	✗	✗	✗	✗
	NA	NA	NA	NA	NA	NA	NA	NA
	✔	✔	✗	✗	✗	✗	✔	✔
	5.25	5.50	NA	NA	NA	NA	6.00	5.75
	✔	✔	✔	✔	✔	✔	✔	✔
	✔/✗	✔/✗	✔/✗	✔/✗	✔/✔	✔/✗	✔/✗	✔/✗
	✗	✗	✗	✔	✔	✗	✗	✗
	✗	✗	✗	✔	✗	✗	✗	✗
	45	NA	33	40	38	38	55	32
	✗	✗	✗	✗	✗	✗	✗	✗
	✔/✗/✗/✗/✗	✔/✔/✗/✗/✗	✔/✗/✗/✗/✗	✔/✔/✗/✗/✗	✔/✔/✗/✗/✗	✔/✗/✗/✗/✗	✔/✗/✗/✗/✗	✔/✗/✗/✗/✗
	✗	✗	✗	✗	✗	✗	✗	✗
	7.00	6.00	7.75	8.50	8.00	7.75	6.25	6.00
	6.50	6.25	6.50	7.50	7.75	6.00	6.75	6.50
	6.25	6.00	7.00	7.50	7.50	7.25	7.00	7.00
	38.48	39.42	40.28	44.34	44.24	39.59	41.10	38.85
	6.30	6.30	6.40	7.30	7.50	6.80	6.70	6.10
	6.25	6.13	6.50	6.88	7.13	6.50	6.75	6.25
	6.17	6.37	6.48	7.21	7.06	6.58	6.79	6.46
	6.44	6.25	6.44	7.25	7.13	6.56	6.63	6.38
	6.00	6.75	6.75	7.00	7.00	6.25	7	6.75
	7.25	7.00	7.25	7.00	7.25	6.50	6.75	6.25
	7.00	7.00	7.00	7.50	7.00	6.25	7	6.50
	6.50	6.00	6.75	7.25	7.50	6.25	6.75	6.25
	6.50	6.50	6.75	7.25	7.25	6.50	6.75	6.25
	6.75	7.25	6.75	7.25	7.25	6.50	6.75	6.75
	7.00	7.00	6.75	7.25	7.50	6.50	6.75	6.50
	6.00	6.50	6.50	7.25	7.25	6.00	6.75	6.25
	6.75	6.75	6.75	7.50	7.75	6.50	6.5	6.50
	6.00	6.75	6.50	7.50	7.50	6.00		6.25
	6.50	6.50	6.75	7.00	7.25	6.50	6.75	6.50
	6.00	6.25	6.25	7.25	7.25	6.50	6.5	6.25
	6.50	6.50	6.75	7.25	7.25	6.50	6.75	6.25
	7.50	7.50	7.50	8	8	6.75	6.5	6
	5.75	6.00	6.00	7.50	7.50	5.75	6.25	5.75
	7.48	8.04	6.28	9.63	9.62	6.21	7.65	7.53
	38.48	39.42	40.28	44.34	44.24	39.59	41.10	38.85
	13.94	12.12	11.67	4.50	5.43	5.63	12.26	12.26
	59.89	59.58	58.22	58.47	59.28	51.42	61.01	58.64
	11,300	13,000	13,500	35,000	29,000	28,000	12,850	12,850

+ Attractive looks	+ Good looks, solid build	+ Slim Bezel, well built	+ excellent performance, build quality	+ excellent performance, looks	+ Sleek looks	+ Good performer, great price	+ Widescreen, looks good
− Lower performance	− performance	− None in particular	− Costly	− Costly	− lacks performance	− None in particular	− Low performance

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Scoreboard			**17 Inch LCDs**			
BRAND	**Acer**	**AOC**	**AOC**	**ASUS**	**BenQ**	**Dell**
MODEL	**AL1706**	**LM725**	**177V**	**PM17TX**	**FP71G+**	**1707FP**
Features (Out of 25)	**4.87**	**7.05**	**8.38**	**8.14**	**4.88**	**5.17**
Contrast Ratio	800:1	450:1	800:1		500:1	450:1
Type of Panel (TN/IPS/MVA/PVA)	TN	TN	TN	TN	TN	TN
Native Resolution	1280x1024	1280x1024	1280x1024	1280x1024	1280X1024	1280X1024
Response Time (ms)	8	16	5	3	8	12
USB Hub (Y/N)	✗	✗	✗	✗	✗	✗
No. Of Ports	NA	NA	NA	NA	NA	NA
Card Reader (Y/N)	✗	✗	✗	✗	✗	✗
Type of Memory cards supported	NA	NA	NA	NA	NA	NA
Built-in Speakers (Y/N)	✗	✔	✔	✔	✗	✗
Sound Quality (So 10)	NA	5.00	6.00	6.25	NA	NA
VESA Wall Mount	✔	✔	✔	✔	✗	✔
Swivel Base (V/H Axis)	✔/✗	✔/✗	✔/✗	✔/✗	✔/✗	✔/✗
Height Adjustment (Y/N)	✗	✗	✗	✗	✗	✗
Portrait (Y/N)	✗	✗	✗	✗	✗	✗
Power Consumption (Watts)	45	45	37	48	40	34
HDCP Support (Y/N)	✗	✗	✗	✗	✗	✗
Inputs (D-Sub/DVI)	✔/✗/✗/✗/✗	✔/✗/✗/✗/✗	✔/✔/✗/✗/✗	✔/✔/✗/✗/✗	✔/✗/✗/✗/✗	✔/✗/✗/✗/✗
Extra Features	✗			✗	✗	✗
Design & Usability (So 10)						
Bezel Thickness	7.25	6.50	7.50	6.75	7.00	7.75
Quality Of Moving Parts	7.00	6.25	7.50	7.50	7.00	7.50
OSD Usability	6.75	6.50	7.75	6.50	7.00	7.50
Performance (Out of 60)	**39.26**	**37.34**	**38.96**	**39.60**	**39.24**	**39.39**
Displaymate Video Edition (So 10)						
Sharpness And Resolution Tests	6.70	5.65	6.65	6.20	6.60	6.55
Pixel Resolution Tests	6.63	6.00	6.50	6.63	6.50	6.63
Colour And Gray-Scale Tests	6.81	6.73	6.71	6.67	6.54	6.50
Miscellaneous Tests	6.69	6.63	6.69	6.63	6.63	6.81
Passmark MonTest (So 10)						
Pixel Persistence Test	6.50	7.00	6.75	6.75	6.75	6.75
Multimedia Tests (So 10)						
Movie Clip Pixel Persistence	6.75	6.50	6.50	6.50	6.50	6.75
Colour Rendition	6.50	6.50	6.50	6.75	6.75	6.50
Contrast	6.75	6.50	6.75	6.75	6.50	6.75
Overall Viewing Experience	6.75	6.50	6.75	6.75	6.50	6.75
Game Tests (So 10)						
F.E.A.R						
Pixel Response	6.75	6.50	6.50	6.50	6.25	6.50
Bullet Time Effects	6.75	6.50	6.75	6.75	6.50	6.50
Shadows	6.25	6.25	6.50	6.50	6.50	6.25
Particle Effects	6.50	6.25	7.00	6.50	6.75	6.50
HDR and Contrast	6.50	6.50	6.50	6.75	6.50	6.75
Oblivion						
Foilage, Scenery, Texturing On Grass	6.50	6.25	6.75	6.75	6.50	6.50
HDR Effects	6.50	6.25	6.50	6.50	6.25	6.50
Transparency Effects	6.25	6.25	6.50	6.50	6.50	6.50
Viewing Angles (So 10)						
Viewable Angle Test (Text)	7.25	6.75	6.75	7.25	7.25	7
Viewable Angle Test (Movie)	6.50	6.00	6.50	6.50	6.75	6.75
Features (Out of 25)	**4.87**	**7.05**	**8.38**	**8.14**	**4.88**	**5.17**
Performance (Out of 60)	**39.26**	**37.34**	**38.96**	**39.60**	**39.24**	**39.39**
Price Index (Out of 15)	**11.59**	**13.42**	**13.01**	**9.44**	**11.81**	**9.44**
Final Scores (Out of 100)	**55.71**	**57.81**	**60.34**	**57.19**	**55.92**	**54.00**
Price	**11,000**	**9,500**	**9,800**	**13,500**	**10,800**	**13,500**

+ **Good looker**
- **Slightly pricey**

+ **Price**
- **Performance and looks**

+ **Performance**
- **None in particular**

+ **Good performance**
- **Costly**

+ **Decent performance**
- **Aesthetics**

+ **Superb build**
- **price**

17 Inch LCDs

	Intex	Jetway	LG	NEC	Samsung	Samsung	Viewsonic	Viewsonic
	1703	1741S	L1732S	LCD170V	713BM Plus	740N	VA1703w	VA703m
	7.04	7.09	4.58	4.88	7.87	4.78	7.44	7.29
	500:1	500:1	700:1		1000:1	600:1	500:1	700:1
	TN	TN	TN	TN	TN	TN	TN	TN
	1280x1024	1280X1024	1280X1024	1280x1024	1280x1024	1280x1024	1440x900	1280x1024
	12	8	8	8	5	8	8	8
	✗	✗	✗	✗	✗	✗	✗	✗
	NA	NA	NA	NA	NA	NA	NA	NA
	✗	✗	✗	✗	✗	✗	✗	✗
	NA	NA	NA	NA	NA	NA	NA	NA
	✔	✔	✗	✗	✔	✗	✔	✔
	5.00	6.00	NA	NA	5.75	NA	6.00	5.25
	✔	✔	✔	✔	✔	✔	✔	✔
	✔/✗	✔/✗	✔/✗	✔/✗	✔/✗	✔/✗	✔/✗	✔/✗
	✗	✗	✗	✗	✗	✗	✗	✗
	✗	✗	✗	✗	✗	✗	✗	✗
	36	38	35	37	42	34	21	35
	✗	✗	✗	✗	✗	✗	✔	✗
	✔/✗/✗/✗/✗	✔/✗/✗/✗/✗	✔/✗/✗/✗/✗	✔/✗/✗/✗/✗	✔/✔/✗/✗/✗	✔/✗/✗/✗/✗	✔/✗/✗/✗/✗	✔/✗/✗/✗/✗
	✗	✗	✗	✗	✗	✗	✗	✗
	6.00	6.00	6.25	6.50	6.75	7.25	6.25	6.25
	6.00	6.00	6.50	7.25	6.50	6.50	7.00	7.00
	7.25	6.25	6.50	7.00	7.00	7.00	6.75	6.75
	37.37	38.03	39.23	39.06	39.50	37.40	39.26	39.17
	6.35	6.40	6.50	6.69	6.45	6.25	6.65	6.65
	6.25	6.25	6.50	6.63	6.75	6.38	6.38	6.50
	6.46	6.71	6.58	6.54	6.65	6.15	6.71	6.75
	6.63	6.38	6.50	6.63	6.56	6.44	6.69	6.56
	6.25	6.50	6.75	6.50	5.75	6.75	6,75	6.50
	6.75	6.25	6.50	6.50	6.25	6.75	6.50	6.50
	6.50	6.50	6.75	6.75	7.00	6.50	6.50	6.50
	6.50	6.50	6.50	6.50	7.00	6.50	6.75	7.00
	6.50	6.50	6.50	6.50	6.75	6.50	6.75	6.50
	6.50	6.50	6.75	6.50	7.00	6.75	6.50	6.25
	6.50	6.50	6.50	6.50	6.50	6.50	6.75	6.50
	6.50	6.50	6.50	6.25	6.75	6.50	6.25	6.50
	6.75	6.75	6.75	6.25	6.50	6.50	6.75	6.75
	6.25	6.25	6.50	6.25	6.75	6.50	6.50	6.25
	6.50	6.25	6.50	6.50	6.75	6.50	6.75	6.50
	6.25	6.25	6.50	6.25	6.25	6.25	6.25	6.25
	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50
	6.25	6.5	6.75	6.5	7.5	7	7.25	7
	5.75	6.25	6.25	6.00	6.00	6.25	6.50	6.50
	7.04	7.09	4.58	4.88	7.87	4.78	7.44	7.29
	37.37	38.03	39.23	39.06	39.50	37.40	39.26	39.17
	13.86	12.76	12.14	8.50	6.71	12.75	12.75	12.09
	58.26	57.88	55.95	52.44	54.07	54.93	59.45	58.54
	9,200	9,990	10,500	15,000	19,000	9,999	9,999	10,550

Intex	Jetway	LG	NEC	Samsung	Samsung	Viewsonic	Viewsonic
+ Very cheap	+ Well Priced	+ Well Priced, good performer	+ Good looks	+ good performer	+ ultra narrow bezel	+ Widescreen, performance	+ Decent performance
- lacks performance	- Lower Contrast Ratio	- Lower Contrast ratio	- Pricey	- very pricey	- performance	- None in particular	- None in particular

The Elite

There aren't enough 22-inch and above LCDs in the market for us to pit against each other, so we'll look at each of these big ones individually

BenQ

The FP241W is part of a small community of large, 1080p supporting, widescreen LCDs based on Samsung's excellent S-PVA panel technology. Other members of this exclusive club include Dell's 2407WFP, Samsung's own 244T and Acer's AL2423Wdr.

The FP241W is a huge monitor, with an intimidating stand—well in keeping with such a large screen. It sports an ultra large resolution of 1920x1200 pixels, and a whopping luminance of 500 Cd/m^2. The contrast ratio of 1000:1 means you won't be missing out on any of the action—be it movies or games. And that's the kind of user who will appreciate this kind of monitor—the enthusiast.

It blazed through all our tests, shaming all other monitors across all the other categories. While calibrating it using DisplayMate, we could see all the grey shaded cards, despite the background being absolutely black—only NEC's 1990FX came that close—this speaks volumes for the contrast ratio. The viewing angles are also excellent, with absolutely no colour distortion while changing horizontal and vertical viewing angles—this is a characteristic of PVA panels. Watching movies was a pleasure on this monitor, and it's viewable from quite a distance (courtesy its large screen). Gaming buffs will drool at the prospect of playing games on such a monitor—absolutely glorious colour (native 8-bit) and excellent contrast—we tried our hands at *FarCry, F.E.A.R, Company of Heroes, Oblivion and S.T.A.L.K.E.R.* and were very impressed.

BenQ's imbued the FP241W with a lot of nifty features—height adjustment, portrait mode (goodbye to web page scrolling), and the regular horizontal and vertical swivel. The build quality of the moving parts is right up with the best. The bezel is also very slim for a monitor this size.

The FP241W features S-Video, Component and even HDMI connectivity on the video front, besides the mandatory DVI and D-Sub inputs—a host of connectivity options, to be sure. Four USB ports are also provided.

At Rs 49,990 the BenQ FP241W isn't cheap. In fact, it's nearly the price of a 32-inch LCD TV. You do get immense functionality though, not to mention a huge resolution advantage. If you happen to be one of those rich blokes who's LCD shopping, just close your eyes and whip out your cheque book!

Price (Rupees)—49,990

RATINGS	
Features	★★★★⯪
Performance	★★★★⯪
Build Quality	★★★★☆
Value for Money	★★★★☆
Overall	★★★★☆

Dell E228WFP

Acres Of Fun

Dell's E228WFP is one of their value series monitors, (which in Dell-speak means it's based on a budget panel technology—TN). Nonetheless, it's a very capable LCD with a lot of screen area to offer.

At a resolution of 1680x1050 pixels the E228WFP is all about widescreen satisfaction. A contrast ratio of 800:1 and a luminance of 300 Cd/m^2 will see it through most applications with ease.

The monitor comes with Dell's usually exemplary stand—we've been impressed by this before.

Featuring digital and analog inputs, the E228WFP ran into some problems in DisplayMate's 64-intensity test for primary colours, where the first four intensities looked identical! Mysteriously, this problem didn't persist in the 16-intensity test or the 256-intensity ramp.

Movie-watching is good on the E228WFP, with none of DisplayMate's concerns rearing their heads here, though the contrast doesn't even begin to approach the exemplary FP241W. It's an unfair comparison, however—S-PVA is definitely a superior panel technology than TN.

F.E.A.R and *Oblivion* looked good with crisp colours and good HDR effects. The E228WFP makes a strong statement for a gaming monitor for gamers who need the additional 2-inches of real estate it offers.

Image and rendering professionals should look—at the FP241W or NEC's 1990FX/1970NXp duo, or Dell's very own UltraSharp series, though—unfortunately, this is a 6-bit panel and not suited for such tasks.

Price (Rupees)—26,000

RATINGS	
Features	★★★★⯪
Performance	★★★★⯪
Build Quality	★★★★⯪
Value for Money	★★★☆☆
Overall	★★★★⯪

ASUS MW221u
The Fast Responder

ASUS' MW221u is a TN-panel based offering boasting a response time of only 2 ms. A resolution of 1680x1050, contrast ratio of 700:1, and a brightness of 300 Cd/m^2 are all well in keeping with panels of this type and size.

While we couldn't find any serious fault with the build quality, it's not as good as some of the other ASUS monitors we tested. The bezel is reasonably narrow, and the control buttons look really nice with a metallic finish and the way they fit flush with the panel, though they're as hard as walnuts to press. Another sore point

RATINGS	
Features	★★★★⯪◯
Performance	★★★★⯪◯
Build Quality	★★★★⯪◯
Value for Money	★★★★◯
Overall	★★★★⯪◯

is the stand—circular just isn't hot anymore.

A good performer with stable results throughout DisplayMate, the MW221u is a good monitor for movies and games. Although the contrast specifications put it lower than Dell's (on paper) this isn't particularly noticeable.

At Rs 23,500, the MW221u is 2,500 bucks cheaper than Dell's E228WFP. A better option as far as display quality goes, the MW221u only looses out as far as looks and ergonomics go.
Price (Rupees)—23,500

ViewSonic VX2235wm
The Finch Connection

ViewSonic has been known for many things—looks, build and great display quality. Exemplifying all this is the VX2235 a 22-inch TN panel-based beauty, decked in gorgeous piano-black finery. The build quality is good, and although the stand is quite bulky, it's well sculpted and looks cool.

The lack of a higher brightness specification (280 Cd/m^2) didn't seem to affect this panel's performance in any way. Its contrast ratio of 700:1 is adequate, and the viewing angles were slightly better than those on the ASUS MW221u and the Dell E228WFP.

This was also the only 22-incher to sport in-built

RATINGS	
Features	★★★★⯪◯
Performance	★★★★⯪◯
Build Quality	★★★★◯
Value for Money	★★★◯◯
Overall	★★★★⯪◯

speakers; speakers shouldn't bias an LCD decision, and these were tinny enough to cement that opinion.

There were no issues in any of the tests—DisplayMate and MonTest sailed through with no alarms, if not flying colours. *F.E.A.R.* looked good on this monitor, though all three 22-inchers had issues with shadow detail, which is more of a contrast ratio problem that typically plagues TN panels. That said, HDR looked good in Oblivion, as did the scenery—easily on par with, and perhaps better than the E228WFP.

At Rs 25,750 the VX2235wm is nearly as pricey as the E228WFP, but loses out to the well priced MW221u.
Price (Rupees)—25,750

ASUS PW201
Show With The Go

The ASUS PW201 is a great looking monitor complete with a heavy metal stand (lighter than the PG191 though) and an excellent piano-black finished body. While the bezel isn't narrow, it contains a touchpad for the controls, speakers that sound half decent (emphasis on *half*), and a 1.3 megapixel webcam. The stand allows for height adjustment, and this panel can actually be oriented face-up like a table! ASUS provides a plethora of connectivity options—D-Sub, DVI, S-Video and component. There are three USB ports as well.

One sore point was the bulky power adapter (supplied). The BenQ FP241W uses an internal adapter and ASUS should incorporate one as well.

The panel is a P-MVA, which means you can expect great contrast ratios as well as good colour (native 8-bit). A contrast ratio of 800:1 and a brightness of 350 Cd/m2 seem

RATINGS	
Features	★★★★★
Performance	★★★★★
Build Quality	★★★★★
Value for Money	★★★★★
Overall	★★★★★

about right for this sort of panel. The PW201 had excellent viewing angles—very close to BenQ's FP241W.

Gamers concerned with the response time of 8 ms can rest easy—we noticed absolutely no ghosting or lag during our gaming benchmarks. Geometry and colours were up to the mark, and this monitor places behind the FP241W and 1990FX as far as DisplayMate goes. Movie-watching is as panoramic and engaging as you'd expect on a high quality widescreen such as this one.

With performance in the bag, looks covered and a feature list a mile long, the only way the PW201 could goof up is in pricing—at Rs 36,000, it's quite costly. Despite the features, the sheer performance, its looks and the connectivity options, the PW201 still seems a bit overpriced—five-odd thousand less and we'll swallow it.
Price (Rupees)—36,000

bar comparing the edges and the centre (this should not be the case).

Intex's 1904w performed even worse than the JM1941DF. While calibrating using DisplayMate, we were unable to get many grey blocks on a black background. The purpose of this particular screen is to check the monitors black levels, and contrast ratio. Tuning the monitor to make more invisible grey boxes appear was only possible if we sacrificed background black levels. There were also issues with colour intensity tests—especially for blue. We don't recommend this monitor for gamers, and image editing professionals should avoid this like the plague. However, the price (Rs 11,300) makes it attractive for those working with documents and online content. It is aesthetic enough for an office monitor, and casual home users will be interested to note that many 17-inch monitors cost as much as this one—you're virtually getting 2 inches free!

The ASUS VW192T suffered in the reverse video and reverse text tests—green, yellow and cyan weren't visible on a grey background, and that's not the end of it. There is a contrast ratio problem with the VW192T that's a mile wide, and quite noticeable with colour gradations in movies. This panel also has slightly lower brightness levels due to which the HDR effects in Oblivion seemed a little less bloomy than we're used to. This last point however is not really a contrast ratio problem as we mentioned, but a luminance problem—not enough nits (lower Cd/m² spec).

Decision Time

The 19-inch category was closely fought, no quarters taken and none given. AOC took home gold with *Digit's Best Buy Gold Award*—its performance and the brilliant pricing saw it in good stead. The Silver was bagged by the ViewSonic VG921M, as it out-did its widescreen sibling (VA1912W) by some margin. However, take a look at the raw performance scores and you'll see both the 8-bit panels NEC's far ahead in this regard. The MultiSync 1990FX and 1970NXp are the *only* options for discerning professionals with no price constraints.

17-INCH LCDS

The 17-inch LCDs represent the new entry level for anyone looking for flat-panel PC monitors. They've successfully taken over the mantle from the 15-inchers as the face of value in the Indian market.

HDCP & LCD Monitors

High-Bandwidth Digital Content Protection (HDCP) is a data encrypting system initiated by Intel Corporation and developed by Silicon Image. As the name suggests, HDCP protects digital video and audio content by encryption at every stage of transmission as it moves across digital connects—namely DVI and HDMI—to, ultimately, your screen. This protection is necessary to combat the oldest evil known to digital content—piracy or unauthorised access and duplication.

A PC or a DVD player has to be licensed with HDCP controls before it can play HDCP-protected content. All upcoming standards including Blu-Ray and HD-DVD feature this form of content protection.

What you do need to know is HDCP is built into a few LCD monitors, which you will need to invest in if using such High-Definition content—especially on Windows Vista.

Do also note that when using analog connectivity i.e. D-Sub, it's possible to bypass encryption completely, and display HD content without HDCP. Microsoft has an answer to this—drivers will either constrict resolutions or disable output completely when HDCP content is routed through analog sources instead of digital sources.

The 17-inch LCD is an ideal purchase for home and office users. Better, in fact, than 19-inch monitors if heavy multimedia usage is not your cup of tea. In fact, 17-inch monitors offer the same resolution as 19-inch—1280x1024 and 1440x900 in case of widescreens.

Don't expect to see much of the costlier S-IPS, MVA or PVA panels here—with value taking priority, regular 6-bit TN panels are used. You'll still get 24-bit colour however, courtesy Dithering (see box Are 8-bit Panels Worth It?).

Features? What Are Those?

Any entry level product is mainly focused on pricing, and features are a luxury most manufacturers decided they could do without. As testament to this, none of the 17-inchers sport advanced features like height adjustment and portrait mode. In terms of aspect ratios, ViewSonic's VA1703w was a shocker—the only 17-inch monitor sporting widescreen dimensions. It's compact and offers the same ultra wide 1440x900 pixel resolution that a 19-inch widescreen offers—that's a lot

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AOC 177V
Value Performer

Decision Maker

Your Usage	What to Buy
Home, Internet, Basic Multimedia	AOC 177V, VA1703w, AOC 197S
Office Use, Browsing	AOC 177V, AOC 197S, ViewSonic VG921M
Average Gaming	BenQ FP92W, Acer AL1916, BenQ FP71G+
Hardcore/Enthusiast Gamers	ASUS PW201, ASUS MW221u
Design Professionals	NEC MultiSync 1990FX, NEC MultiSync 1970NXp
Multimedia Aficionados	BenQ FP241W, ASUS PW201
Large Screen, aesthetic conscious	Dell E228WFP

of horizontal viewing space for your eyes! However, the bright green power LED disturbs especially when working in the dark—it's simply too bright; thankfully, it's not red or even blue! This is common to nearly all ViewSonics.

Acer's AL1706 attracted attention, and held it—it's built on the same slim, ultra narrow bezel, attractive lines as the AL1906 but unlike its larger sibling, there weren't as many show stoppers.

Visually, Dell's 1707FP has to get top honours—the stands are absolutely amazing, and we couldn't figure out how such a slim stand could hold the monitor stably. And stable it was—even more so than some models with bases that occupied double the surface area. Dell also has some of the narrowest bezels around—and this makes for great dual-monitor setups with hardly any gap between screens. Samsung's 740N also has a narrow bezel, though the round stand is a bit ugly.

Intex also makes attractive monitors and their 1703 is no exception, but it sports a bulky power adapter. This is an unnecessary headache—why bundle an adapter when it can be built in? It certainly doesn't add too much bulk, as we've seen from the other LCDs. Samsung's 713BM Plus has its menu buttons positioned on the bottom of the monitor's bezel, and accessing them is a royal pain.

The Numbers Game

When it came to pure performance, figures were close, but two monitors fought harder than the rest for pole position. The position for top performer jockeyed back and forth between ASUS' PM17TX and Samsung's 713BM Plus,

Contact Sheet	LCD Monitors		
Brand	**Company**	**Phone**	**E-mail**
Acer	Acer India Pvt Ltd	080 -25219520	alankar_s@acer.co.in
AOC	AOC India	1800 425 4318	info@in.aocmonitor.com
ASUS	ASUS Technology Pvt. Ltd	022 – 4005 8888	media_india@asus.com
BenQ	BenQ India Pvt Ltd	9312378705	Sales.EnquiryIn@BenQ.com
Dell	Dell Computers Asia Pte Ltd	080-2506-8026	NA
HP	Rashi Peripherals	22-67090909	navinderc@rptechindia.com
Intex	Intex Technologies	011-30888919	sanjay@intextechnologies.com
Jetway	Rashi Peripherals	22-67090909	navinderc@rptechindia.com
LG	LG Electronics India Pvt Ltd	9899302074	avarshney@lgindia.com
NEC	SHIBA COMP.PVT.LTD	011-30822106	sales@shibacomp.com
Samsung	Samsung India Electronics Pvt Ltd	011-41511234	rengith.nair@samsung.com
ViewSonic	Roop Electronics	022-26681921	umang@rooponline.com

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ViewSonic VA1703w
I'm 17-inches wide!

with Dell's 1707FP watching from a close third.

Right on the 1707FP's heels snapped Acer's AL1706, BenQ's FP71G+, LG 1732S and both the ViewSonics. Despite its success, the PM17TX from ASUS wasn't without issues—there was moiré present in the coarse grained tests. The Samsung 713BM Plus didn't have any issues; unfortunately the price (Rs 19,000) will scare away most customers before they even switch it on! Considering it's a TN panel-based monitor, Samsung should seriously consider revising its price.

Samsung's other offering in this category—the 740N—was way behind the leaders' line of sight. Though priced well, it has issues with black levels and contrast ratio. This was noticeable with improper transitions in shade intensity in the 256-colour test. Certain shades of gray had some noise as well—minute, but noticeable. We don't recommend this monitor for anything more than browsing and office work like documents and spreadsheets.

Both Acer's AL1706 and BenQ's FP71G+ caused us no concern throughout the tests. While they weren't the best monitors performance wise, they didn't have any mentionable issues, and if the price of the Samsung 713BM Plus and the ASUS PM17TX is a cause for concern, these two are for the frugal at heart—Rs 11,000 and Rs 10,800 respectively.

Shockingly, one of the cheapest monitors in the test also performs quite well, closely tailing its betters. We're talking about the AOC 177V, which at Rs 9,800 breaks the 10,000-Rupee barrier. Other sub-10,000 models weren't so hot on performance—especially Jetway's 1741S and Intex's 1703. ViewSonic's VA1703W is sub-10,000 in the strictest sense of the word (Rs 9,999), and also performed commendably. In fact, it managed to out-distance its non-widescreen sibling, the VA703M, reversing the results of the 19-inch tests, where the non-widescreen VG921M kayos its widescreen sibling (the VA1912W) with no apparent effort.

Are 8-bit Panels Worth It?

As we mentioned in *Enter The Matrix, Digit March 2006*, there are four types of LCD panels being mass produced (though not in equal numbers) today—TN, S-IPS, MVA and PVA. TN panels are by far the cheapest to produce and to buy. These are typically 6-bit panels—6-bits for each colour, which translates to a total of 262,144 colours. However, by a method called dithering (basically interpolation) manufacturers reach the magical figure of 24 bits i.e. 16.7 million colours.

S-IPS and PVA panels are native 8-bit panels, so colour rendition is always superior. MVA panels are the middlemen—they can use dithering, or be native 24-bit.

We have already established that professionals working with images and rendering should avoid 6-bit panels. Another problem inherent to TN panels is the inferior viewing angles. Manufacturers' quotes for viewing angles are not always accurate, simply because the methods employed to measure viewing angles differ.

In our test, we noticed severe issues with viewing angles (vertical in particular) with almost all the 6-bit TN panels.

As the adage goes, all major problems are solved by financial convenience. This is true here as well—TN panels are available in abundance and cheaper by a fair amount than MVA or PVA panels of the same size (S-IPS panels are the costliest). In India, more than 90 percent of all LCD models available are 6-bit panels—8-bit panels are mostly reserved for the 20.1-inch and larger categories. This means that anyone for a 17- or 19-inch LCD will have no option but to go 6-bit.

This said, the difference in price is worth the premium you pay for these higher-quality panels, but if (and only if) you plan on using your monitor for digital entertainment or for professional graphics work.

Decision Time

If anything, the contest here was even more fiercely fought than in the 19-inch category; victories weren't clean, and all sides drew blood. AOC made a clean sweep with top honours and takes *Digit's Best Buy Gold* in the 17-inch category as well. Their champion, the 177V, is a winning combination of price and performance. The Silver goes to the sole widescreen in this category—the ViewSonic VA1703. ∎

michael_browne@thinkdigit.com

Getting New Furniture Made

Desks have this annoying way of collapsing the second they decide that the world has too many books for them to handle. There was also other furniture around the house that needed replacing, so it was time to summon the carpenters.

Nimish Chandiramani *(nimish_chandiramani@thinkdigit.com)*

The carpenters doing their usual act...

...and I step in to show them this
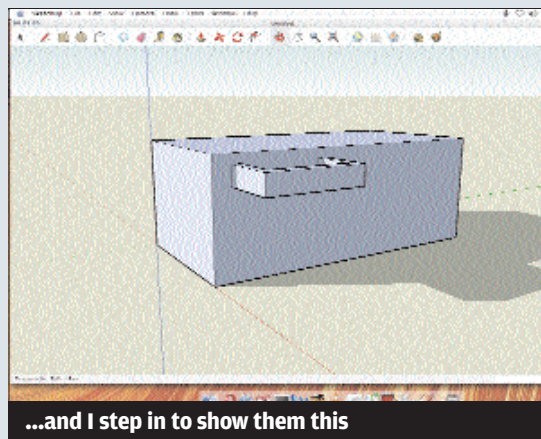
1

I describe the desk I want to the labourers. They listen intently and seem to comprehend, so this might go nice and smoothly like I'd hoped. Ah, naiveté...

There had to be a better way to get the rest of the furniture done, and the best way was to show them visually. I have the drawing skills of an epileptic rat, but I've been tinkering with Google SketchUp for a few days. I wonder...

2

The frame of the desk starts to look more like an oversized stool rather than the workstation I had asked them to make. This is unacceptable, so I get them to change it, explaining again exactly what I want at the bottom, and where I want the drawers.

I start with SketchUp, thinking that it'll take me just a few minutes to design a new cabinet; no such luck. I'm not limited by the software, but actually using those features to create something that will become real is a different ball-game.

3

The carpenters decide to use their own "creativity" to conjure up an abomination they call a footrest. This is all very disappointing, and I tell them so. Getting it re-done is going to take time, so I decide to live with it.

I struggle with SketchUp for a couple of hours, making sure that I use the exact measurements for the cabinet—I don't want to end up miscalculating anything.

4

And then they botch up the drawer. Turns out they miscalculated the length of the drawer, so now sitting at the desk makes opening it impossible, unless I'm willing to forgo some skin on my knee. Genius.

The cabinet's done, and I've verified the measurements and proportions a billion times. When I show it to them, the carpenters seem to realise that it's a Formidable Force they're dealing with, and get to work.

5

Well, at least the top's flat and the drawers open. I have to deal with the bizarre frame, but it doesn't interfere with my life so much.

This way is so much better. I've got my cabinet just the way I designed it!

Convenience Meter: 2 (Just short of murderous rampage)

Convenience Meter: 4 (Learning new skills takes time!)

And The Winner Is...

If you've got the time, inclination and the skill, design your furniture in Google SketchUp or similar software like 3D Home Creator, and then have your carpenters build it. If they have any snags on the way, you can show them every detail in 3D, and they can't even come back at you with a "your instructions weren't clear" if things go wrong. Just make sure your proportions are right.

Digital Cameras (High-End)
Sony Cybershot W50
⊞ Excellent image quality, vibrant colours
⊟ Trouble focusing in low light
Contact Macro Photo
Phone 022-22618639
E-mail macro.photo@gmail.com
Price Rs 15,000

Digital Cameras (Mid-Range)
Sony Cybershot DSC L1
⊞ Great image quality
⊟ Only 4 MP CCD
Contact Macro Photo
Phone 022-22618639
E-mail macro.photo@gmail.com
Price Rs 9,000

2.1 Speaker Sets
Altec Lansing ATP3
⊞ Great overall performance
⊟ None in particular
Contact Rashi Peripherals Pvt Ltd
Phone 022-67090909
E-mail navinderc@ rptechindia.com
Price Rs 3,400

5.1 Speaker Sets
Artis S6600R/FM
⊞ Good performance, radio
⊟ None in particular
Contact Kunhar Peripherals Pvt Ltd
Phone 022-66345758
E-mail mail@kunhar.com
Price Rs 8,500

Hard-Drive-Based MP3 Players
Apple iPod 80 GB

Large capacity; great fidelity
Expensive
Contact Apple Computer International Pvt Ltd
Phone 09886039424
E-mail avinash_ramchandra@ asia.apple.com
Price Rs 23,900

Wi-Fi Access Points
Linksys WAP54G
Great performance
⊟ None in particular
Contact Ingram Micro India Pvt Ltd
Phone 9323112279
E-mail sunil.z@ingrammicro.co.in
Price Rs 3,816

Processors
Intel QX6700 Core 2 Extreme
⊞ Extreme performance
⊟ Expensive
Contact Intel Corporation
Phone 080-25075000
E-mail saranya.rustagi@intel.com
Price Rs 52,000

Projectors
Acer PD726W
⊞ Great overall performance
⊟ No remote sensor at rear
Contact Acer India Pvt Ltd
Phone 9880544226
E-mail alankar_s@acer.co.in
Price Rs 1,50,000

LCD Monitors (19-inch)
AOC 197S
⊞ Good looks and performance
⊟ Gloss finish catches smudges
Contact AOC India
Phone 1800 425 4318
E-mail info@in.aocmonitor.com
Price Rs 12,000

LCD Monitors (17-inch)
AOC 177V
⊞ Good performance
⊟ None in particular
Contact AOC India
Phone 1800 425 4318
E-mail info@in.aocmonitor.com
Price Rs 9,800

Tech Careers

The Silk In The Web

As online businesses increasingly realise the importance of their Web sites' functionality, the Web programmer flourishes

Samir Makwana

The face of the Web has changed over the past few years. If you remember what most Web pages were like a few years ago, you'll vouch for that. They're getting more complex, they're prettier, and they're more functional, too. Of course, we're generalising, but take just one example: what was Amazon.com like some years ago, and what is it today? In case you're too young to remember, trust us, it was very different—and limited in comparison, in terms of just what we've mentioned: complexity, prettiness, functionality, and more.

Many new Web sites offer online services like word processing, spreadsheets, and image editing, which we normally do on our Desktops. In fact, that is one of the elements that go into the making of what we call Web 2.0—Web sites offering applications that have the functionality of Desktop applications.

The Web programmer is playing an increasingly sophisticated role.

Hard Code

Web programming is different from Web designing. The latter focuses on the look and feel of the site, while Web programming has to do with the functioning of the Web site as a whole. But somewhere or the other, the work of the Web designer does overlap with that of the Web programmer: they may use the same product for creating a page, or similarly edit the code to impart a better look and feel to a page.

A Snapshot Of The Field

Programming for Web sites involves both Web authoring software such as Adobe Dreamweaver, and programming languages such as C, C++, Visual C++, etc. Code for Web sites is written for performing specific functions such as searches, access to databases, and any processing of text, graphics, animation, and other audio-visual content for the user.

Programming for Web sites can be classified as basic or core programming, visual programming, and programming with database systems. Specific languages are used for specific purposes.

Server-side programming refers to creating code that executes on the servers which send out Web pages. On the server side, programming results in Web server software that responds to requests sent by the (client-side) browser by sending out information. For example, on banking and financial services sites, the code responsible for granting the user access to a credit card statement is server-side code.

Illustration **Chaitanya Surpur**

" **Good mathematics education at the school level, and an emphasis on computer science concepts rather than solely on programming languages, are necessary to meet the demands of a trained, quality workforce**"

Sudipto Majumdar
CTO
Zapak.com

On the other hand, client-side programming consists of scripts that are designed to enable user interaction in the Web browser. Client-side programming includes verifying user data, making graphics dynamic, and making navigation easy. Actions performed within the browser, such as the pressing of buttons or filling forms, are responded to by sending a request for information to the Web server and displaying the received data. Client-side programming is responsible for all such behaviour of the browser.

"Different markup and scripting languages are used for server-side and client-side programming. One has to choose which side one wants to master, right from the beginning," says Amit Shah, software engineer with Directi Group, which offers mass-market Web products and services. Shah's advice is the starting point for anyone looking to Web programming as a career option.

HTML—HyperText Markup Language—forms the base platform to define the layout and structure of a Web document. HTML is complemented by various languages—PHP (Hypertext Preprocessor), ASP (Active Server Pages), XML (eXtensible Markup Language), and more.

With PHP, for example, it is possible to create levels of security against malicious attacks. Using ASP can make Web pages dynamically editable.

Languages

Scripting languages are relatively simple programming languages that are used to create scripts that, when inserted into a Web page, control various elements of the page, such as the user interface, styles, and HTML markup. The scripting language interprets requests for HTML documents and objects embedded in the HTML.

PHP and ASP are some of the widely-used scripting languages. They can result in a code base as much as ten times smaller for the solution for a problem (as compared to a "regular" programming language), which increases the programmer's productivity by reducing the number of bugs in the code.

Scripting languages are of two types—client-side and server-side. Client-side scripting refers to the use of scripting languages such as JavaScript to automate applications that are executed on the client side (within the user's browser). Server-side scripting involves executing scripts on the Web server before any data is passed on to the browser.

Server-side Or Client-side?

A person good at networking and with a ready hand on hardware and Web protocols is best suited for server-side programming. Individuals with good knowledge of databases and servers can opt to learn languages like Perl and Python for writing code for the Web server to perform object-oriented functions such as e-mail processing, advanced content management systems, general-purpose templates, and more.

Perl (Practical Extraction and Reporting Language) is widely used for writing programs for Web servers involving tasks such as generating reports, database synchronisation, auto-updating of user accounts, etc. Python is used for writing basic CGI (Common Gateway Interface) scripts, advanced content management systems, Web application frameworks, processing e-mail and RSS feeds, etc.

Those who wish to be in client-side programming need excellent knowledge of browser technology, operating systems, Internet protocols and such, with the ability to format content received from the Web server in the best possible manner.

The third option—that of working with databases—can be taken up by those from a database background. For more on careers in database, refer to *Digit*, April 2007.

The Tools Of The Trade

An education with a specialisation in computer science increases the chances of selection for a Web programming job. Students with an engineering, IT, or mathematics background are considered the best fit for Web programming by the industry. Graduates and post-graduates having majored in computer science (BE / ME in computer science), or those with a degree (BSc / MSc) in mathematics or statistics enjoy preference over candidates from other backgrounds.

"The industry prefers BE candidates with experience in development languages, and those with a diploma from reputed computer institutes with a good academic background. Also, candidates from a science background with computing or mathematics as a major subject are also given preference," says Harish Sukhwal, CEO, Hashtech Systems Pvt Ltd, which offers Web services including hosting, business process outsourcing, and security solutions.

Sukhwal also says that the skill set of a good programmer in today's context should ideally be one of the following:
- PHP + MySQL + XML
- ASP + MSSQL + XML
- ASP.NET + MSSQL + XML + AJAX
- JSP + Oracle + JavaBeans

Candidates from other disciplines such as mechanical engineering, electrical engineering, chemical engineering, and others streams are also recruited, though.

"Information technology as a part of the curriculum for varied disciplines, such as commerce and arts, will ensure professionals are better prepared for the challenges of online business," says Venki Nishtala, CTO, Rediff.com.

The perfect destinations to get equipped with the tools of the trade are universities and colleges approved by the All India Council of Technical Education (AICTE).

There are also private institutes that offer a number of short-term or one-year courses, which can be pursued for an additional qualification. They provide education and training in specific products (such as Dreamweaver, Fireworks, and FrontPage) and the syntax of languages like HTML, PHP, ASP, and Java, to name a few.

The quality of education at a private institute, however, depends upon the teaching facul-
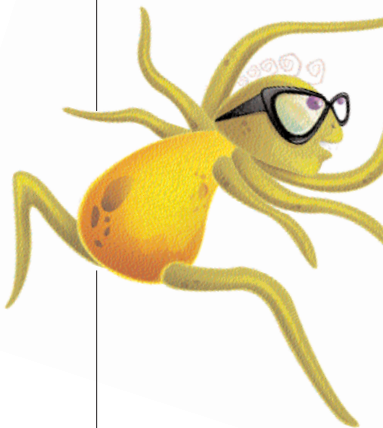
The Languages	
Base platforms for Web page development	HTML, XML, PHP, ASP
Basic Programming	C, C++, PHP, Java, Perl, Python
Visual Programming	Visual C++, Visual Basic, Java, ASP.NET, Java Server Pages (JSP), AJAX (Asynchronous JavaScript and XML)
Database Systems	SQL (Structured Query Language), MySQL, Oracle, MSSQL (Microsoft Structured Query Language)

Web Resources	
Language	**Sites**
HTML	www.htmlhelp.com, www.htmlgoodies.com, www.pageresource.com
PHP	www.php.net, www.phpbuilder.com, www.php-resources.org, www.scripts.com, www.phpfreaks.com
ASP & ASP.NET	www.asp.net, www.worldofasp.net
Java, JSP	java.sun.com/javascript/, www.javascriptworld.com, www.javascript.com
XML	www.xml.org, www.topxml.com, www.xmlinfo.com, www.xmlpitstop.com
Perl	www.perl.org, www.perlmonks.org, www.theperlreview.com, www.perlcast.com
Python	www.python.org
All languages	www.w3c.org, www.w3schools.com, www.webdeveloper.com, www.programmersheaven.com, www.opendeveloper.org

ty, and is not standardised. One should assess the quality of education and placement credibility before enrolling in a private institution.

A decent demand for Web programmers lies in the Web portals industry, which by and large works in sync with educational institutions for the development of up-to-date computer labs for education in accordance with industry requirements, and for offering internships to students.

"The biggest challenge faced by programmers is obsolescence of their skill sets. The best bet is to invest time and effort in understanding the fundamental protocols and concepts well. Once this is done, any new programming framework or language can be very easily picked up, since vendors may change the syntax of programming, but they still need to fit it within the fundamental protocols, which never change," says Sudipto Majumdar, CTO, Zapak.com, a leading Indian gaming portal.

Recruitment

Web portals recruit programmers on a large basis for research and development on their sites. A good programmer is expected to possess networking and hardware knowledge—knowledge of servers, routers, VPNs, and such. A blend of excellent software skills and decent hardware knowledge is a winning recipe for a fresher.

"On the software and programming skills front, logic is more important than any coding language. Programmers should select a language and upgrade themselves in that area instead of learning several languages and then become a jack of all trades. A good Web programmer should also understand the business logic behind Web site development," says Sukhwal.

Training

Training on the work process and development parameters is imparted by the organisation itself. "Depending upon the individual, training on networking concepts, Web protocol concepts, programming language training, database designing and conceptualisation, and Web site architectural concepts are imparted," informs Majumdar.

The training period is usually between one and six months. During this period, the fresh employee is placed under a senior programmer.

Levels And Remuneration

Promotions and appraisals depend more upon the performance and individual contribution in a project as compared to experience in the field. The figures mentioned here are only indicative.

"Adding to the demand for Web programmers is the advent of mobile phones that support browsing. There is a need for trained and skilled people who can build sites for the mobile platform"

Lincoln Gada
CTO
Hungama.com

Level 1: At the entry level, most of the Web programming activity is done by Junior Programmers and Senior Programmers.

Junior Programmers / Software Engineers: They need to understand their assigned modules, and code and develop applications for particular modules of the broader Web site architecture.

Senior Programmers / Engineers: They are responsible for framing the site architecture and develop the different Web page applications and functions. The modular functionality of the site programmed by the junior programmers are tested, debugged, and then approved by them.

Level 2: A certain amount of management capacity is demanded of a senior programmer advancing to this level.

Team Leader: He assesses the needs of the team and designates work to the team members. His job also involves some programming along with testing and validation of the prototypes prepared by his team. The team leader helps junior and senior programmers to understand the architecture and functionality of the project.

Assistant Project Manager: This designation carries with it the tracking of the progress of the project, documenting progress reports, and passing on these to the project leader. They give project briefs to team leaders and maintain the project documentation.

Level 3: After reaching the top level, one can decide upon whether one wishes to be more on the technological or management side. This level is composed of the Project Managers and the Solution Architects.

Project Managers: Getting business, maintaining the design protocol standards of the organisation, interacting with clients for details about their requirements, and demonstration of prototypes to clients form the major part of their work profile.

Solution Architects: They focus on the architectural aspect of the site development projects. Solutions for adoption of particular products or software platforms for Web development are designed by these individuals.

A Closing Note

"The sky is the limit for good Web programmers, because slowly all programming is migrating from the traditional client / server model or Desktop-based programs to Web-based programming. With Web 2.0 picking up fast, AJAX programmers are in demand," says Majumdar.

Web programming is an exciting career for those who can learn programming quickly and also feel the itch to make a better Web site when they see a poorly-made one. Learning the languages comes first; implementing that learning can be financially rewarding—and fun as well! ◼

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Experience Required—And Remuneration		
Designation	**Salary per annum (Rs in lakhs)**	**Relevant Experience (years)**
Junior Programmer	0.6 - 2.4	2 - 3
Senior Programmer	2.4 - 4.8	3 - 5
Team Leader	5 - 10	5 - 7
Asst. Project Manager	10 - 14	7 - 8
Project Lead/Manager	15 - 25	8 - 12
Solution Architect	15 and above	8 - 15

MAKE YOUR EMPLOYEES
Hate You...

...if they don't already! Get them to stop wasting time...and be merciless about it!

Robert Sovereign-Smith

A quick quiz:
1. You're watching Star Wars Episode 6 (Return Of The Jedi). Darth Vader (Anakin Skywalker) has just thrown the evil emperor into that bottomless pit. You...
a) Shed a tear. You actually liked that crazy old coot.
b) Rejoice. The dark side of the Force is vanquished.

2. You're watching the TV serial The Office.
a) You cannot understand what all the fuss is about, and all the jokes are terrible. That poor boss chap...
b) It's your favourite show. You swear there's one of each character of the series in your office.

If you answered "b" to both, be afraid. Be very afraid. If "a" is what you went with both times... Warning: this article could cause serious friction burns from vigorously rubbing your hands together in glee, and make you burst into hysterical laughter. Yes, you guessed it. You're that dreaded and much-hated creature called *The Boss*, whom no one understands. You're the *Gollum* of Middle Earth, ugly, disgusting but very much necessary if *Frodo* is to ever find his way.

OK, enough of the silly analogies; you're a boss, and you have a job. It's not pleasant, but it has to be done. You just have to prevent your employees from running amok. As of this century, however, employees are much more tech-savvy. They're always punctual, they're always sitting quietly in their little cubicles, and even avoid the regular goofing-off waterholes. To the untrained eye, they're hard at work, silently toiling away at their desks. Your latest sales figures and financial reports tell you otherwise.

The Internet is one of the banes of every boss' existence. Sure it's informative, and even a necessary enabler for a lot of existing business models, but it's also the world's favourite goofing-off spot. A couple of videos on YouTube, scrapping friends on Orkut, checking useless forwards sent by friends / colleagues, IM-ing all day, and even visiting adult dating and content sites can reduce the amount of productive time spent in office per employee to a fraction of what's expected.

Boss Speak

None of the people we spoke to for this article wished to be named, whether boss or minion. No one wanted to ruin the work relationships they have, and we understand that. We will quote them, however, quite shamelessly, but will not include their names.

The CEO of a BPO said, "I hate IMs. I have never seen a worse technology invention. Nothing hampers productivity as much as MSN and Yahoo! Messenger. We blocked those chat protocols, and then our employees started using browser-based services like **www.e-messenger.net**. It was like an addiction we had to break. Now after we've blocked all the browser-based messenger sites, they're using local chat applications such as IP Messenger to waste time chatting with the person in the next bay!"

A system admin of an e-learning company

Illustration Pradip Ingale

says, "Our company's favourite pastimes seem to be Orkut and blogging. We blocked them, but they started using public proxy servers to get access again. As for personal blogs, we had to send out a memo telling our employees that their blogs were being monitored, and warnings were issued. Still, some people are so addicted to Orkut, Adult Friend Finder, Yahoo! 360, or blogging that they risk their jobs by trying to access them."

A business manager in a small publication house says, "We have various levels of computer users, only one of which gets Net access. The rest, designers for example, get only company e-mail access. Our problem is not Net-based, it's Windows games that waste the most time. I am sure we have at least a few *Solitaire* and *Spider* champions in our midst!"

Most of the other bosses we spoke to had the same complaints. A few were more concerned about company e-mail and what employees were e-mailing *out* of the company (despite confidentiality clauses), rather than what mails they were receiving. Some even related incidents of virus attacks that obviously originated from within the office, because some employee thought it would be fun to have some time off to watch system admins battle the malware.

Overall, the Sith lords of the multi-verse... err... we mean bosses, stood together and in unison cried, "Foul!"

Smaller Solutions

Now, companies with computer strengths of more than 100 PCs are generally well-organised. They've been bitten by the time-wasting bug and have mended their ways. It's the smaller companies (at least amongst the ones we spoke to) that didn't seem to realise how much of employee productivity they were losing. An HR manager for a small services company (10 PCs) was shocked when we told her what other bosses were saying. We decided to sow the seeds of doubt in her head, installed a monitoring software on a server, enabled logging, and went back after three days. "I can't believe it, I can't believe it," she repeated, when we showed her that her 10 PCs had sent / received over 5,000 IMs in those three days. Taking an average of 10 seconds wasted per message sent / received (they have just a 256K connection), that worked out to 5,000 x 10 = 50,000 seconds / 3,600 = almost 14 hours of productive time wasted. Close to 30 minutes a day per PC!

With bills to make, payments to collect, and accounts to be tallied, we're betting she's waiting for this article to see how to stop her company's PCs from being misused thusly.

"As a smaller company, we have to work doubly hard to compete with larger, richer companies. I'm certainly not going to rock the boat and ban IMs, but I will send out a memo to the employees." She thanked us for the help and says she will make sure all her employees read this article.

Enough of the reality bytes: time for some problems and their solutions...

🙁 Unnecessary Browsing

The most common complaint we received was that employees waste time surfing. Not only is productivity affected, it's also a complete waste

A proxy server can even be used to block access to sites, or even be configured to only allow access to certain sites

of bandwidth. Here in India, whether at home or at work, we still pay for bandwidth by the MB or GB, so any savings is always welcome.

🙂 Proxy Server

A proxy server can do a lot more than restricting employees to certain sites. If it has a caching system, it can help cut your bandwidth costs in half. Instead of fetching the same page 10 times for 10 PCs, it does so once, and serves the same page to anyone who requests it.

Apart from bandwidth savings, a proxy server also helps you identify who's doing what, and visiting what sites, for how long a day. No, you don't have to get all worried now and think lawsuits: this is not spying, it's merely called logging. You have a right to know how your proxy server is being used.

Apart from threatening your lackadaisical employees with its logging capabilities, a proxy server can even be used to block access to sites, or even be configured to only allow access to certain sites. Another boon is the fact that you can ban many file extensions, such as .exe, .zip, .rar, etc. to prevent your employees from downloading so much. If you choose your proxy solution well enough, you can even block all IM protocols.

🔵 Suggested Software

Squid (www.squid-cache.org): If you can spare a server PC for Linux, this is the software you should use. It supports caching (accelerated surfing), SSL, and DNS caching, is very, very scalable—whether it's 10 PCs or 10,000 accessing the Net, it's stable—and if that weren't enough, it's open source and completely free! Though it does run on Windows via emulators, you're better off running it on Linux. It's not newbie-friendly, though, so if you haven't a clue about Linux or editing configuration files, steer clear.

FreeProxy (www.handcraftedsoftware.org): All the features you'd want, including detailed logging, complete access control, ban lists, caching, authentication, and much more. In short, it's quite a well rounded proxy / caching / Net access restriction software, it's free, it's scalable, and runs on Windows. For smaller setups, this is a good choice because it just sits on a computer, runs as a Windows service, and will bring down bandwidth usage considerably.

WinGate (www.wingate.com): Medium-sized
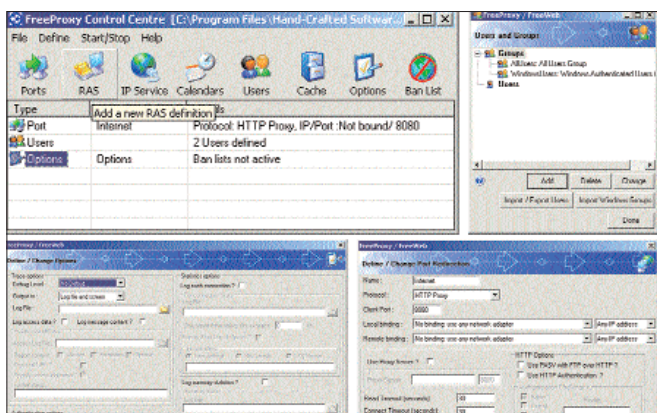
FreeProxy is good for safeguarding small businesses from the costs associated with bandwidth wastage by employees goofing off

businesses might want to look for something more robust and secure, and this is a good alternative. It features authentication, detailed per-user or per-service logging, a good firewall, protocol specific restrictions, and much more. Overall it will give any systems admin the control he craves, while making sure your network is secure and that your users are not up to mischief. Implement this solution, and you're sure to dissuade any goofing-off online because of its comprehensive logging and report-generating capabilities. However, the feature you bosses will love the most is its AI Filtering—just choose to block adult, gambling, sports, chat, Web mail, and even job sites, and WinGate will use a little programmed AI and a rather large global database to prevent your users from accessing such content. No more feeding in individual sites to block—just let WinGate block them automatically. The bad news? You're going to have to cough up considerable cash for this gem: the licenses are priced by the amount of connected users, ranging from as little as three to an unlimited amount. Don't confuse this with the number of PCs you have, because if you have 100 PCs in your office, you could consider buying a license for 25 or 50 users, since not all 100 will be accessing the Net at the exact same time. Licenses available for WinGate standard are 3 / 6 / 12 concurrent users, and for the Professional version, 6 / 12 / 25 / 50 / 100 / 250 / 250+ concurrent users. Prices range from $75 (Rs 3,375) for 3, $200 (Rs 9,000) for 12, to $1700 (Rs 76,500) for 250+ concurrent users.

Games

After the problem of e-goofing off, the most popular complaint was games. A lot of people have taken to playing games online (Yahoo! Games anyone?), but since more and more companies are filtering content and blocking access to such sites, Windows games have remained popular. *Solitaire* in particular is infamous for being the game of bored secretaries and employees, and most Windows games are just too much to resist—they're just sitting there in the Start Menu, begging to be played!

Get Rid Of Them / Control Them

There are several ways you can prevent access to Windows games. You could just uninstall them from your PCs by going to Add/Remove Programs (**Start > Run > "appwiz.cpl"**) and then clicking on "Add/Remove Windows Components" on the left. Select "Accessories and Utilities" and then click Details. Uncheck Games and press **OK > Next > Finish**. Windows games will be uninstalled.

If you're running a Domain Controller (see Mayhem Management, *Digit* February 2007), you can uninstall these games from all PCs, and then prevent your employees from re-installing them.

If it's not just Windows games, but all games you want to prevent access to, you're going to need some software help...

Suggested Software

StopGame (www.askmesoft.com): Now here's a must-have software for all bosses... StopGame doesn't just block games; it allows

People use IM to make friends, date, flirt, learn about different cultures... problem is, so many people are doing so on company time, using company bandwidth!

you to completely control if and when your employees play them. This is the perfect retort to those slackers who claim to need a little relaxation at the fag end of a hectic day. If you remove the games, you'll get complaints; keep them and your employees goof off; but what if you could restrict access to games like *Solitaire*? Half an hour a day, four hours per week, only during official lunch hours... any sort of restriction is possible. If the employee tries to break the rules that you've set and start a game, poof—it just closes right down again. It's like you sitting there and pressing end-task time and again, without the maniacal laughter or evil giggling, of course! All you have to do is install the software, follow the instructions in the help files, add the games you want to block / restrict (Windows games or otherwise), and watch twitchy-fingered employees with withdrawal symptoms order that extra cup of coffee. You will need the StopGame Office version of course, available at **www.askmesoft.com/stopgame_ office.htm**. It will cost you anywhere from $18 to $9 (Rs 800 to 400) per copy—depending on how many PCs you want to install it on. For example, four licenses will cost $18 each, 15 will cost $15 each, and 51 or more will cost $9 each. We're sure our editor would love to get something like this to prevent us from playing *Quake III Arena* all the time, but unfortunately, he knows we geeks will just find a way around it! For most employees however, this is quite a foolproof solution.

Chat / IM

It's just so easy now, isn't it? We're sitting at our PCs chatting with people across the world. We can even have voice conversations for free, and see each other via webcams. Chat is a beautiful technology, loved by every mother and grandparent who has a child / relative abroad. It saves a bundle on phone calls as
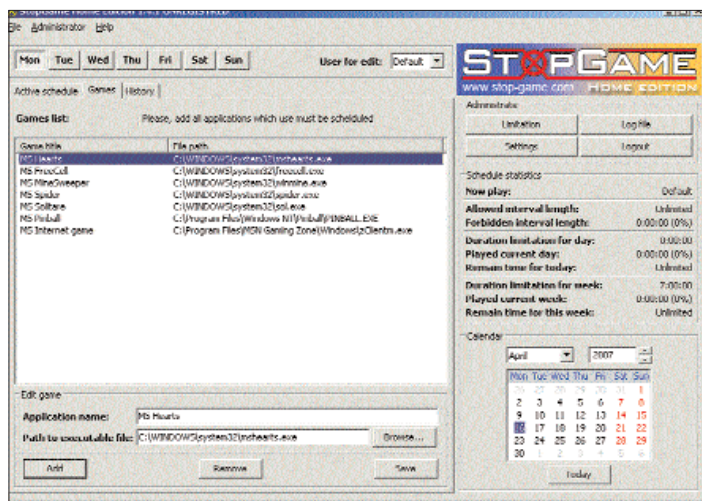
Use StopGame, of similar software to prevent employees from playing games

well. People use it to make friends, date, flirt, learn about different cultures... problem is, so many people are doing so on company time, using company bandwidth! Most of the bosses we spoke used words we cannot publish to describe Instant Messengers (IMs).

Block 'em

There are many ways to block IM traffic. You could just block/disable the protocol ports from your proxy or NAT server. A LAN Domain Controller can prevent IM software from being installed or used. A really adamant systems / network administrator can ensure that no employee connects to any IM networks, ever! However, instant messaging has become more a part of our lives than we realise. Many employees use IMs to chat with clients—it's free, instantaneous, and nowhere as close to invasive as a phone call. So the new problem for both small / medium businesses and enterprises is not how to block IM access, but how to regulate it.

Suggested Software

Symantec IM Manager (www.symantec.com): What was once a free software called IM Logic has been bought over by security specialists Symantec and made into a security solution for any business. If you're worried about IMs being a security risk, or just a productivity killer, this is a solution you'll love as a boss and hate as an employee. The software sits on a server and can log all IMs your employees send. It can block IMs that contain certain phrases (in real-time), block file transfers or just certain file types, it logs everything that's said in IM form, and generates reports as basic as who (user ID and IP) chatted how long and to how many people, to reports that will give you usage patterns and the exact messages sent. It can connect to a SQL database and store all information there, so admins can just search for keywords or users and get detailed information. It is also very legally-aware, and informs users and the people they speak to of its presence, so no lawsuits will ruin that sweet taste of victory over IMs. If anything can stop your employees from goofing off and chatting all day, IM Manager can. Just send your employees a mail informing them of your decision to install this software (with a link to the homepage) and your productivity should increase instantaneously. It's not cheap, obviously, and you can expect to shell out $40 (Rs 1,800) per license (per user) for small-sized organisations, or $30 (Rs 1,350) for enterprises.

P2P

Here in India, a lot of employees take advantage of the fat Net pipe that companies provide, and use it to download illegal software and content using P2P networks. Apart from increasing a company's Internet bill, the illegal use can land a company with a slew of lawsuits. P2P software are known to tunnel (bypass restrictions by using another protocol's ports), and can even use normal HTTP ports (80) or POP ports (110 or 25). Basically, if you're connected to the Net, chances are your employees can use P2P software and access networks to download illegal content.

Stop Piracy

As mentioned, blocking P2P is a lot harder than anything else mentioned before. Thankfully there's software available that will put your mind at ease. Such software is rarely cheap, however.

Suggested Software

IM Lock Professional (www.comvigo.com): Yes, we know. This does fit into the category of an IM blocker, and the name suggests that's all it does... However, IM Lock is much more than just an IM blocker. This software is a little more expensive than Symantec's IM Manager, but it's primarily a blocker, not a "Manager". It can block access to all known IM networks, Web-based IM services, streaming media sites, and yes, almost every known P2P protocol and related sites. So if BitTorrent is the bane of your existence, get this and live peacefully, because it will block not just the entire Torrent protocol, but also access to any site that has

Torrent files on it. Apart from this, it will also prevent access to other popular torrent clients such as LimeWire, eDonkey, KaZaA, Bearshare, eMule, Morpheus, and many more.

Doing Nothing

With all the little cubicles and bays in today's office, it's almost impossible to make sure that everyone is working. Now there are a lot of employees who don't need to goof off in any of the various ways we've described above. Although rarer, this breed of employee is much more prone to goofing off, because you've spent all that money blocking things they never used in the first place. How can you make sure that a few employees are not sitting around reading the sports headlines, or curled up in that plush chair reading a book? Honestly, you may not even be able to tell if they're in their seats or not. Let's not even start thinking about what they're doing when you're out of office at a meeting or travelling abroad.

Monitoring / Spying Software

A keylogger or similar spying software can help track employee productivity. Such software can help you understand how each employee utilises time, and what they're doing in front of their PCs. For example, an employee who falls asleep will have the same screen in front of him for a long period. In such a scenario, a screen grabber spy software can show you that they haven't done anything for the past X number of hours / minutes.

Suggested Software

NetVisor (www.netvizor.net): The ultimate tool for any boss, NetVisor sounds almost too good to be true. This powerful software can tell you anything you need to know about PC usage of any employee in your company... seriously! The list of features is so long that we're going to have to give you a URL so you can see for yourself—**www.netvizor.net/features.shtml**.

We'll list the few that will excite you the most: per-PC logging of every keystroke typed, site visited, files opened, chat conversations, e-mail sent / received, applications run, software installed, and much more. It can also create reports and e-mail them to you, so even if you're out of office, you can check your mail and see who was doing what and for exactly how long. It can take snapshots of every desktop and upload it to a password-protected local or FTP server, or just mail each snap. You can view any computer's Desktop at any time over the network or the Internet. You can remotely run applications on any PC, look at what's stored on their hard drive, use End Task to kill any application you want, shut down / restart any computer, send messages to any computer screen, and freeze any mouse in the office (works great if someone's addicted to Minesweeper)! The software can be run in stealth mode to hide from all known anti-virus or anti-spyware solutions, and will not show up in Task Manager, the Registry, or even in startup. Of course, it also has the ability to show splash screens to users, warning them that they're being monitored—good to pre-

> **Depending on the laws of the land, the software solutions mentioned here might constitute breaking the law if not implemented correctly**

vent lawsuits. It encrypts all its log files, manages disk space and processor usage to make sure the PC doesn't become sluggish, and is easily configurable by even a novice.

System admins will rejoice, because since it is basically an enterprise product, it can be deployed over the network from a single location, or over an entire domain. For all practical purposes, this software acts like a killer virus or worm, and puts every computer's reins in your hands. Before you start swooning in the drunkenness of your imagined power, you should consider the prices: $295 (Rs 13,275) for up to five PCs, $495 (Rs 22,275) for up to 10 PCs, $1095 (Rs 49,275) for 51 to 100 PCs, etc., all the way up to $4,995 (Rs 2,24,775) for over 500 PCs! We warned you, such solutions are never cheap! If you're a paranoid boss however, you may want the control this beauty of a software can offer you. Incidentally, NetVisor runs on Windows NT, 2000, XP and Vista.
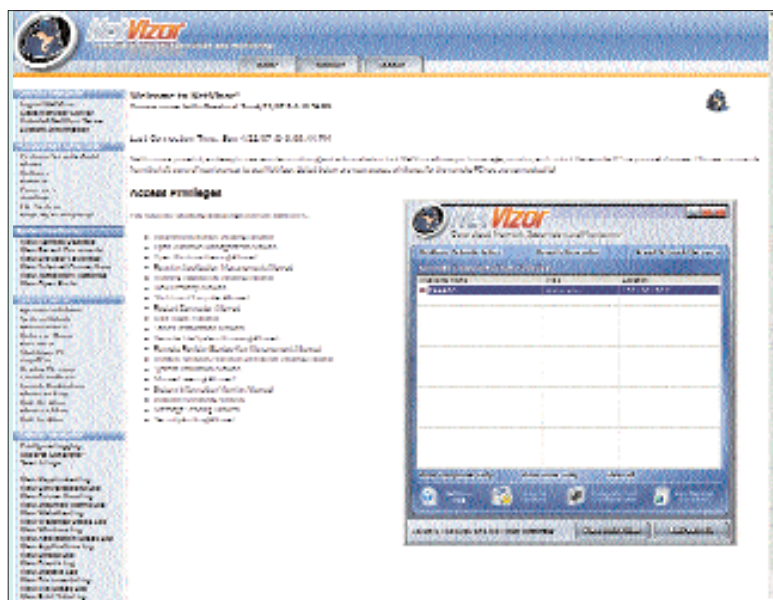
Using software like NetVisor can give you detailed information on your employees

Take Heed

Warning: Depending on the laws of the land, the software solutions mentioned here might constitute breaking the law if not implemented correctly. For example, installing a keylogger or recording IM conversations could be construed as illegal by courts, and even be a violation of privacy. However, since it's the company's furniture and PC, it can dictate the way it is used. Usually, just being upfront about the solutions you deploy, and getting employees to sign a waiver or acknowledgement that they are aware of the methods you are employing to increase productivity and security, is enough. Still, if you're planning on using any of these solutions, get in touch with your legal counsel.

All this will obviously not make you very popular, but it will certainly sit well with *your* bosses. So go ahead, be evil, surrender yourself to the Dark Side, and start making your employees miserable! ■

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Hand In Hand

Outlook and Exchange Server team up to become a powerful collaboration suite. If you're worried about the price of Exchange, though, fret not—there are many open source alternatives to consider

Nimish Chandiramani

We never get tired of broaching collaboration-related topics in this section, and for good reason. No matter how much we streamline our work here at *Digit*, there's always some snag or the other that comes up—the writer finished the article, but the sub-editor didn't find out, someone forgot to tell the editor that the article was ready for print, and so on.

You won't face the exact same situations, obviously, but unless everyone's reading each other's minds in your organisation, there's scope for improvement.

Half The Client

What do you use Outlook for? If you're connecting to a POP or IMAP server to get your e-mail, then chances are you're using it for the same thing that the majority does—checking your mail, managing your contacts, and perhaps a bit of personal management. The bottom line is that you're using it as a *personal* tool, and the only way it's helping you interact with your team is through e-mail.

We've touched on the benefits of pairing up Outlook with Microsoft Exchange Server a couple of times in these pages; read on now to find out what those benefits really are.

Meeting At 10... er... 11... er...

Setting up meetings via e-mail can be painful. Imagine this scenario: you've sent your team a message to meet at 11.00 AM. While everyone's busy clearing and/or readjusting his or her schedules, one person replies, saying that he'll be on an outdoor assignment at that time.

You now have to reschedule the meeting, taking your own free time into account—and what if you get the dreaded "I'm not free" reply again?

Assuming you've got everyone to plan their work day in Outlook's calendar, having an Exchange server at your office will enable you to see everyone's free and busy times, so you'll never have to encounter the above situation.

You don't even need to hunt down attendees' schedules—just add them in the list and tell Outlook to hunt for a date and time combination when everyone's free!

You can also manage meeting rooms in Exchange, to avoid those situations where everyone's ready but there's nowhere to hold the meeting.

Worried about what will happen to all your important correspondence while you're gone?

Call Upon Your Minions

One of the features that Outlook gives vacationing employees is the ability to add a delegate for all their daily activities—someone who will reply to your e-mail, ensure that all tasks (discussed later) are either completed or followed up, and so on.

You can decide which of your mail folders delegates have access to (don't let them near your Personal folders, now), as well as whether or not they can create new tasks for your team. All these activities are tracked, so you can check up on what your delegate was up to while you were gone. Apart from being really convenient, that last bit should feed your Big Brother instincts quite well, too.

Remember the Tasks you can set yourself in Outlook? With an Exchange Server, you can set tasks for not only yourself, but also anyone in your team—complete with deadline and follow-up reminder. Managing people just got so much easier.

Another Outlook feature that Exchange "unlocks" is the ability to create public folders or mailboxes, where you can store important (or unimportant) mails so that everyone has access to them.
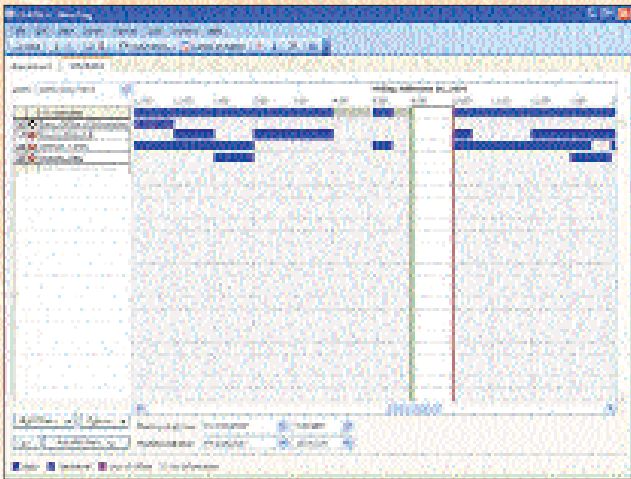
Set up meetings when everyone's free

But...

The problem with Exchange Server is that it's expensive. At $67 (Rs 3,000) per license, it seems like more of a luxury for a small organisation, unless everything has plunged into chaos. In the past year or so, we've seen the emergence of open source alternatives to Exchange, and while they don't mimic all the features, they do get the essentials right.

Each of the suites you'll encounter comes with all the caveats of open source software—specifically, iffy free support. If you do decide to go in this direction, we recommend coughing up the extra money for a supported version. In fact, the developers have presented the products as paid software with an optional GPL licensed version.

Open-Xchange Server

www.open-xchange.com

Open-Xchange is one of the more promising Exchange alternatives available today. It works in every situation that Exchange does, including with Palm- and Windows Mobile-based PDAs, and adds a few more features on top. Depending on the size of your organisation, you'll end up paying license fees starting from $30 (Rs 1,350) per user to as little as $25 (Rs 1,125)—not exactly cheap, but less than half the price of Exchange Server.

It also runs only on Linux, so you'll have to set up a Red Hat or SuSE Server to run it (other distributions are fine, too, but Open-Xchange officially supports the aforementioned two). If you're worried about the skills required, fret not—Open-Xchange has a fairly easy-to-understand administration interface.

To get Outlook and other devices or software working with Open-Xchange, you'll first have to download the respective OXtender plugin; not a particularly palatable act, but it's one of the compromises you have to make when forsaking Microsoft Exchange.

Once you've got the OXtender, Outlook integrates with Open-Xchange quite seamlessly, even updating itself automatically. On the other hand, you don't get to keep your existing Outlook folders—the OXtender creates its set of

Open-Xchange inbox.

You can get yourself a live demo of the Open-Xchange Web interface at **www.open-xchange.com/footer/downloads/openxchange_onlinedemo.html** (the server isn't always responsive, however); this will give you an idea of the features it gives you. We're quite impressed with the project management part—these solutions are usually made for software developers, but the ability to add your own custom fields to a project makes it easier to adapt to your own specific needs. Finally, it features Infostore—a knowledge base where you can store documents for everyone to access.

The Community Angle

If you want to try out Open-Xchange, you can download the Open-Xchange Community Edition free of cost. This open source edition is mainly for developers who intend to contribute to the project, but if you've got the time and skill, you can set it up as a long-term solution in your office as well.

You're not left to fend for yourself, thankfully—Open-Xchange has been extensively documented on the wiki (**wiki.open-xchange. com**), and there are a bunch of step-by-step
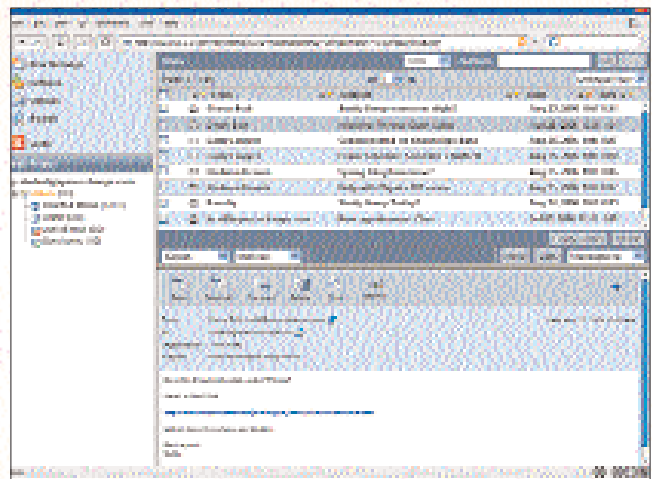
Open-Xchange's Web interface keeps you in touch with the office

guides to help you on your way. There's also a forum for you to share ideas and problems with the community.

Plunge

Even for an organisation with as little as twenty people, having this collaboration setup will prove invaluable. Nearly everyone uses Outlook at work, so the environment is as friendly as can be. You can access your collaboration tools from anywhere as well, just as long as you have Internet access.

For smaller organisations, even using the open source edition is fine, but if you have luck like ours, you'll inevitably be faced with a problem that befuddles both you and the rest of the community. If you and/or a minion has the skill to save the day in such a scenario, well and good—if not, stick to the paid version. ∎

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Hardware: Buy Or Lease?

When is it feasible for a business to buy IT hardware, and when does it make sense to get it on lease?

"Buying means economical benefits and flexibility in operations"

Dr Agrawal's Eye Hospital Ltd is a listed private hospital. It has six branches in Chennai, and others in Jaipur, Trivandrum, Trichy, and Salem. The Hospital provides eye surgery along with ophthalmic services, and is also involved in research on ophthalmic subjects. Through the Eye Research Centre, free eye camps and free cataract surgeries to the needy in rural areas of Tamil Nadu and Andhra Pradesh are also conducted by the hospital.

"When we just started off with the hospital, we considered two major reasons for getting hardware for our hospitals—affordability and the availability of

"Time was a major factor that made us decide we should own our hardware"

V Suresh
General Manager–Operations
Dr Agrawal's Eye Hospital Ltd.

manpower to maintain it. Our services at all 11 branches are open 24 hours. Our daily use of hardware includes computers, printers, and other miscellaneous peripherals.

"We could not take the risk and afford to wait for three to four hours for a service engineer to fix our hardware: time was a major factor that made us decide we should own our hardware and have a team to manage it.

"Today, we buy our hardware—such as the latest high-quality printers, cartridges, and more. We have a team of IT engineers to provide us support services for all of these.

"Since we own the hardware, we sell them and buy new ones every two to three years. The payment and tax benefits we used to get earlier when we leased hardware are now covered, since we're well off with increased efficiency and prompt services.

"We definitely recommend buying hardware over renting: it means economical benefits and flexibility in business operations. You can have the latest hardware and support round the clock. Small enterprises who are just starting off, though, can think about renting hardware."

"We're free from technological obsolescence"

Vcare Call Centers India (P) Ltd is a wholly-owned subsidiary of Call Centers India Inc., Seattle, which provides voice services with technical support to small, medium, and large organisations. They offer inbound services for Direct Responsive Television Marketing (DRTV) advertisements, outbound cold calling and telemarketing services, online research services, chat services including SMS chat, and e-mail support. The company currently serves 15 clients.

"We've leased IT hardware in our premises through CISCO Capital's leasing programmes. We have over 250 employees using the hardware with no trouble so far. We had esti-

"Before going with this option, an organisation has to plan their future cash flow well"

Sandip Mehra
CEO
Vcare Call Centers India (P) Ltd

mated a number of benefits of getting hardware on lease, amongst them the fact that we'd be free from technological obsolescence.

"Upgrading any hardware is possible by incurring upgrade fees as decided with the vendor, and the latest hardware can be installed. Other financial benefits we enjoy are that we could appropriate the lease expenses as operational expenses, so they can now be skipped to be represented in the balance sheet. Also, we could convert our capital expenditure to other investments in accordance with our requirements.

"The cost of ownership of hardware is lowered, as we get different lease options. Regarding technological obsolescence, you can buy the hardware at the end of the lease period if you think it still suits your needs at the lower price, or return it.

"Leasing of hardware is recommended for business enterprises because they get the benefits of technological obsolescence, and strategic planning for enterprise expansion can be done securely. Yet, before going with this option, an organisation has to plan their future cash flow well to cover the expenditure of the lease. Other appropriate costing and minimal expenditure benefits can be enjoyed along with tax benefits."

Touched By Tech

Scribbling For All

How long can non-English-speaking Indians be forced to learn ridiculous key combinations to type using a regular keyboard?

Samir Makwana

What would you do if you discovered that the keys on your new keyboard had Chinese-looking characters printed on them? Get a replacement, of course. Or, if you're curious to an unhealthy extent, you'd try and figure how to use it—but as a pastime, for a few minutes at most.

Think, for a moment, about the predicament of those to whom English characters might as well be Chinese. Think about our rural masses. They don't know English, and they're forced to learn the alphabet if they want to use a regular keyboard. If *you* were forced to learn Chinese, you'd be outraged... yes?

It's a little like malaria. We'd certainly have already had a vaccine if the disease were prevalent in Western countries! Similarly, if Indians were to have developed the keyboard, it would have been much more functional for Indian languages. But that's not the case, and there's not much we can do about it. Or is there?

Language Technicalities

The major reasons for the low IT penetration rate in India are accessibility, affordability, and usability. Computers and IT-Enabled Services are accessible and affordable for the urban populace. Even if they are made available to the rural population, the usability factor prevails, due to lack of awareness and knowledge. For now, think about the lack of support for Indian languages on input devices, which is a major impediment to the use of computers in rural and small-town India.

The primary reason behind this lack of support in terms of keyboards is the diversity of the character shapes of Indian alphabets. For instance, Hindi has 36 consonants and 12 vowels that can modify the consonants. The shapes of the consonants get modified when used with a vowel modifier: these can appear on the top, at the bottom, or to the right of the consonant to form a compound character.

Now, recognising each (complex) shape of the newly-formed compound character becomes difficult

Imaging Pravin Warhokar
Photograph Amrut Patki

when one is using a regular tablet for input. The keyboard as an input solution for each of these characters is inappropriate because to be able to press the right combination, one needs to be trained. And trainers are not easily available.

The Problem

The picture about future PC usage and IT penetration in India looks rosy from the numbers available: they're on the upswing. But the numbers are nowhere near what they could have been if not for the language barrier. Indeed, one of the key reasons for the relatively low IT penetration rate in India is linguistic diversity.

Today, a number of solutions are available to surmount the problem of computer use by non-English-speaking people. The most common is stickers imprinted with the alphabet of a particular Indian language to be overlaid on the keyboard. But like we said, even with stickers, training is necessary.

As an inelegant solution, some use Indian-language translation software. A number of translation software are available on the Web: search on the term "Hindi translation software", and you'll get over a million results.

One Step Forward

A recent innovation is a gesture-based keyboard designed by HP Labs India, Bangalore. This keyboard was the runner-up in the Consumer Electronics category in the 2006 Technology Innovation Awards of *The Wall Street Journal*. The research team behind the design of the keyboard was led by Shekhar Borgaonkar, Department Manager—Access Devices, HP Labs India, who worked with eight other engineers.

The Gesture-based Keyboard is an electronic tablet with pen-based input on a touch-sensitive pad, where letters of Indian languages are entered by gestures. The Gesture-based Keyboard technology has been patented by HP, and is test-marketed by Prodigy Labs India Pvt Ltd, which offers solutions in the embedded technology space. Prodigy Labs is marketing the keyboard under the name *uRekha*.

uRekha will make typing in Hindi so much easier

How It Works

uRekha currently supports Hindi, Kannada, and Malayalam. For support of other Indian languages, it requires just about a month's time, according to Borgaonkar. We can soon expect the Gesture-based Keyboard to support several languages.

The uRekha package has a graphics tablet, a special pen, and the installation disc. It is priced at Rs 2,500. The surface of the tablet has consonants, vowels, and numbers imprinted.

Using the pen to stroke and tap on the characters on the graphics tablet will display that letter on the screen. Say you want to write an Indian name, "Ashok", in Hindi. The consonants in "Ashok" are first tapped on the tablet.

In some detail, using the pen, after the " v " in "Ashok", the first consonant—"k"—is tapped on the tablet. After adding "k", you need to modify it to " kks ". For that, you draw the vowel modifier "ks" on the consonant. The "d" does not need to be modified, so the resultant word would contain both non-modified and modified consonants.

When the gesture to input a vowel modifier on a consonant is performed, the pen electronically captures the gesture and the trajectory of the gesture. The vowel modifier is rendered using this information. Of course, for only consonants or vowels, the pen is simply to be tapped on the character.

To watch a demo of how uRekha works, take a look at the Flash demo on this month's DVD under the *Digital Leisure* section. The device can be used with Windows XP with Office 2002 or higher, and on Linux as well.

Who's Using It

uRekha is currently being used in Karnataka, Kerala, and also in the other south Indian states. "We did a pilot study in certain areas and thereafter framed marketing strategies. We're doing road shows and demonstrations for promotion and to inform people about uRekha. So far, we've been successful in selling more than 500 units—200 were sold to the government of Karnataka, 100 to the government of Tamil Nadu, and the others to individual customers," informs Harsha K V, Managing Director, Prodigy Labs, an Embedded technology company invovled in distrubution of uRekha.

Government employees are currently using it as a data entry input tool for documents, files, and reports. uRekha is also being used for filling forms currently in Hindi, Kannada, and Malayalam).

There's More...

There is more and more research and development to break the language barrier in working with computers being done. A sizable number of organisations and academic institutions—CDAC (Centre for Development of Advanced Computing), to name one—are involved in the development of products and services in Indian languages. For instance, in the recent past, an Indian portal, Guruji.com, announced a search engine in Hindi, Kannada, and Telugu. Also, a number of OCR (Optical Character Recognition) software are available for non-English languages as well.

The Department of Information Technology has initiated the Technology Development for Indian Languages (TDIL), which comes out with interactive CDs and other information-processing tools in Indian languages.

"Currently, a real-life study is being done on the usage and popularity of the Gesture-based Keyboard. We also have plans to bundle it with our computers," says Borgaonkar.

Language could very well no more be a barrier for entry into the world of computing and information technology. Progress towards the availability of the necessary tools has been slow, but it's happening. And that's heartening. ∎

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Ten must-have accessories for your dearest consoles

Asfaq Tapia *(asfaq_tapia@thinkdigit.com)*

Gaming consoles have evolved greatly over the years—from the early days of 8-bit to the modern era of AI-intensive and resource-hungry games that have become a part of our daily lives. The demographics have changed too—from adolescents to teenagers to adults, there is a variety of consoles and gaming accessories out there that satisfy our needs.

So here are the coolest accessories for the latest consoles. Now you can have fun while running yourself into debt too!

10. Electric Juicers

The Microsoft Xbox 360 Play and Charge Kit is a new product from the Microsoft stables for the Xbox 360. It consists of a USB charging cable and a battery pack, which lasts three weeks on an average charge. Since the kit uses a USB cable to charge the batteries, it can be used both on a PC and while you're gaming. What's disappointing, though, is the lack of a button to switch off the charger when the batteries are fully charged.
Price: $20 (Rs 840) **Available at:** http://tinyurl.com/bn8y6

The Nyko Wii Charger is another innovative product. We all know that the Wii-mote uses AA size batteries that run out before you can say, "Hail Mugambo!"—this is where the Nyko Wii Charger steps in. It features 2 AA size battery packs, 2 rubberised battery covers, and a charging dock for upto 2 Wii-motes. Unlike the Play and Charge Kit, though, this charger may not last really long during marathon gaming sessions—you need to remove the battery packs from the Wii to charge them. **The Good:** Well, they're better than swapping batteries
The Not-so-much: Nothing in particular **Price:** $30 (Rs 1,200) **Available at:** http://tinyurl.com/2fy2vp

9. Keyboard Warrior

Microsoft recently announced the introduction of the all-new QWERTY keypad-type attachment to their Xbox 360 controllers. This attachment will eventually be integrated into the Xbox Live system online to be used while chatting with buddies, blogging, and such. The QWERTY keyboard connects to the headphone jack at the bottom of the controller and fits perfectly between its shoulder blades. **The Good:** Fits the controller like a glove
The Not-so-much: QWERTY isn't really a thumb-friendly layout
Price: $30 (Rs 1,200)
Available at: http://tinyurl.com/2fy2vp

8. Chill Pills

In today's age of resource-hungry consoles, more and more components are being crammed into the same space than ever before. And with gamers spending more time with their consoles, it's getting harder and harder to keep these machines cool...

The Intercooler for PS3 was designed for the PS3 (duh). It keeps your system ice-cool during those intense game moments—with five fans located at the rear, top, bottom, left, and right of the PS3. The fans at the left and right suck the warm air out, while the one at the bottom blows in cool air. The cooler increases the overall system sound by a notch or two and looks downright hideous stuck to the back of the PS3, but that's a good enough trade-off.

For extreme gamers, pro modders, and engineering students alike, Koolance has launched its custom water cooling kit modeled on its Exos LT product line. The Koolance Xbox 360 Water-cooling Kit runs liquid coolant over the CPU and GPU of the Xbox 360 making it super cool. This kit is not for a newbie: Koolance advises that it is not for inexperienced modders, and provide no manual or technical support for it.
The Good: Keeps the Xbox cool, provides bragging rights!
The Not-so-much: Voids warranty, nowhere to go if you get stuck while building it
Price: $290 (Rs 12,200)
Available at: http://tinyurl.com/36qwmj

7. Pimp My Console

Looking at the same design and graphics on your console day-in and day-out can get pretty tiresome. That's why we have case modding—you can change the colours and looks of your console. You could just take the correct paints and go berserk on your console, but if you're not the DIY type, there are several options to choose from off the Internet. High-quality, vinyl stickers can be stuck onto the console to change its colour and graphics. You get a wide range of stickers at **www.decalgirl.com**, and they also offer to "skin" your controller with the same design aesthetics!

On the other hand, if you want to completely change the design of your Xbox 360 or Wii, you can do so with the I-Case provided by MCX. The I-Case comes in myriad colours from chrome to semi-transparent blue, and has different case designs too!

The Good: Keeps the Xbox cool, provides bragging rights!

The Not-so-much: Voids warranty, nowhere to go if you get stuck while building it

Price: Varies depending on product

Available at: www.nyko.com, www.decalgirl.com
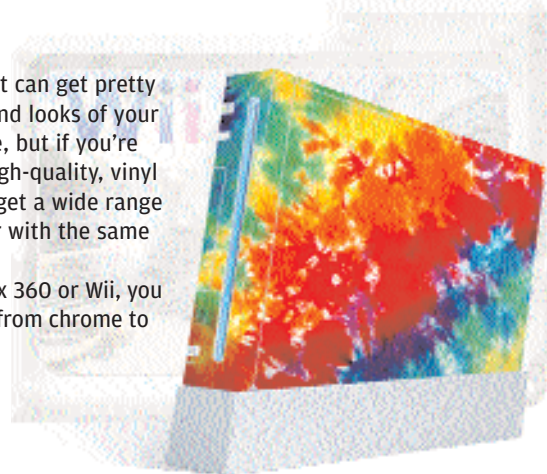
6. Yo-Yo Strap

We're glad someone took those funny images of Wii-motes embedded in TVs seriously enough to make the retractable Wii-mote Wrist Strap. This contraption features a strong cord connected to a retractable device, embedded into a wrist strap, which connects to your Wii-mote. The retractable device will soon get loose, though, making it another plastic projectile that people around you in the room should watch out for!

The Good: The wrist strap looks cool

The Not-so-much: You don't want to be in the way when your Wiimote makes its return journey

Price: $6 (Rs 250)

Available at: http://tinyurl.com/2tfwsa

5. Becoming Schumacher!

Over the years, racing games have evolved from those 8-bit one-race games to games with complex AI and near-realistic simulations of real-world scenarios. Racing games become even more realistic and fun to play when they are accompanied by a racing wheel and pedals.

The Ubisoft Thrustmaster for the Wii is just like any other Wii accessory—basic and functional. It comes bundled with *GT Pro* series and *4x4: World Circuit* racing games. The entire focus here seems to be on gameplay and ease of use—like all things Wii. The Ubisoft Thrustmaster steering wheel is made of foam, and has a slot in the middle for docking the Wiimote, so the buttons are easily accessible during gameplay.

The Good: Cheapest steering accessory among all console steering wheels

The Not-so-much: Looks like the manufacturers are taking the "low development cost" of the Wii a bit too seriously

Price: $45 (Rs 1,900) Available at: http://tinyurl.com/2sxdo9

Next in line is the Logicool GT Force FX steering wheel for the PS3, which is one stunning wheel. With features like a 250-degree turning radius and 12 mappable buttons on the wheel, it's disappointing to note there's no support for force feedback or the rumble effect. The rubber padding on the wheel comes in handy during those extreme manoeuvring moments. It also features accelerator and brake pedals.

The Good: Great looking design, good build, good turning radius **The Not-so-much:** No rumble, expensive **Price: $50 (Rs 2,050) Available at: Not yet available**

The "wireless" tag on the Xbox 360 Wireless Steering Wheel is a bit of a misnomer—if you want to experience the force-feedback and rumble effects, the pedals have to be plugged in. The steering is completely wireless, though. Another amazing feature of the Xbox 360 Wireless Racing Wheel is the F1-like styled gear shift paddles, located just behind the steering wheel close to its shaft. This allows you to change gears without taking your hand off the steering wheel, and change camera angles on the fly. It also supports wireless headphones for.

The Good: (Mostly) Wireless

The Not-so-much: Just "mostly"

Price: $130 (Rs 5,450) Available at: http://tinyurl.com/n9wdz

4. Freeze Breeze

Ever had to deal with sweaty palms after playing for seven hours straight? Worry no more: Logitech has launched the Chillstream Gamepad for the convenience of PS3 folk. This one has air vents towards the bottom on both sides of the controller, which have fans that blow cool air onto your palms, so you are at your agile best when fragging the enemy on a new map.

The "low" setting just blows air onto your palms— what really makes it buzz is the "high" setting, where it starts to get a bit noisy too.

The Good: Keeps palms dry, looks similar to the PS3 SIXAXIS controller

The Not-so-much: Not wireless; can get noisy

Price: $35 (Rs 1,400)

Available at: http://tinyurl.com/35ydd9

2. The Gaming Chair

You'll agree that it a bean bag is the most comfortable way to sit through a game. Now add a 2.1 Dolby setup to that bean bag, and you are in another dimension altogether! The good part for us is that Pyramat has just that (well, almost) with their S2000 range of gaming furniture.

The S2000 boasts of two 3-inch full-range 12-watt speakers located on the shoulders of the chair just behind your ears. It also has one 5.5-inch 20-watt sub-woofer located around the mid area of the back rest. This wizardry doesn't end here—the S2000 has the ability to accept radio-based stereo signals from any audio device with stereo output, wirelessly. It can also broadcast stereo audio via Bluetooth.

The dials and buttons are located on the right of the chair, and can manipulate volume, bass, and input selection. On the right is a headphone jack to which you can connect your MP3 player!

The Good: Good speaker arrangement, Bluetooth functionality, headphone jack **The Not-so-much:** No tweeters **Price: $130 (Rs 5,450)**

Available at: http://tinyurl.com/2rqj2x

3. Strum Your Way Through

The Gibson SG based Guitar Peripheral is one of those console accessories you can spend hours with. You now not only have the option of listening to your favourite songs, you can actually play it too! This comes bundled with Guitar Hero on the Xbox 360 and PS3.

The mini SG comes across as being of the ideal size—not too big and not too ridiculously small either. It has 5 buttons instead of the fret bars, a strummer, and a whammy bar for those moments when you just have to go electric!

Another aspect of the mini SG is the slightly elevated yellow button right in the middle of all the buttons on the neck. This can be a real lifesaver when you get lost between the buttons. A wonderful peripheral to own.

The Good: Near-perfect size **The Not-so-much:** Button quality isn't that great

Price: $40 (Rs 1,700)

Available at: www.redoctane.com/gh-sgcontroller.html
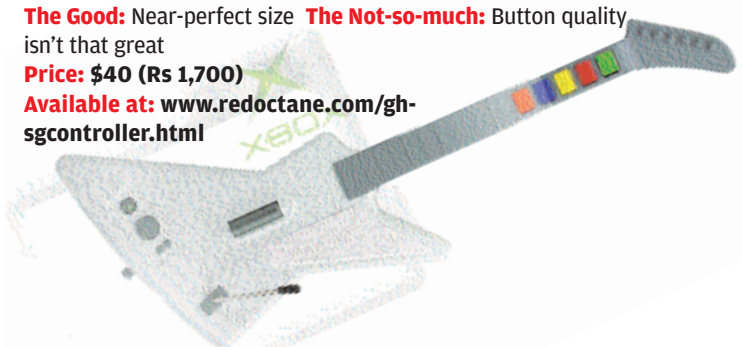
1. Kung-Fu Fighting

The age of NES controllers was when arcade-style fighting games flourished. It was also a time in which controller and control buttons were simple, and you could just kick or punch your enemy. With the advent of combination moves (combos), controllers got more and more complex with more and more buttons on them. In such a scenario, a gamer with small hands is an outcast, since it is difficult to quickly reach a myriad buttons with small hands. This is where the Fighting Stick 3, manufactured by Hori, comes into the picture. This arcade-style controller will remind you of the NES controller era! Unfortunately for us, it is still sold only in the US and Japan.

The Fighting Stick connects via USB to the console with a cord that is 10 metres long. The designers put some thought into it: this is evident from the rubber grounding used in the legs, and the metallic base which makes sure the stick doesn't move too much while playing. Moreover, the stick has a plastic body with rounded corners which don't come in the way while you're bashing demons. The buttons on the fighting stick are convex for that old-school look. Most of the buttons on the controller are mappable, and are super-sensitive, making for an even better experience.

The joystick moves into four pre-defined corners, unfortunately, and does not have a rounded base, which would have allowed it to move freely.

The Good: Retro, old-school looks

The Not-so-much: Doesn't come in a wireless variation

Price: $35 (Rs 1,450)

Available at: http://tinyurl.com/274hom

The Fallout is h

S.T.A.L.K.E.R.
SHADOW OF CHERNOBYL

Redefining "Immersive", evoking *real* trepidation, and upping the bar is this gem–based loosely on Andrei Tarkovsky's 1979 classic

Prepare for something different... something disturbing... something frightening... something gritty and so utterly realistic, it'll have you barracading yourself armed with the best weapon you can find and a thousand rounds of ammo. Every little sound has you whipping around frantically. Was that a mutant dog whining in the distance, a trick of the wind, or something else?

Suddenly the bushes some 30 yards away move. You hear a bloodcurdling growl. Your vision blurs as something dark leaps at you, tearing at your body with deadly claws. You open fire blindly, stumbling backwards. Just as the creature's about to go down, you see a flash of brown to your left...

That, comrade, is just another moment in S.T.A.L.K.E.R.—one of the most atmospheric, immersive shooters I've played.

You play the "marked one," and courtesy a nasty case of amnesia, remember zilch about your whereabouts or even who you are. First up you'll be given a mission from the trader in the bunker you wake up in, and armed with a peashooter (at first), you're off.

The "zone" as it's called is huge, and you'll spend hours traversing it on foot. You can stick to the roads and paths, or feel free to explore the countryside. But remember the zone lives and breathes (just like you) and you'll come
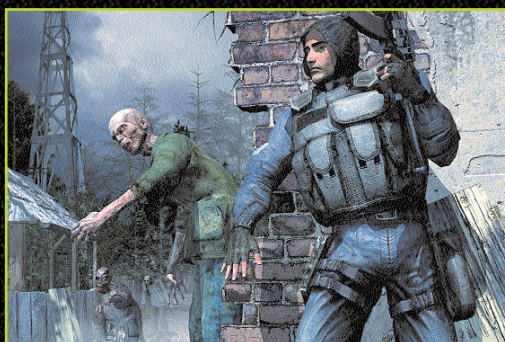
ere

across hostile mutants of various kinds, heavily-armed stalkers who'll be either neutral or hostile, and various deadly things—not to mention equally lethal, highly radioactive zones.

This is where S.T.A.L.K.E.R. really comes into its own. A first person shooter / RPG, this game is the first of its kind. Its not about upgrading character stats, but improving your own gameplay skills. The storyline revolves around the main missions, although there's a goodly dose of side missions in S.T.A.L.K.E.R. enough for some 40+ hours of gameplay. What's unique is the sheer freedom the game allows you in pursuing the missions. There's never a feeling of being forced into a particular mission, nor any limitations on how you achieve your objectives.

It's the sheer eerie beauty of the zone that will grab you though. Gnarled trees, rumbling thunderstorms with intermittent lightning bolts, junkyards of dead vehicles, and abandoned buildings in various states of disrepair are all part of the eerie atmosphere you'll experience. You have no friends except your gear, and death is only an empty magazine away.

With the right kind of hardware, S.T.A.L.K.E.R. looks absolutely stunning. It has one of the most immersive soundtracks I've ever experienced. The growls from mutants, rustles in bushes, the constant moaning of the wind, among other indefinable ambient sounds through the trees will leave you constantly on edge, just as the developers intended.

Skirmishes with mutants and rival stalkers are common, and you'll need to watch yourself: The AI is extremely nasty, with enemies using cover as intelligently as you, ditto the tactics. Some of the mutants lack AI for the most part, but they more than compensate with raw speed and agility.

While I won't spoil any more of the plot, I can tell you the game has seven different endings—open-endedness unlimited!

Will absolutely realistic weaponry and damage models, S.T.A.L.K.E.R. is as close to the real thing as you can get. Need a verdict? Play it! Right after a system upgrade, of course…

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BURNOUT DOMINATOR

Almost Infamous

No game has endeared itself to us the way the *Burnout* series has. Perhaps it's the insane speeds. Or the rewarding feeling (and points) you get when you introduce opponents to the friendly pillar on the corner of the road. There's that sweet taste of revenge as you descend from the skies onto the bonnet of the unsuspecting fool who thought he could get away with taking you down. Ah, good times...

It never occurred to us that Criterion would try and mess with the near-perfection that was *Burnout: Revenge*—they've added a bunch of new game modes in *Burnout: Dominator*, but one of the best features has now been disowned. Traffic checking is gone, so you can't use the hapless public as pawns in your game of death and destruction anymore. Worse, you have to avoid them! The gloriously destructive Crash mode is gone as well. On the plus side, you can now chain burnouts—drive like a maniac while boosting, and you'll get an instant boost recharge that will let you go even faster. This is all as fun as it sounds, but definitely tougher, what with the going boom every time you hit traffic bit. The overall gameplay hasn't changed enough to warrant comment, other than that we're glad it all feels the same.

Dominator looks amazing, and is a testament to the fact that the old PS2 still has life. For someone new to the franchise, it's an excellent game to have; *Revenge* owners, buy this only if you're bored with the same old locations—it's no quantum leap ahead.

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> **Rating: 7/10**
> **Price: Rs 2,499**
> **Publisher: Electronic Arts**
> **Distributor: Milestone Interactive**
> **Contact: sales@milestone-interactive.com**
> **Developer: Criterion**
> **Platform: PS2**

HEATSEEKER

Simple Joys For Simple People

We wonder if IR Gurus consciously decided to forego any sort of depth when they made *Heatseeker*. This arcade-style flight simulator (we use the term loosely) gives you no story to live through—well, nothing worth mentioning, anyway—and strictly average voice acting. What you do get, however, is good, solid adrenaline-enriched dogfighting action in an aircraft of your choice, including the beautifully destructive F-22 Raptor.

Heatseeker proudly touts the Impact Cam, which follows your missile right to the aircraft it's headed for, showing you the fate of your victim in all its up-close and slow-motion glory. If you like watching big explosions unfold in slow motion, this should feed your appetite like your first meal after a day-long fast. Trouble is, while you're watching the impact cam in glee, your aircraft switches to go-straight-without-thinking mode, meaning that you may well find your bird headed for the water when you get back. This can get annoying after a while, especially the fact that you enter impact cam when you hold down your fire key—taking you out of the action for those few precious moments.

Wherever else *Heatseeker* might fail, it doesn't disappoint in terms of action. You'll be met by barrages of enemy aircraft, and you get but a few seconds to breathe between waves. In-flight effects like afterburn are well-styled, and you'll be playing the Top Gun theme in your head in no time. Sink your money into this one for mindless entertainment, seen after a long time in a flight sim.

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> **Rating: 7/10**
> **Developer: IR Gurus**
> **Publisher: Codemasters**
> **Distributor: E-Xpress Interactive**
> **Contact: sales@e-xpressindia.com**
> **Price: Rs 2,499**
> **Platform: PS2**

Rating: **6/10**
Developer: **Game Republic**
Publisher: **SCE**
Platform: **PS3**
Distributor: **Milestone Interactive**

Ancient Japan Never Looked So Good...

Genji is another of those save-ancient-Japan-from-the-evil-demon-lord games; this one is based on the old legend of Gaimaru Yoshitsune, a Samurai warrior, and his battle against the Heishi clan, who have solicited an assortment of demons to help them go about their evil deeds. Beyond that, *Genji*'s story is marvellously incomprehensible.

You start as Yoshitsune, and once you meet the rest of the characters in the game, you can switch to any of them when you feel like it. Each warrior has a different fighting style, and they come with their own strengths and weaknesses. Yoshitsune has the best balance between agility and destructive power; Benkei is slow and lumbering, but dishes out fatal damage to many enemies with a single blow; Shizuka (the mandatory scantily-clad-butt-kicking-babe) is weak, but her grappling-hook-like weapon can attack enemies from a distance.

Aside from the beautifully rendered environments and brilliant sound, the game is generally unremarkable, but the combat won't disappoint. Combo moves can be devastating when done right, and you'll be kept on your toes with swarms of enemies, none of whom respect the "attack one by one" rule that they do in movies.

When you're not doing battle, you'll have environmental puzzles to solve, and this is the most frustrating part of the game. The camera angle is fixed, so you can't survey your surroundings properly, which makes it that much harder to find important hints or items.

In the end, *Genji* isn't a must-have game, but it does serve as an example of a well-executed one.

Fun In The Mud

Rating: **7/10**
Developer: **Evolution Studios**
Publisher: **SCE**
Distributor: **Milestone Interactive**

Think of *MotorStorm* as something like *Monster Truck Madness*, only much, much better. Your sole duty is to race a variety of vehicles—dirt buggies, big rigs, motorcycles, and everything in between—around Monument Valley in the US, and try to enjoy the scenery while you're at it. The game's graphics are amazing—vehicles are immaculately detailed, and damage modelling is quite impressive. While you drive around the dirt tracks, your car / truck / whatever will continuously get plastered with mud and muck, and the overall effect is far better than what we've seen in off-road titles thus far. Locations are wonderfully rendered, and it's worth taking a plunge over the side just to admire the scenery. When you're not dropping off the side, the tracks are quite challenging, too.

MotorStorm's arcade-style gameplay is pure fun, and we love the number of ways you can blow up your vehicle. Bouncing around the track too much? Kablooey. Take a cliff-side corner too fast? Soar... (whee!)... kablooey. Run into the wreckage of a kablooey-ed opponent? Kablooey. Too much boost? Kablooey! It almost makes it worth not winning a race. The game's concept is much like any other—win races to unlock new vehicles and tracks, and eventually collect them all. You don't, however, get to choose your class of vehicle—this is probably the game's way of ensuring that you're either (a) not going to stick to classes you're good at, or (b) forced try out every vehicle type—take your pick based on whether you like this feature or not.

One of the more interesting parts of *MotorStorm* is the ability to use the SIXAXIS controller as a steering wheel in the air. While fun, it was a little raw in the preview copy we were playing, with no sensitivity adjustment, but the retail version will let you tweak this. We expect it to be much better then.

Escape

ARE PRESENTATIONS WORTH IT?

Less Power To The Point

Of course Microsoft and Google rule the world, but little things here and there keep reinforcing the fact. Take this for instance: a not-overly-famous researcher at the University of New South Wales publishes a not-so-groundbreaking paper on cognition, and it gets heavily publicised. Just because Professor Sweller said, "The use of the PowerPoint presentation has been a disaster. It should be ditched." Note the use of the word "PowerPoint"; he didn't use the generic "presentation application." He did what's not done: criticise the use of a Microsoft product.

To begin at the beginning: Prof John Sweller—who specialises in cognitive research—theorised and discovered that people cannot digest information properly when it comes in two different forms, spoken and written. To quote the professor, "It is effective to speak to a diagram, because it presents information in a different form. But it is not effective to speak the same words that are written, because it is putting too much load on the mind and decreases your ability to understand what is being presented."

Come to think of it, why *do* people present something on a projected screen and reiterate it by saying the same thing? What's the Point (pun very much intended)? It's probably (to the best of our understanding) what is known in educational circles as a pedagogical device that relies on reinforcement. Sweller is now saying that it doesn't work, and that it should be done away with.

It's been done for so long now, preparing neat PowerPoint slides and delivering spiel. Think of that oft-repeated phrase, "I need to deliver this presentation". Nice, bulleted points. Fonts. Heading styles. Borders. Etc. And all for naught? That's exactly what Sweller is saying. Imagine all the (implied) lost productivity; and imagine the idea that there's not much Power in the Point after all. (We couldn't resist.)

OK, so this is just one professor's work, but what if the idea were to gain momentum... would it mean the end of all those fonts and bulleted points? The end of the way execs and their minions do things every boring business day?

Perhaps we're putting our feet in our mouths, because we're toying with the idea of a *Fast Track to PowerPoint*... OK, so we'll tell you the trick: do use the fancy fonts and all! They'll get the Point across! Just don't bother speaking when the slide is on! Save your breath and don't mess with the cognitive faculties of your captive audience...

Whatever Happened To...

iSmell

Few products literally stink, but this one did—or at least it would have, had it progressed beyond the prototype stage.

In 1999, DigiScents Inc. developed a concept called iSmell, which allowed folks to get their noses as involved in their Web experience as their eyes and ears.

The iSmell Personal Scent Synthesizer was a shark-fin-shaped gizmo that plugged into a USB port and

The iSmell Personal Scent Synthesizer

wafted appropriate scents as you browsed smell-enabled Web sites—like Flowers.com, as a typical example. But sceptical users turned up their noses at the idea, making the iSmell the ultimate in vapourware.

The idea is just plain silly: imagine being not only assaulted by horrible MIDI files and pop-up ads, but also wafting aromas on the Web!

If you know the Web at all, you'd know this was a frightening prospect. Imagine going to the Jockey underwear site and... well, you get the drift!

We're also not sure what DigiScents was thinking (or smoking) when they came up with the name: no-one would want to say "iSmell" out loud...

MAN-TO-MAN

Bots To Target Bots

Defense technology—we spell it with an "s" because it's mostly about America—is ridiculously advanced. Blame it on American paranoia. We learn from **http://tinyurl.com/2pw3fv** that "Arleigh Burke" AEGIS ships can track aircraft to about 180 km, and can shoot them down even when they're up to 4,000 km away, with remote ship-based missiles. That's much more than the north-south spread of this country. The AEGIS system, if we understand it properly, targets things that come at them too fast. Google "AEGIS defense ship".

We've veered off topic a little: our point is, more and more people in diverse countries—the UK and South Korea, for instance, and now America—are preparing papers on how robots (and automated systems) should behave with flesh-based beings. At **http://tinyurl .com/32b6wm** is a PDF

called "Concept of Operations for Armed Autonomous Systems," the latest. John S Canning, an engineer at the Naval Surface Warfare Centre, Dahlgren Division, a weapons research and test establishment, is aiming there to dictate how possibly robots could be told to only target their ilk.

You saw this coming: how did Asimov's Three Laws of Robotics get expanded into an entire PDF? Well, for one, the Laws are simplistic. Not suitable when you have systems as advanced as today's.

The upshot of the proposal—refer the PDF if you have the patience—is that robots should decide for themselves when to annihilate the enemy, only if that enemy consists of robots. Flesh, blood and bones should be spared—or at least, a human should be consulted when it comes to that. Quoting Canning, "Let machines target other machines, and let men target men." Problem is, how can the bots distinguish?

Another proposal: "We can equip our machines with non-lethal

technologies for the purpose of convincing the enemy to abandon their weapons prior to our machines destroying the weapons, and lethal weapons to kill their weapons." Kill their weapons? Canning is referring to the bots, we presume. A related proposal is that only machines should be targeted, and if humans are killed in the process, it's collateral damage. Meaning that, faced with a man wielding an AK74, a bot should only target the weapon and try to spare the soldier.

It's all very idealistic, and the problem remains: how can a bot distinguish? Not conceptually difficult: analyse the target for the presence of DNA and RNA. But are we there yet? Or, can we throw AI at the problem?

Seen from a different angle, why would one even want to distinguish? Doesn't the military *want* to kill gun-wielding soldiers? Canning's proposals are probably trying to push us towards the ideal of pure machine warfare, with no destruction of the stuff that life is made of.

Wild Wild Web

The Waste Pipe

It's a little late in the day to be telling you about Google's annual April Fools' joke, but they—like this one—are timeless (in the sense of the link always being there), so here goes. This one isn't timeless in the sense of "priceless": we thought it was more than a tad lame. On The First Day of April appeared a link on the Google homepage leading to a site claiming to offer consumers high-speed wireless Internet service through their home plumbing systems.

The "service" was named "Toilet Internet Service Provider," and there was also a "press release" with statements attributed to Übergoogler Larry Page. To mention one: "And today our Toilet ISP team is pleased to be leading the way through the sewers, up out of your toilet and—splat—right onto your PC." Splat?

Then there's a silly picture of a mother with a baby and a commode in the background, with a silly caption to boot: "Want WiFi around? Just flush it down." **www.google.com/tisp** has an installation guide for installing TiSP through the sanitation system of a bathroom.

Pigeon Rank was amusing, but this one falls as splat as this silly joke.

Sniff 'em If You Can...

The tech reporters at the BBC were a little more creative—refer previous item—but only just. Remember the forward about using your monitor as a webcam? This one didn't go much further than that. "Sniff-Screen Technology," they called it, on April Fools' Day: the "BREAKING NEWS" (the caps were on the BBC homepage) was the launch of that technology, which would let you smell stuff on the screen.

It was a slideshow: a picture of fetid-looking (probably Greek) cheese, roses, and Parisian perfume. Visitors were asked to put their noses close to the screen if they couldn't already smell the aforementioned strong-smelling things.

The thing is archived at http://tinyurl.com/276c6j. Show it to your grandmother.

SPRING CLEANIN
O'Really?

Can the Web be cleaned up, made more structured, made a better place?

Mid-April, Tim O'Reilly, book publisher and one of the coiners of the term "Web 2.0", and Jimmy Wales, Wikipedia creator, met up and began working on creating guidelines that would make online discussions more civil. One of their recommendations is that bloggers be allowed—without being blamed of censoring things—to delete offensive comments on their blogs. This is just after a rather freakish incident: Kathy Sierra, a technology book author received death threats as comments on her blog. The threats were partly triggered by a dispute over precisely what Wales and O'Reilly are discussing—whether it's OK to delete blog visitor comments. "F*** off, you boring slut"—or something along those lines—was one of the comments. (Would *you* feel you had the right to delete such a reply?) This was followed by stuff about wanting to see a noose around her neck.

Right now, O'Reilly and Mr Wales are talking about segregating blogs into categories, signified by logos. Bloggers who do not want comments would be in one category; tech bloggers who always cite sources (as opposed to writing random, rambling posts) would be in another category, and so forth.

Robert Scoble, technology blogger of Scobleizer fame, said the rules "make (him) feel uncomfortable". He followed with "As a writer, it makes me feel like I live in Iran."

Apparently, they're not talking censorship. To quote O'Reilly: "That is one of the mistakes a lot of people make—believing that uncensored speech is the most free, when in fact, managed civil dialogue is actually the freer speech. Free speech is enhanced by civility."

But this is an overreaction. One woman blogger receives death-threats, and they're talking guidelines for blog behaviour?

Naturally, the words "free speech" come to mind. If it's OK to write what you want on a blog, why not the same principle for replies? Also, we think the proposed idea of "categorisation" will meet with nothing short of hostility.

It's not clear what Wales and O'Reilly are thinking in terms of implementation. The Web *cannot* be policed, or even "formalised," as it were. Sure we'd all like a cleaner Web, but it's just not happening. Then, forget about blogs and think about forums, and you'll get the drift. Wales cannot properly police his own Wikipedia, and he's talking about slapping rules on the Web...

ENHANCED REALITY
Games Like Movies?

There's a little Flash-based game on the Net right now called *Flow In Games* (**http://intihuatani .usc.edu/cloud/flowing/**). Here's what one blogger

has to say about it: "Flow In Games has no real point. There is no score, and there doesn't seem to be an end. You control a deep-sea aquatic type creature and your mission is to eat stuff, gracefully and for as long as you can stand moving your mouse. For a game without goals, Flow In Games is incredibly addictive." Why we're talking about it is that it's been created by Jenova Chen and Kellee Santiago, two independent developers, who claim to be "tapping new emotions with their games." They're trying to give games the range of emotions that movies involve.

Chen says, "Right now, video games are focused on releasing anger and stress... that's really limited. If you want a deeper understanding of life, you aren't going to get it from a video game." Chen thinks games should get down to the business of "probing the light and dark sides of human emotion."

Along similar lines, Danny Ledonne, creator of the controversial *Super Columbine Massacre*—where

April, Come She Will

Vijay "The Wag" Padaya got hitched this month. Normally we would have ribbed him in this space a few months earlier, but he only told us after the deed was done. He just disappeared for a week—only Ed knew why, apparently— and returned sans sweets, bearing news and photographs of his nuptials. All of us are sorry for him, because as is the custom (which reflects life), the bride wears White and the groom wears Black.

April is the beginning of the new financial year, and naturally, we were all thinking about our own finances. (Read: the Annual Appraisal.) For the students amongst you, an appraisal is where the boss-man tells his boss-men how his team had performed in the past year (which he then

also conveys to us, the lesser employees). So there we were, each of us entering and then exiting Ed's office one by one, with either a smile or a frown gracing the face, depending upon whether Ed had smiled or frowned.

Asfaq (please don't pronounce it wrong) took the plunge and installed Ubuntu on his computer, so you guys can now send us more Linux questions. Actually, don't—the rest of us think he's recompiling his kernel more than he's working.

And finally, in anticipation of next month's "Sixth Sense" issue, many of us are sporting glassy-eyed looks—wondering whether we have a third eye, wondering whether we can do justice to the task. But we're sure we'll pull it off in the end.

DIGIT DIARY

players take on the roles of the Columbine shooters— says, "I do not believe the medium of interactive electronic media should be excluded from exploring the sorrows and challenges of the human experience."

The phrase "Emotions in games" sounds suspiciously like something meant for female gamers, but what Chen and Santiago and Ledonne are trying to say is current games hardly

encompass the spectrum of the life-experience that movies do. Sure, you have FPSs, strategy games, role-playing games, and more. FPSs, for example, provide outlets for emotions, primarily those of the violent kind. The others do involve creativity of some sort. But the point here is, do they imitate life?

In some ways, yes. But think of a movie like *American Beauty*, or *Requiem*

for a Dream, and you'll get the drift of what they're talking about. Many current games aim entirely to remove you from reality. Even simulation games put you in a *different* world. That might just change, if Chen and Santiago have gotten it right.

It's difficult to imagine what games of the future will be like, but think about the world of *Second Life* and you might get an idea. ∎

Blog WATCH

A lot of people are talking about the Leopard release delay, but does it matter?

David Chartier doesn't like the idea that Apple first delays a release, then rushes on to release unfinished products.
David Chartier
http://tinyurl.com/2bpv69
Apple announces Leopard delays due to the iPhone
Apple has just issued a statement announcing that Mac OS X 10.5 Leopard has been delayed until October. The reason? iPhone: "we had to borrow some key software engineering and QA resources from our Mac OS X team, and as a result we will not be able to release Leopard at our Worldwide Developers Conference in early June as planned." However, Apple will still be displaying a "feature complete" version of Leopard at June's WWDC event, and will be giving beta versions for developers to take home and help put the finishing touches on.

This is a pretty significant announcement, especially considering that Apple has fallen under criticism for... shifting their focus from computers to consumer devices.

Is Leopard's delay causing any extent of technological difference to us?
Iljitsch van Beijnum
http://tinyurl.com/2blqsk
Why the Leopard delay is a (somewhat) big deal
I always tell people that getting a Mac buys you much more than just a computing device. Since I joined the

club nearly four years ago, Apple's standard operating procedure has been fairly consistent: don't talk about plans, and release products when they're available, or at least ready to be ordered. This strategy has two important advantages: Apple gets to make a much bigger splash in the media when it has something new, and it avoids the Osbourne effect as much as possible, as customers keep buying the old products blissfully unaware that newer, better ones are on the way.

RSS is changing the rules of information distribution on the Web. What's the future?
Alex Iskold
http://tinyurl.com/2x9upz
The Future of RSS
...RSS usage has since spread beyond simple news delivery. Companies like de.licio.us, Flickr and YouTube added another dimension to RSS—i.e. they made it an integral part of the Social Web (social networking, photos, video, etc). Also, Google built Google Base, its Craigslist competitor, entirely on RSS. Other companies too are beginning to extend RSS, sometimes with proprietary extensions.

In short, because of RSS ubiquity it is now a very attractive delivery medium for all kinds of content. However because the basic format is simple and primitive, there is no way to encode semantics without building an extension...

April 2007

Modder's Delight

Dear Team Digit,
Wonderful work in your April issue: building a Monster PC with scrap materials. When I first saw the cover page of the magazine, I thought it was a just a picture; I noticed the word "Mod-ify", but couldn't figure it out. But when I turned to the page, I was amazed.

Please correct me if I am wrong, but I think the Monster PC is a SFF (Small Form Factor) computer. The whole CPU had been packed just inside the monitor shell. I think there is very little space for air vents, and working for long hours won't be possible, unless with air conditioning.

I too had the idea of building SFF computers, but not like yours. Your Monster PC rocks!

S Pandian
Chennai

Dear Mr Pandian
We knew a lot of people would like the idea of a case mod with all the components in a CRT, and you're one of those proving us right! Thanks very much for the compliments.

Our components were all stripped off a normal ATX form factor PC (not SFF), and cooling is not a problem because CRT monitors have a lot of holes for air flow. We found that one fan is enough to get the air circulating. Dust, however, is another matter altogether. Still, our modded PC runs cool, as we knew it would, even before attempting the mod. We're very particular about airflow and cooling here at *Digit*.

— Executive Editor

Piracy Woes, Again

It's really good to see people at *Digit* influencing people against piracy. Many are now shifting to freeware or are buying the products. But I sometimes feel that *Digit* and other such tech magazines are somewhat spreading piracy, when you people provide us software like Adobe Photoshop; it's really easy for people to download cracks for them—these are barely 1 to 2 MB large—and the person gets a Rs 42,000 software for free. It's really good on your part to provide all those trials, but can't something be done about it?

Ketan Gupta
Via e-mail

Should you stop production of gold because there's been a burglary in a jewellery shop? Should all countries stop producing guns because they also lead to terrorists killing innocent humans?

Let's accept reality, Ketan: evil of all kinds is here to stay—we need to make our efforts to minimise it. We cannot stop giving free trials on our discs. Our sole attempt is to give people a flavour for the software, so that people get to know what it's all about. Our intention is genuine, though, of course, some people take undue advantage and thus abuse the system.

Besides, even if we stop giving out trial versions, the pirated software is all available on the Net, round the corner in every market—there are many options available to a pirate. The only way to beat piracy is, first, to have a conscience and value the efforts of those who work to produce the software—and second, to try and spread that point of view, educating as many people as one can.

— Executive Editor

Gamerz Ahoy

You guys at *Digit* are awesome! The quality of your magazine is incomparable. Your *Fast Tracks*, CDs, DVDs, and not to forget the magazine, are the best in the world. I've got to praise you for the exceptional hard work you do in testing and reviewing all those products within a month.

Could you include some more game reviews in your mag? I'm an avid gamer...

Praveen Prakash
Via e-mail

We strive to be #1, Praveen, and thanks for your kind remarks.

As for more game reviews—we're going to have to disappoint you here. We carry as much as is feasible, considering what proportion of our readership consists of gamers like yourself. If you need more reviews, all you need to do is pick up a copy of *SKOAR!*, our sister publication—we're sure you'll love it. Cheers, and game on!

— Executive Editor

The Omniscient Agent!

I bought my first *Digit* on the 17th of September 2001 as a birthday present for myself. Ever since then, I've been a die-hard fan. Not only did you teach me how to use technology to my benefit, you've also taught me how to be safe from its evil effects. It really hurts to see all those MMS scandals floating around the Net. Why can't these perverts/voyeurs realize that someone else might be prying on them too?! Putting up pics of unsuspecting people doing their daily stuff is just insane! Well, we can't help it, but I know that someone out there will always be there to teach us ways to protect ourselves. And that someone is You...

Who is Agent 001? I mean, what's his real name? Whatever it is, just tell him that he's mind-blowingly awesome!! You know, I kind of envy him a bit. (How does he manage to know everything?!)

Anyway, someday I'll personally come down to your office and thank you guys—each and every one. You won't have any problems recognising me. If a guy comes in shouting *"Digit Zindabad!!"*, you'll know it's me!

Lots of Love, Respect, Appreciation, Good Wishes, and more...

Kaushik Sinha
Silchar
Assam

Dear Kaushik,
We can't tell you Agent 001's real name—that's company policy! Just kidding—but in any case, we'll be waiting for you to come and wish us a happy sixth anniversary. You can then see him in person and ask him his name, too! As for how he manages to know everything, well, that's why he's special...
— Executive Editor

What About Me?

I must admit that *Digit* has indeed increased my understanding about technology to a very large extent, over the two years that I've been reading it. It has kept me informed enough about the latest gadgets in the market. However, I have a complaint. It's about the reader's participation. Almost all your articles are by different members of your team. I would like to suggest you to please increase reader participation and reserve a few slots (pages) in your motherboard (magazine) for your readers where they can send their own articles, tips, etc.

Also, please include 3D designing and programming in your super-hit *Fast Track* series. Also, can you please provide the latest *Final Fantasy* demo on your DVD?

Anwesh Satpathy
Angul, Orissa

Dear Anwesh,
You're not the first to have hit upon the suggestion of devoting a few pages to readers—and looking at how many readers are saying this, we just might create a readers' section. For now, you can use our Forum (**www.thinkdigit. com/forum**) to express yourself.

As for 3D designing and programming— we will certainly be looking at programming topics for the *Fast Track* series in the very near future. *Final Fantasy* has many versions, most of them for consoles. The latest one, FFXIII, is still to be released, and is being developed for the PS3.
— Executive Editor

The Next Level?

I'm a 2nd Semester BCA student from Shillong. Last September was when I began reading *Digit*. I used to read *PC World,* and though *Digit* is higher in price, I find it better. One thing I want to request is, more FAQs, like how to install Red Hat Linux or even Unix, and so on. All of us readers aim to develop our skills rather than just enjoying what we know.

Maruata
Mizoram

We appreciate your feedback, Maruata— thanks for the kind remarks! As for how to install Linux distros, refer to our *Fast Track* edition on Linux—if you don't have that issue, you'll find the PDF on our December 2006 DVD. If you have a particular question or issue, do e-mail sos@jasubhai.com.
— Executive Editor

The Other Side Of The Fence

Congratulations to all of you for giving us the best IT magazine around! Now, much attention has been given to piracy and pornography, and little attention is given to the backbone of these ill tasks. The cyber cafe from where I am writing this mail costs me Rs 40 an hour, only for looking at the display screen and waiting for minutes for the search engine and browser to open a Web page, and then writing a mail is the task of finding a

shadow in a treeless desert. Why so much price for a speed of 56 Kbps, or it may be less than this. But unfortunately, students like me can do nothing, but only wish for a better future.

In metropolitan areas, even if people are not able to access the Net on broadband, they are still getting a speed 60 times more than we rural (Kashmiri) people are getting. I want to know when will Internet be a reality and not a dream. *Digit* is my guardian!

I have lot to say, but unfortunately, I've got only Rs 50 in my pocket and I have been sitting here for 65 minutes, and to defend my respect I need to go…

Sayad Rashid
Anantnag, Kashmir

Dear Sayad,
It's heart-warming to see the effort you've put into reaching out to us.

People in the metros who have 2 Mbps connections want unlimited connections; those with dial-up would settle for 512 Kbps. People who get less than 56 Kbps—like yourself—want speeds to improve too, of course. Then, there are those who would be grateful to have Rs 50 to spend in a cyber cafe, and others still who would love to just have Rs 50, period. It's human nature to want more.

I'm not saying it's a pretty situation, but the fact is, you have access to a computer, which many people can only dream of… and I personally have this dream of a wired India. We are an IT force to reckon with in the global arena, and the connectivity situation has got to improve. Think about the cell phone revolution that's happened over the last decade. Let's hope the same happens for Net access and PC literacy.
— Executive Editor

Suggestions Galore

LETTER OF THE MONTH

Dear Ed,
Hats off to your great magazine, one that covers chip-level electronics to software reviews, PlayStation games to Photoshop, and all aspects of IT, electronics and computer science. I would like to share some ideas with you:

▶ We have not yet seen *Fast Tracks* to Flash or 3ds Max. We would be delighted with that.
▶ A number of useful utilities and software come with *Digit* every month. But most of us don't know how to start with them. So I think it would be a great idea to give a "Getting Started" video with some of them, which your team would easily make with screen capturing software.
▶ It would be great to see the Digit Encyclopaedia again.
▶ The starting interface of your DVDs and CDs are brilliant, but it would be very useful if you add a "Copy To" Button to your pop-up menus.
▶ We do not know much about HD-DVD, Blu-ray & HVD. If you publish a detailed article (specially on their writing technologies), it would provide great knowledge to us.
▶ Please include the e-mail IDs of whom you publish letters.
▶ More articles on robotics with pictures of robots.

Thank you very much once again for *Digit*, which teaches us the most of the cyber world.

Arghya Chatterjee
Howrah

Dear Arghya,
Thanks for the suggestions. I'll address them all. First, do expect a *Fast Track* on either Flash or 3ds Max or both, in the near future. About the videos on how to get started with software, we would love to, time permitting. We will try and have a few videos though.

Digit Encyclopaedia part 2? Let us mull over that.

You can copy selected text by right-clicking on it in the interface.

We have written articles on new-generation discs—we'll do more as and when the topics become relevant. Ditto for robotics.

Finally, about e-mail addresses, we don't publish them because most readers wouldn't want them published.

In any case, I'm glad so many of our readers—yourself included—have suggestions for the improvement of our magazine.

—Executive Editor

Married... To The Console?

1 1. What percentage of video game console owners in the US are married?
a) 22   b) 46
c) 59   d) 71

2 Which popular band won "Most Creative" in the first YouTube Video Awards last month?
a) Ask A Ninja
b) OK Go
c) Kiwi!
d) Lonelygirl15

3 Which of the following is *not* a two-way digital radio standard for wireless networking?
a) ZigBee
b) Wi-Fi
c) Bluetooth
d) GSM

4 Intel has named its add-in Flash cache for notebooks "Turbo Memory". What was its code-name?
a) Gibson
b) Santa Rosa
c) Robson
d) Woodcrest

5 Which MS Office alternative application is *not* offered in Google Apps Premier Edition?
a) Start Page
b) Page Creator
c) SheetMaker
d) Docs & Spreadsheets

6 The number of iPods sold recently reached what mark (in millions)?
a) 75
b) 100
c) 550
d) 22

7 The UMD is the medium of choice for the Sony PSP. Which of the following is *not* true?
a) Blank UMD media is available as consumable
b) No UMD writers are available to the public
c) A UMD can hold up to 1.8 GB (dual-layer)
d) UMD media can hold games, movies, as well as music

8 What is/are Netiquette(s)?
a) An unruly, explicit chat session
b) Rules for polite behaviour on the Internet
c) Styles and rules for making Web pages
d) Tennis-like computer games

9 Which one of these games was ranked the best selling in 2006?
a) Elder Scrolls IV: Oblivion
b) New Super Mario Bros
c) Fight Night Round 3
d) Madden NFL '07

10 What is the estimated number of lines of code in Windows Vista?
a) 1 trillion   b) 15 million
c) 1.9 billion   d) 50 million

Got an interesting question? Send it in with the answer to **TQ@thinkdigit.com** Mark "TQ" in the subject area.

Did You Know?

Mosaic was the first GUI-based WWW browser and Gopher client. It was developed in 1993 by Eric Bina and Marc Andreessen (co-founder of Netscape) at the National Center for Supercomputing Applications.

Answers

1. d, 71 per cent
2. b, OK Go
3. d, GSM
4. c, Robson
5. c, SheetMaker
6. b, 100 million
7. a, Blank UMD media is available as consumable
8. b, Rules for polite behaviour on the Internet
9. d, Madden NFL '07
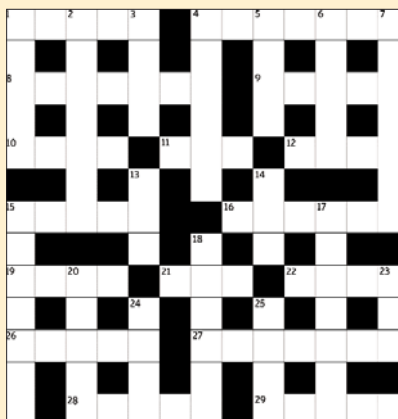10. d, 50 Million

Crossword

ACROSS
1. Lara-------main character in the Tomb Raider game (5)
4. ------capital-source of funding for risk-oriented business (7)
8. Company founded by N. R.Narayana Murthy (7)
9. -----Map- SGML or XML document used for navigation (5)
10. Graphic or audio file used to change the appearance of the user interface to a program or for a game character (4)
11. Short for Camera (3)
12. Frame Reject (abbr) (4)
15. -----text- transmitted or stored text and can be read by a word processor (5)
16. Wall-hung, flat display screen television (6)
19. Non-broadcast Multiple Access (abbr) (4)
21. X ----360- video game console (3)
22. Desktop Management Task Force(abbr) (4)
26. ------robin- taking turns in the arrangement of choosing all elements in a group in some order (5)
27. Instruction that a computer assumes, unless the user gives it other instructions (7)
28. Same as Return key (5)
29. Small telecommunica-tions device

that receives alert signals and short messages (5)

DOWN
1. Small pieces of silicon on which an integrated circuit is embedded (5)
2. Condition of being capable of but currently not connected to a network of computers or other devices (7)
3. ----Bar-bar at the bottom of the screen that contains the Start Button (4)
4. -----Basic- Microsoft's programming language (6)
5. ----book- type of personal computer (4)
6. -----case--capital letters (5)
7. Microsoft's digital multimedia encyclopedia(7)
13. Uniform Resource Locator(abbr)(3)
14. Ctrl- — -Delete- combination of keyboard keys that helps to terminate an application(3)
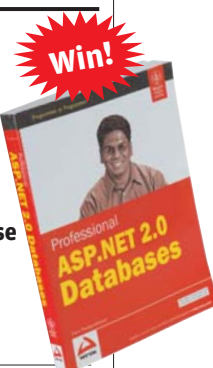15. One or a pair of modifier keys found on a keyboard- does not generate any character(7)
17. South Korean electronics conglomerate(7)
18. Graphical interface for managing files-synonymous with a directory(6)
20. Input pointing device that helps to move the cursor on the computer screen(5)
23. File Allocation Table(abbr)(3)
24. To make changes in a file(4)
25. Internet Fibre Channel Protocol(abbr)(4)

Crossword by **Nitta Jaggi**

Last Month's Solution

	F	I	X		D		P		D
B	R	I	D	G	E		E	R	R	O	R
	A		E		R		S		O		A	G
I	G	D	A		O	R	K	U	T		
	M				X		J		O		
B	E	A	N	S		M	E	R	C	U	R
	N		E		H		T		O		O
S	T	A	T	I	O	N		B	L	A	C
			S		T		H				K
D		C	O	M	M	A		D	O	W	
E			A		A		N		M	E
D	E	L	P	H	I		D	I	P	O	L

Tabloid TECH

Stomp, Stomp!

Michael Jackson—of "Black then White" fame—is toying with the idea of a 50-foot robotic replica of himself. The mega-android could be used to promote MJ concerts in Las Vegas.

"It would be in the desert sands," said Mike Luckman of Luckman Van Pier, a consultant company to large entertainment firms. "Laser beams would shoot out of it... Michael's looked at the sketches and likes them." Laser beams. Wowie. Cool. Super!

50 feet is tall. Come to really think of it, it's a horrifying thought—as if MJ's face weren't horrific enough, they in Vegas will now have this abominable creature meandering through their desert sands?

And now, the ramifications: what if Ozzy Osbourne were to get inspired...?

Well, Jackson probably wanted something as large as his ego, and the android should do the trick for him. We promise we'll post the picture in this space as soon as it's constructed and ready to fire its laser beams.

You.Suck.Exe

If you watch TV—or if you don't—you've heard about the half-Indian Sanjaya Malakar, who for a mess of reasons was propelled to somewhere near the top on *American Idol*. Many fans of the show were outraged, the extreme being a MySpace blogger known only as "J". She went on a hunger strike just because Malakar sings so horribly (opinions may vary), vowing to continue it until Malakar was off the show. Malakar outlasted her fast: 16 hungry days later, J dug into her fridge.

If you have not heard about Malakar, the idea is, he's goofy. (Check out YouTube for some videos.) His singing is goofy, his hairdos are goofy, his mannerisms are goofy. (Again, opinions may vary.) And all this is putting people off *American Idol*. They're crying foul—even as Indians are trying to convince their great-aunts and brothers-in-law to vote for the bugger.

What we're reporting here is the "Sanjaya War Dialer," a piece of software that made it easy to vote over and over for Malakar. (All you need is a modem.) The idea was quite obvious: "Make Sanjaya win and help us ruin American Idol," according to the creator of the Dialer. In fact, there's a lot of "Will Sanjaya kill American Idol?" on the Web.

17th April, Malakar was voted off the show. The dialler happens to be still there at **www.kingofallnerds.com/sanjaya**. Turns out you can use the dialler for voting for anyone—nifty.

Here's the last post we saw there: "It was a fun ride. We were all part of something great. Life won't be the same without Sanjaya. I think we've learned that no technology in the world can overcome that level of suck."

"Level of suck." Well-coined. Has a nice ring to it.

"Never Been Phished"

You won't learn too much about tech celebrities except from pages like these. We thought we'd share a few titbits with you.

Vinton Cerf—the primary Founding Father of the Internet, that's why his name sounds the same as "surf"—recently visited the University of South Carolina to meet up with students and tell them about the challenges in the future of computing. He revealed what a lot of us were dying to know: what does *he* do on the Internet? Mostly checking the weather and news sites, he said. And when he's travelling, he checks exchange rates. No sites specified.

Cerf uses his BlackBerry to settle dinner disputes, such as what grapes are in the wine his companions are drinking, and to check if certain Hollywood actors have died or are still living. He also happens to be a wine connoisseur: his home is reasonably wired, so he receives e-mail warnings if the temperature of his cellar goes above 18 degrees C.

Here's one about Berners-Lee, Sir Tim, the inventor of the WWW. One day he spent with reporters a while ago saw him more than a little miffed: he couldn't really defend how his pet Semantic Web could be prevented from being bogged down by search engine spam the way Google is. At some point towards the close of the session, he happened to mention that he'd never been phished.

So the Greatest Living Briton has never been phished. Good. That's all we wanted to tell you. Get back to what you were doing...