Abstracts

94 GHz 3D-Imaging Radar for Sensorbased Locomotion

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For obstacle detection, navigation and route planning acquisition of 3D sensor information in real-time is essential for autonomous vehicles operating in partially predetermined, dense environments like production plants. Featuring direct access to range information and doppler signal processing, this radar sensor, suited for autonomous locomotion is an alternative to video sensors, due to it's real-time capability. This paper reports on system design and imaging results of an agile 94 GHz pulse doppler radar with 25 cm radial and 1.5° angular resolution. Test environment is a laboratory, representing a structured, stationary indoor scene, which is comparable to those expected in future applications. Results are discussed with respect to the visibility of typical mm-wave scattering phenomena as well as to the potential identification of object contours and zones free of obstacles.

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