

Report Abstract

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■ Profile

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■ Abstract

1. Subject

: Design of A Multi-Beam and Multi-Range Radar for Automotive Applications using TRIZ

2. Contents

: Among several automotive applications, an ACC stop-and-go system to mitigate or prevent collision accidents in the emergency situation of frontal target vehicles, is an important safety application. For the composition of an adaptive cruise control (ACC) stop-and-go system, three radar sensors are needed because two 24 GHz short range radars are used for object detection in an adjacent lane, and one 77 GHz long-range radar is used for object detection in the center lane. However, these bulky radar sensors have a spatial limitation in the aspect of frontal bumper installation and make the cost of an ACC stop-and-go system high. In order to reduce the size and cost of these bulky radar systems, a multi-beam and multi-range (MBMR) radar to cover a detection area of long range and narrow angle as well as short range and wide angle as a single 24 GHz sensor is proposed using TRIZ.