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Karnataka State Council for Science and Technology

Indian Institute of Science, Bangalore - 560012

A Project Report on

AUTOMATIC LOCALIZATION OF BACKWARD COLLISION OF VEHICLES USING A CAMERA

Project proposal reference no:34S0599

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ABSTRACT

The major goal of our project is to avoid rear end collision when vehicles are moving in the reverse direction. In order to avoid many of the parking lot accidents, our system provides a Backward Collision Warning (BCW), a new vehicle/obstacle detection method by calculating the area of the obstacle by comparing it to the stored threshold value .The images of the obstacles/objects are captured by monochrome vision camera when a car is moving in the reverse direction. The BCW system uses Digital Image Processing techniques to track the object at the rear end of the vehicle [2], Camera calibration is utilized to get the distance of the obstacle at the rear end. Kalman filters are used for tracking the obstacles. Secondly bounding box is used to detect the edges of the objects tracked which are used to estimate the area. After determining the area of the obstacle/object, TTC (Time to Collision) is calculated which triggers an alarm system that makes the driver attentive when the distance is less than the threshold distance.

The proposed technique is tested on our own generated data sets on parking lot and busy roads for different conditions and variability.