Title:	DESIGN AND IMPLEMENTATION OF A DRIVING ASSISTANCE DEVICE FOR VEHICLES
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Abstract:
Vehicles for business or personal use are becoming more affordable as civilization advances. Although additional safety features are being created, accidents still occur due to people's carelessness. A lot of effort has gone into improving the safety and automation of vehicles. However, little effort has been put into supporting the driver while driving. In this paper, a driving assistant device is proposed for minimizing road accidents to save lives. The proposed device was designed and implemented by incorporating lane detection, object detection, warning, and automatic emergency braking techniques. Various algorithms/techniques were evaluated through simulation over the work's lifetime, including Canny edge detection, HSV lane identification, Yolo V3, and SSD MobileNet V3 approaches. Based on simulation works, these algorithms/techniques are analyzed, and a prototype is developed to verify the performance of different algorithms in real-life applications. The performance of the prototype indicates that a driver can be assisted successfully in reducing accidents.

Keywords:
Vehicle Automation, Lane and Object Detection, Automatic Emergency Braking, SSD MobileNet V3, Yolo V3