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Advanced Driver Assistance System: Veibra

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Abstract : Today the transport sector is undergoing a revolution, with the rise of Advanced Driver Assistance Systems (ADAS), industry and society itself will undergo a major transformation. However, the technological development of these applications is a challenge that requires new techniques and great machine learning and artificial intelligence. The study proposes to develop a vehicular perception system called Veibra, which consists of two front cameras for day/night viewing and an embedded device capable of working with Yolov2 image processing algorithms with low computational cost. The strategic version for the market is to assist the driver on the road with the detection of day/night objects, such as road signs, pedestrians, and animals that will be viewed through the screen of the phone or tablet through an application. The system has the ability to perform real-time driver detection and recognition to identify muscle movements and pupils to determine if the driver is tired or inattentive, analyzing the student's characteristic change and following the subtle movements of the whole face and issuing alerts through beta waves to ensure the concentration and attention of the driver. The system will also be able to perform tracking and monitoring through GSM (Global System for Mobile Communications) technology and the cameras installed in the vehicle.

Keywords : advanced driver assistance systems, tracking, traffic signal detection, vehicle perception system
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