

Wireless Diagnostics: Study of Real-time Monitoring and Analysis of Vehicle States

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Abstract

Aggressive and unreasonable driving is one of the most common causes of traffic accidents, endangering both lives and property. In order to decrease traffic accidents and enhance road safety, we critically need dependable and efficient methods for tracking and identifying drivers' driving patterns. The main aim of this paper is to understand and monitor driving in real time. We use a data-logging device that can be installed in any car equipped with CAN Bus (Control Area Network) and OBD-II (On-Board Diagnosis) standards to monitor and analyze the vehicle's current actions. The vehicle's steering wheel angle, speed, throttle position, engine speed, engine fuel consumption, coolant temperature and vehicle location data are all measured by the in-vehicle monitoring system. Analysis of the information gathered enables us to define the driving style generated by the driver. A thorough analysis of these factors shows the limits defining the state of how someone drives. Furthermore, the experimental results show that the approach proposed can successfully recognize driving states and driver behavior, with the aim of ensuring a suitable and acceptable level of safety. This analysis can be used to improve policies and design more robust driver training and driver education programs.

Keywords

Driver Behavior, Aggressive Driving, Traffic Accidents, CAN Bus