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An intelligent electronic control unit to limit vehicle speed

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In any urban area, with public amenities like schools, hospitals, parks, etc. which see a lot of footfall during all parts of the year, there are innumerable cases of accidents happening due to speeding vehicles. Now, despite traffic signs highlighting the need for caution in school and hospital-zones, it is apparent that motorists are willing to sacrifice their own safety and others' just to get to their destination on time. The problem which we face is that vehicles in sensitive public zones do not limit their speed, thereby endangering the lives of pedestrians and fellow motorists. The scope for the use of embedded systems in automobiles has increased manifold over the last decade. Problems like over speeding and rash driving can be solved by an electronic control unit i.e. ECU that is meant solely for the purpose of reducing the speed of the car when connected to a Wi-Fi network. The systems that use radio frequency and infrared system technology need more number of sensors and installations for its operation, whereas this problem is overcome by using a Wi-Fi installation that provides a network for a wider range. Hence, an effective solution would be, to have an efficient speed limiter technology that requires the least amount of set up area and is preferably intended for a hospital or school environment. Since it is challenging to provide manual services for enforcing the speed limit on vehicles at all times, we have come up with a solution which automatically detects, notifies and reduces the speed of the vehicles and maintains it under a limit in the specified zone. This is done by providing a Wi-Fi network which is detected by the electronic control unit i.e. ECU of the vehicle when in the sensitive zone. This ECU, along with its usual operations like airbag system, anti-lock braking system, black box, adaptive cruise control, drive by wire, heads up display, back up collision sensors, navigational systems, and tyre pressure monitor would slightly increase its complexity and sophistication. Wi-Fi receiver module, which in turn is linked to the throttle valve, reduces the speed of the vehicle. Installing this device in various zones will not only minimize the chance of accidents to a great extent but also reduce the liability of the driver, as safety is automatically monitored by restricting the speed. Thereby, making use of the range of Wi-Fi signal we can minimize the number of substations owing to lesser set up area. This will help a long way in improvising the technology and benefitting the society.

Biography

Srivas M.C is a student of the undergraduate programme in Telecommunications at B.M.S College of engineering, Bangalore, Visvesvaraya technological university, India.. Has keen interest in the field of electronics and has worked on several projects.

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