

ABSTRACT

AUTOMATIC SPEED CONTROL SYSTEM FOR ELECTRIC VEHICLES IN SCHOOL ZONE WITH GEOFENCE FEATURE

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The speed reduction system is designed for specific conditions and areas. One such area is the School Safe Zone, where, according to the Director General of Land Transportation Regulation SK.1304/AJ.403/DJPD/2014, the maximum speed for motor vehicles is approximately 20 to 25 kilometre per hour. Despite this regulation, the number of drivers exceeding the specified speed limit remains high. Many motor vehicle users in Indonesia have switched to electric vehicles. Therefore, a speed reduction system can be managed through power supply control to the electric vehicle's motor. This research will discuss the development of an automatic speed control system for electric vehicles, particularly in the School Safe Zone. The system integrates a GPS Module and an L298N Driver, allowing speed limitation when entering specific areas using the geofence feature and controlling the power supplied to the motor of the electric vehicle. The test results show that the system successfully limited the speed of the electric vehicle automatically when it was within the predefined zone using the geofence feature, and was able to restore normal speed once it exited the zone. The system has been proven to function properly on the prototype.

Keywords: Speed Control, Electric Vehicles, School Safe Zone, Microcontroller, Geofence