



Design and Analysis of Electric Vehicle Speed Control Using Wireless Network

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Design and Analysis of Electric Vehicle Speed Limit Control using Wireless Network

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Abstract- Road mishap is most unwanted thing to happen to a vehicle user, however they happen regularly. Main causes of accidents are due to human faults. The most common causes of accidents due to overspeeding of the vehicles. High speed vehicle are more liable to mishap than the slow speed vehicle and the cruelty of accident will also be more in case of high speed vehicle. Higher the speed of vehicles, greater the risk of mishap. So to stay away from such kind of accidents, it is necessary to alert the driver and to control the speed of vehicle automatically. The main objective of this proposed work is to develop signaling unit to indicate the type of zone to the vehicle and to control the vehicle speed.

Every zone which having speed limit sign board like school, highway and etc may have a transmitter tag to transmit the zone information by RF signal. This signal should be received by the vehicles and accordingly changes the speed limit of the vehicle. As practically, an actuator may be used to control the throttle of the vehicle. It is based on the idea of vehicular speed monitoring and control system. The speed of the vehicle is automatically lowered and locked to a particular limit as it enters the restricted area and is unlocked or relieved as it exits the restricted area, so it is acting as an automatic speed limiter and reliever.

I. INTRODUCTION

In such a dynamic world, most of the accidents occur due to breaking the rules of the road and over speeding. As it can be seen that the percentage of accidents are increasing day by day due to more vehicles on road and heavy traffic which cause traffic jam. Embedded systems control many machine or mechanism in common use today. Modern embedded systems are often based on microcontrollers, but normal

microprocessors are also still common, basically in more complex systems. The basic characteristic, however, is being dedicated to handle a particular task. Now adays people drive very fast, accidents occur frequently and there is loss of property and life. In order to stop such kind of accidents, to alert the vehicle's driver and to control their vehicle speed. RF innovation is being utilized the primary goal is to plan a Smart Display regulator implied for vehicle's speed control and checking of zones, which can run on an installed framework. Smart Display & Control (SDC) can be custom designed to fit into a vehicle's indicator panel, and displays information on the vehicle. The proposed work is comprises of two separate modules: zone status transmitter unit and receiver (speed display and control) unit. When the data is gotten from the zones, the vehicle's implanted unit consequently cautions the driver, to diminish the speed as indicated by zones, it hangs tight for few moments, and in any case vehicle's SDC unit naturally decreases the speed. This proposed work mainly illustrates the application of speed monitoring and control in automobiles through the implementation of an embedded based prototypical robotic model.



Fig. 1 Speed limit sign board near school

II LITERATURE INTRODUCTION

A recent survey shows that the maximum rate of serious road accidents are raised due to high uncontrollable speed than necessary speed limited in the particular zone and also due to unaware obstacles. The important needs for the driver while driving the vehicle is awareness of the restricted zone in any term either audible or visual alert to insist the driver of the vehicle about the obstacle in front of the road. And this system is available in today's vehicle as a special feature in the vehicles market, and the future vehicle requires higher safety in driving controls intelligently in each and every vehicle. . Road transport is a major type of transport system used in India. India has a huge network of road connects throughout the nation. Our nation faces the maximum number of accidents and accidental fatalities while comparing to other nations around the world. In India has got one road accident every minute in a year which lo stone life in 3 minutes.

II (A) REVIEW OF PAST LITERATURE

Amulya A M, et.al. [1] Intelligent vehicle speed controller: In this paper, they concentrated to avoid the collision of the vehicle due to its over speed in the speed restricted zones by automatically. This can be done through the embedded systems and the RF transmitter and receiver modules. When the vehicle enters the speed, the restricted area driver has to reduce the speed of the vehicle manually. If the driver did not slow down the vehicle, the electronic controller would take the lead to control and reduce the speed of the vehicle by receiving the signal from the transmitter in that zone. By that received signal, the Arduino microcontroller would process to give a signal to the motor to control the speed. Here mainly they use the RF transmitter and receiver to identify the restricted zone. Ankita Mishra et al. [2] worked on speed control system by the use of RF design. The main purpose is to design the controller for smart display which is meant for the vehicle's speed control and to monitor the speed zones which have speed limits, and which can operate on an

associated embedded system. Smart Display & Control (SDC) can be custom designed so that they can fit into dashboard of the vehicle, and display the information available on the vehicle. Gummarekula Sattibabu et al. [3] worked on control of vehicle's speed using with wireless attached in the vehicle road speed limit sign. The objective is to design an Electronic Display controller that is meant for the control of the speed of the vehicle and to monitor the speed zones, which operates on an embedded system and that can be custom designed to fit into a vehicle's dashboard to display information on the vehicle. This system if adopted by some state can effectively reduce the number of road accidents caused by speeding vehicles losing control of the vehicle at speed breakers or by driver's negligence towards traffic signals. Vengadesh et al. [4] has worked on automatic speed control of automobile using the technologies such as RF and GSM. The controller is used to compare the speed. If it exceeds the limited speed value of the zone the controller send alert to the driver and controls are taken automatically. If they do not respond the message then information along with the vehicle number is transmitted to the nearest police station of that area by the use of GSM and penalty amount is collected in the nearest toll gate. Soni Kumari et al. [5] worked on review of automatic speed control using RFID. One RFID reader is inside the vehicle which reads the RFID tag which is placed either at speed limit sign zone or at traffic light. A controlling module in vehicle then takes the decision and control the speed accordingly. S Nagakishore Bhavanam et al. [6] has worked on automatic speed control using multi sensors. The main objective is to develop a system which controls the speed using RF technology. Various types of sensors are attached to the units and accordingly the work is performed.

III.METHOD

As of late, electric vehicles (EV) are acquiring prevalence, and the purposes for this are many. The most prominent one is their commitment in diminishing ozone harming substance

(GHG) discharges. In 2009, the transportation area radiated 25% of the GHGs created by energy related areas. EVs, with enough entrance in the transportation area, are relied upon to decrease that figure, yet this isn't the lone explanation resurrecting this extremely old and when dead idea, this time as a monetarily practical and accessible item. As a vehicle, an EV hushes up, simple to work, and doesn't have the fuel costs related with traditional vehicles. As a metropolitan vehicle mode, it is exceptionally valuable. It doesn't utilize any put away energy or cause any emanation while standing by, is fit for continuous beginning quit driving, gives the all out force from the startup, and doesn't expect excursions to the corner store. It doesn't contribute either to any of the brown haze making the city air profoundly contaminated. The moment force makes it exceptionally ideal for engine sports. The quietness and low infrared mark makes it helpful in military use too. The force area is going through a changing stage where inexhaustible sources are acquiring energy. The cutting edge power lattice, called 'brilliant matrix' is additionally being created. EVs are being viewed as a significant supporter of this new force framework contained inexhaustible producing offices and progressed network frameworks. Every one of these have prompted a recharged interest and improvement in this method of transport.



Fig. 2 Car receiving signal from transmitter

Execution of microcontroller based implanted framework to configuration speed limiter and reliever circuits for speed

guideline. The 'Speed Limiter' and 'Reliever' circuits are introduced in the actual vehicle. The Speed Limiter circuit introduced in the vehicle is liable for locking the speed of a vehicle inside as far as possible (typically 40kmph). At the point when the vehicle enters a confined region, the speed limiter circuit is actuated and the vehicle will not be able to go past the confined speed. The Reliever circuit in the vehicle is intended to alleviate or open the limiter Circuit. When the vehicle crosses the confined region, the limiter is opened and the vehicle can go at a speed more noteworthy than the limited level.

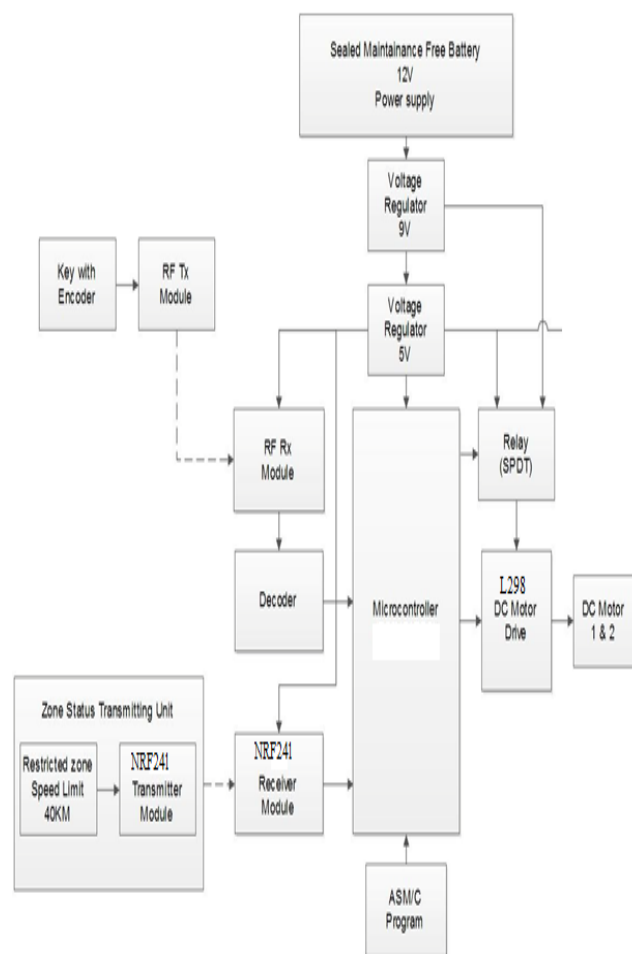


Fig. 3 Block diagram of mode

IV.CONCLUSION

Consequently it is finished up from the above examination that the employments of Automatic vehicle speed control frameworks in limited zones limit undesirable mishaps generally contrasted with typical conduct over to ignoring side of the road billboards in exceptional zones.

This is a very useful technique to control the vehicle speed automatically. By using Micro controller, we Controlled the speed of the vehicle according to zones. It is mostly helpful in the spaces where high pace of mishaps are recorded. As in city traffic signal to moderate the fuel and carry out the traffic rules.

V REFERENCE

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