

AUTOMATIC SPEED CONTROL OF VEHICLE USING RF COMMUNICATION

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ABSTRACT

Nowadays in a fast moving world all the peoples are not have self-control. Such peoples are driving vehicles in a high speed in restricted areas like (school, parks, hospitals, hills area, Highways and in speed limited areas etc.) so that accidents are occurred more frequently. Because of this we lost our valuable life by making small mistakes while driving like high speed driving in restricted area, do not view the signboards which are placed by the Highway Department on the road. So in order to avoid such kind of accidents and to control their vehicle speed in restricted area like (school, parks, hospitals, hills area, Highways and in speed limited areas etc.) speed limit area, we can develop a system which can limits the speed of vehicle according to the speed limit of that particular area. So to intimate the driver about the zones and the speed limit, the project has an aim to control the speed of any vehicle automatically by means of using RF technology.[2]

Keywords: Automatic speed control, RF transmitter and receiver, Microcontroller, Alerting the driver by message.

I.INTRODUCTION

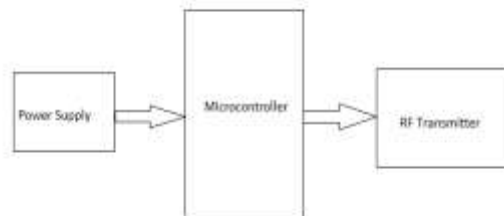
In today's fast moving world, as the rate of accidents is increasing day by day, speed of vehicles should be controlled as much as possible. Most of the accidents occurred in India are results of lack of speed control and violating the road rules. For this reason, different speed limits are put to decrease accidents. Unfortunately, drivers usually do not take these speed limits seriously and ignore them. Road accidents can be prevented by adopting measures such as Traffic management, improving quality of road infrastructure and safer vehicles. To Ensure decline in accidents and to improve road safety, speed control techniques such as speed control in school and hospital zones by using RF transceiver.[4]

In fast moving world's, accidents are mostly occurs due to breaking the rules of the road and over speeding. The accidents rates are increasing year to year by more vehicles onto ground and heavy traffic. The government has taken to many steps to prevent this kind of things, but it is not enough. Most of the manufactures has developed a laser based control system but its cost is too high. But, there is problem using this system is that whenever human crosses the road it cannot detect properly so we develop a new system to control these things in a simple way using IR module which has some drawbacks that is it can works under line of sight. So we can chose RF module.[1]

The RF transmitter is placed in the speed limit areas and RF receiver is placed in the system which is placed inside the vehicle. RF transmitter transfers the information about the speed of the zone to the receiver which is interfaced with microcontroller. The current speed will be sensed by the proximity sensor using dc motor that also sends information to controller. The controller compares both speed, if speed of vehicle is greater than speed limit of the area then message is given to the driver through LCD Display to reduce the speed. And if driver does not decrease the speed, the control transfers automatically. But the driver again operate it manually and exceeds the limited speed the message is given to the nearest RTO Office through GSM. The message contains the current speed and number of the vehicle.[1]

II. BLOCK DIAGRAM

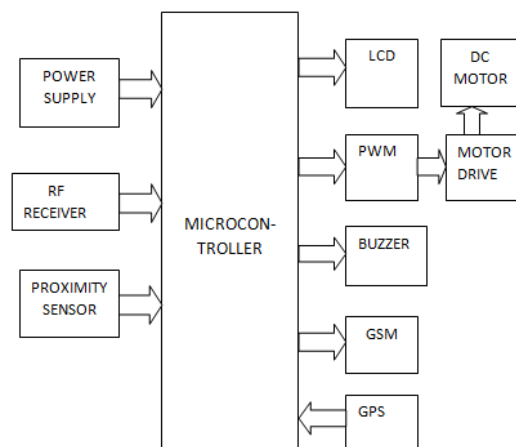
1. Transmitter Section:



Fig(1): Transmitter block diagram

The “ Fig. 1” shows the transmitter section of the system. The transmitter is placed in the speed limiting areas. The transmitter section consists of power supply, microcontroller and RF transmitter. This unit contains information of how much the vehicle speed inside that region. The controller is used to transmit the information through RF transmitter to an multiple receiver.

2. Receiver Section:



Fig(2): Receiver block diagram

The diagram shown above “Fig. 2” is the receiver section of the system. The receiver is used to acquire an information from the transmitter. Based on the information it received, it controls the speed of the vehicle. The receiver modules consists of RF receiver, LCD display, GSM modem, DC motor, Proximity Sensor and Buzzer. LCD is used to shows the information to the driver who drives the vehicle.

III.WORKING

When the vehicle enters in the normal area it's speed does not decrease and it goes normally means there is a no action is required. when the vehicle enters into the restricted areas means it enters into the speed limiting zone the Buzzer is on otherwise off. whenever it enters, the transmitter module just send an information to the receiver that contains how much speed a vehicle can go inside the speed limited region. The actual speed of the vehicle is measured by using DC motor which can be sensed by proximity sensor. The signal is basically analog in nature that will be converted into digital so only the microcontroller able to process the signal. The microcontroller compares both the signals. IN this there are two cases: 1) If speed of vehicle is less than the speed limit of road, then no action required, vehicle goes normally. 2) If speed of vehicle is greater than the speed limit of the road zone then the actual speed of vehicle and speed of that zone is displayed on LCD Display also the message is given to the driver to reduce the speed below the limit. If speed change is occur within minimum time period then it is ok. But, if driver doesn't reduce the speed below speed limit of that zone then our system will work automatically means the vehicle can goes with speed limit of that zone. In some cases, driver exceeds the speed manually then message is given to the nearest RTO office. The message contains the number of the vehicle. After that at the end of the speed limit area there is an another transmitter that contains an stop information means the control releases by the controller to driver. The GPS is used for the location of vehicle. [1]

IV.CONCLUSION

Our project is “Automatic Speed Control of Vehicle Using RF Communication”, so it has a great importance in termination and reduction to a large extent of accidents and casualties in cramped areas. This system can be applied to any kind of vehicles. The system can checks the speed of vehicle using proximity sensor and sends the message to the driver to lower down the speed, if speed is higher than speed of that area. In case, driver doesn't reduce the speed then within seconds our system will take over the control automatically and reduce the speed of vehicle.

Hence, this project is a great life saving system in heavy traffic and speed limit areas. Thus, the AUTOMATIC SPEED CONTROL OF VEHICLE USING RF COMMUNICATION is designed in such a way that to minimize the speed of vehicle in restricted areas. By using this system, we can get the information about the speed limit of that particular area. This project is very useful for the common people to walk safely in the roads of speed restricted zones and also drivers can ride their vehicles safely. [3]

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