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WIRELESS SPEED CONTROLLING MODULE FOR TWO WHEELERS

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Abstract- *Here we are presenting a new design to reduce the speed of the automobiles up to certain threshold at certain places for fixed time. The project consists of two separate units: Zone status transmitter unit and Electronic Display and Control unit placed on the two wheeler vehicle . Once the road-sign signal is received from the zones, the vehicle's Electronic Display Controller Unit warns the driver, to reduce the speed according to the zone, it waits for driver's response and if driver does not react within certain time then the module fitted on vehicle reduces the speed of vehicle automatically.*

Nowadays accidents are occurring frequently, causing demise of many people by making modest mistakes like urgent breaking, neglecting sign boards while driving (in school zone, hills area, and highways). At times it's the negligence of the driver and at times it might not be possible to view the speed limiter signboards placed by the Highway Department to alert the drivers in such kind of places and thus there lies the chance of accident. The advancement in the processor technology and microcontrollers has opened a new system designed to prevent the accidents caused due to negligence of drivers in seeing traffic signals alongside the road and other anomalies on the roads. So to intimate the driver about the zones and to automatically maintain the speed is accomplished by means RF technology.

The main objective is to design a Electronic Display controller meant for vehicle's speed control and monitors the zones, which runs on an embedded system and can be custom designed to fit into a two wheeler's instrumentation cluster to display information on the vehicle. This system if adopted by some states 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.

Key Words: **Sign boards, zone transmitter speed**

1. INTRODUCTION

It is evident that road accidents are increasing day by day. Recent studies show that one third of the number of fatal accidents are associated with excessive speeds in places where sharp turnings and junctions exist, as well as changes in the roadway like the presence of road-work or unexpected obstacles. This is due to having to wait hours together in traffic jams, taking tortuous detours due to on-road works, trying to spot speed breakers, navigating blind turns, one-ways and so on. Forked roads, railway crossings, sudden reverse bends and steep ascents and descents are just few of the road oddities that one may encounter on the average drive. Such road oddities are indicated by road-signs. Mandatory road-signs enforce traffic laws; Cautionary road-signs are installed in hazardous areas to avert accidents. Informative road-signs provide directions, locations and other information that is potentially useful to drivers in that locality. However, most vehicle drivers miss road signs more often than not. It is difficult to keep an eye out for road signs when one should be focused on driving.

Many Driver Assistance systems for speed control have been developed so as to prevent accidents. One of them is Cruise control system (CC) that is capable of maintaining pre-defined speed and its later evolution version Adaptive Cruise Control (ACC) which keeps the automobile at pre-defined safer distance from the preceding vehicle. But these systems fail to detect the curved roads where the speed of the vehicles have to be reduced to avoid the accidents. Later Curve Warning Systems (CWS) came into existence to detect the curved roads by using Global Positioning System (GPS) and the digital maps accessed from the Geographical Information Systems (GIS) to warn driver of approaching the curved road. But these maps need to be updated regularly and are not useful if there are unpredictable road diversions or accidents. Here we propose a dynamic model where the system controls the vehicle according to the data frame that is transmitted by the RF transmitter fixed to the nearby road signs. The data frame is received by the microcontroller in automobile which controls the speed of vehicle.

2. TRANSMITTER MODULE

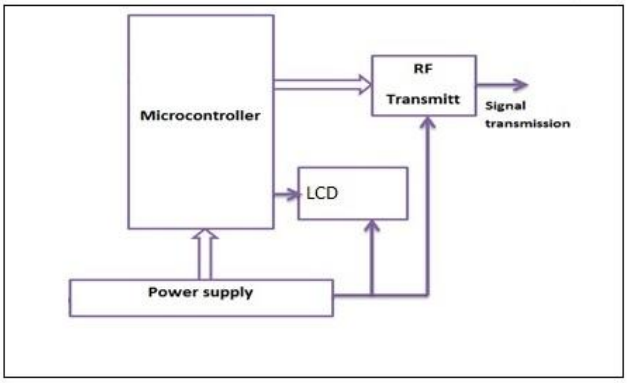

Fig -1: Transmitter module

The transmitter module consists of a micro controller along with a RF transmitter and a LCD module for displaying the set speed limit. The Transmitter module is supposed to keep on broadcasting the speed limit via RF transmitter.

3. RECEIVER MODULE

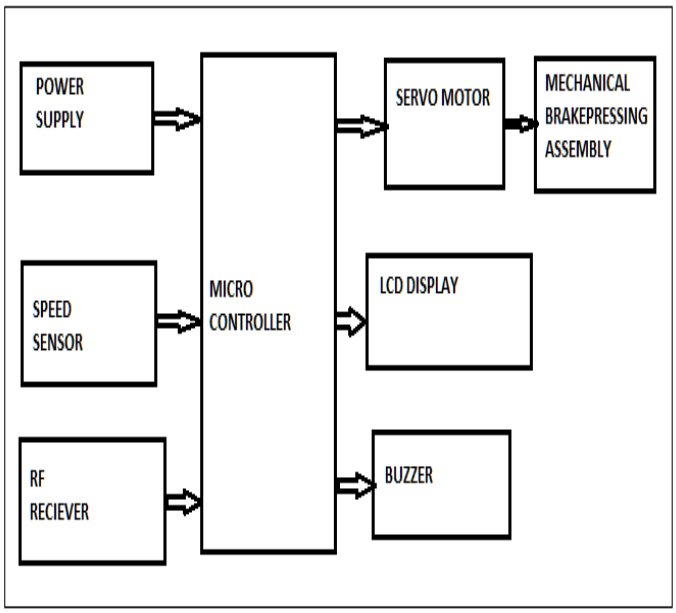

Fig -2: Receiver module

The receiver module consists of a micro controller to decode the received speed signal from the transmitter module. The servo motor has high torque to press the brake of the two wheeler using some kind of mechanical assembly. RF receiver is used to receive the signal broadcasted by the transmitter. It also consists of a LCD module to display the present speed and the expected speed. It also has a buzzer to warn the driver to reduce the speed.

4. PROPOSED METHODOLOGY

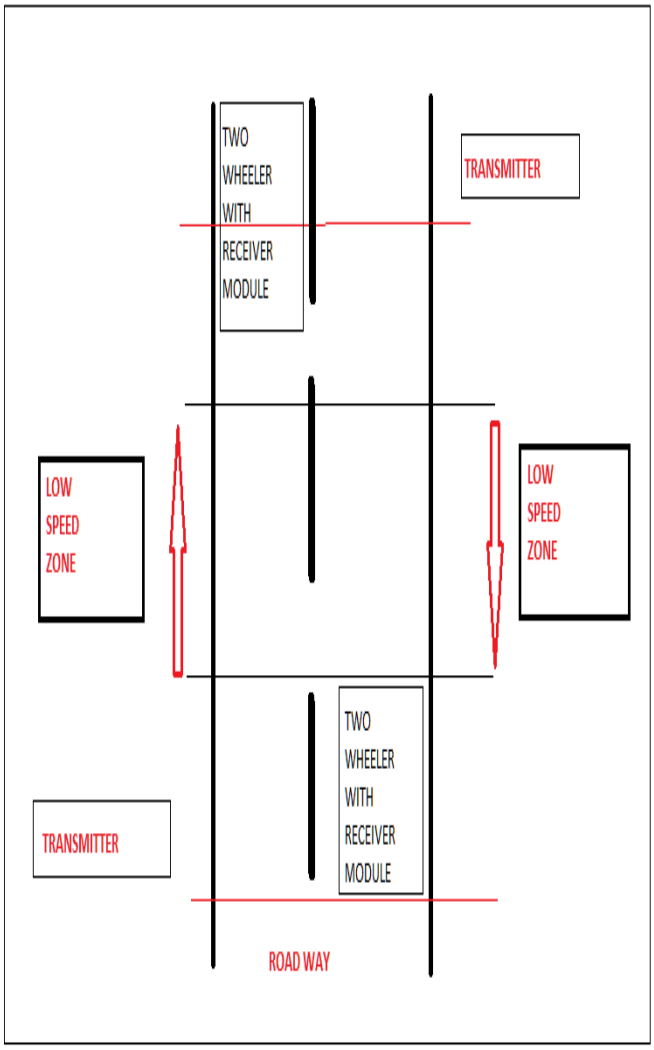

Fig -3: Schematic idea of the project

The proposed system consists of two modules namely transmitter and receiver module. The transmitter module is fitted along the roadside and the receiver module is fitted on the two wheeler vehicle.

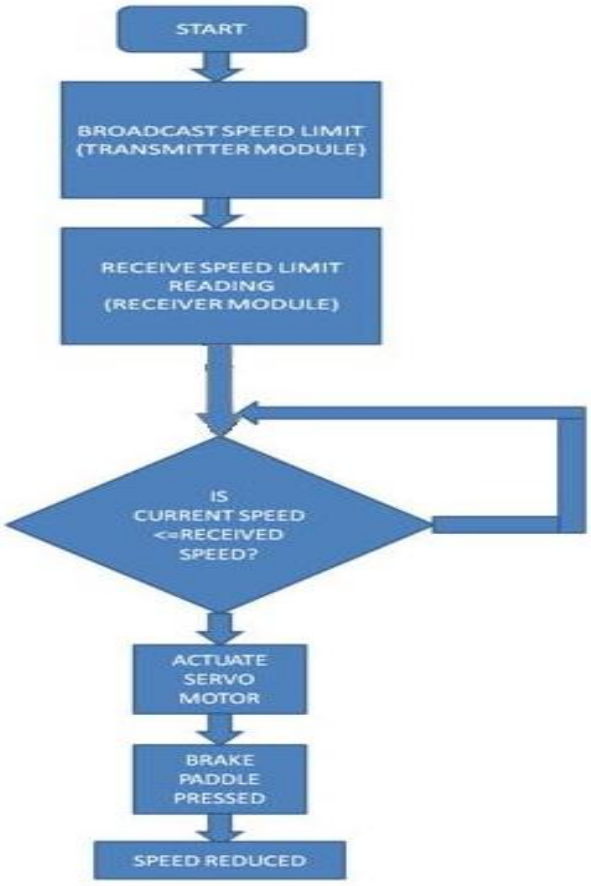

Fig -4: Flow Chart

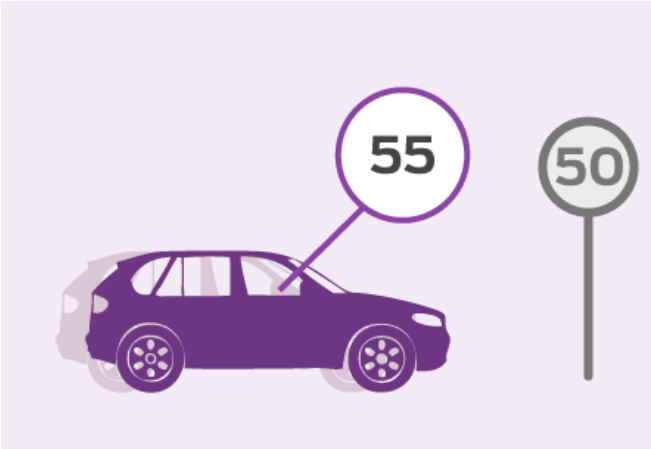

Fig -5: Over speed condition

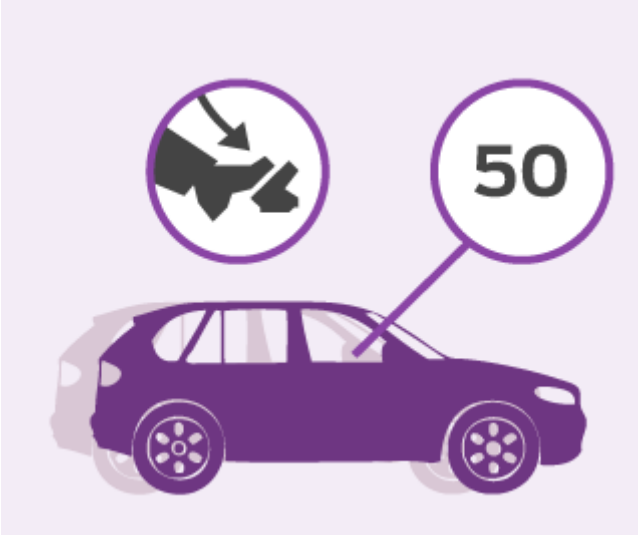

Fig -6: Speed Limiting condition

5. LITERATURE SURVEY

The main idea to do this project came from the fact that we found that a majority of accidents happening in India are road accidents that happens due to reckless and careless driving and that leads to loss of numerous priceless lives.

We went through various IEEE and other papers to get a solution to this increasing road accident and we came to this idea of remotely controlling the speed of the bike if it is beyond the specified limit. According to Mr. Willie D. Jones in the IEEE SPECTRUM magazine (September 2001), a person dies in a car crash every second. Automation of the driving control of Two-wheelers is one of the most vital needs of the hour. This technology can very well implement what was absent before, controlled lane driving. Considering the hazards of driving and their more pronounced effect on two wheeler our VEHICLE CONTROL SYSTEM is exactly what is required. These systems have been implemented in France, Japan & U.S.A. by many companies, but only for cars and mass transport networks

6. CONCLUSION

To implement this idea, we have gone through research papers of intelligent speed assistance and adaptive cruise control. Though we have incorporated this idea in two wheelers but with certain amendments, it could be used in other automobiles also with significant results.

With this effort of us, it is quite possible to reduce the number of road accidents caused due to the negligence of the driver, urgent breaking and sudden fluctuations in the speed. Also, it can help in maintaining the fuel efficiency significantly and this could be a great help for the society as well as for common men's pocket.

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