# Automatic Vehicle Speed Control with Wireless in Road Sign Delivery System

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*Abstract* – **Nowadays accidents are occurring frequently, causing demise of many people by making modest mistakes while driving (in school zone, hills area, and highways). But sometimes it may not be possible to view the signboards placed by the Highway Department to alert the drivers in such kind of places and there is a chance for 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 vehicle's dashboard to display information on the vehicle, 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 reduces the speed of vehicle automatically.**

*Keywords*– **RF Technology, Microcontoller, Speed Reduction.**

## I. INTRODUCTION

Currently 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. Such road oddities are indicated by road-signs but most vehicle drivers miss road signs more often than not.

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. This is a RFID-Based Intelligent vehicle speed controller system where passive RF transceivers are arranged in the road close to the position of real traffic signals.

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. This model can also be better utilized to improve the fuel efficiency by imposing the maximum speed limit on the automobiles at which the mileage will be more.

## II. ADVANTAGES

1. This project decreases the rate of accidents in the highway and Ghats areas.
2. Low cost and easy to implement.
3. Can cover maximum area in a zone.
4. This can be implemented with other wireless technologies for adding more stuff.
5. Low power transmitter is enough for operation.
6. Less man power is required.
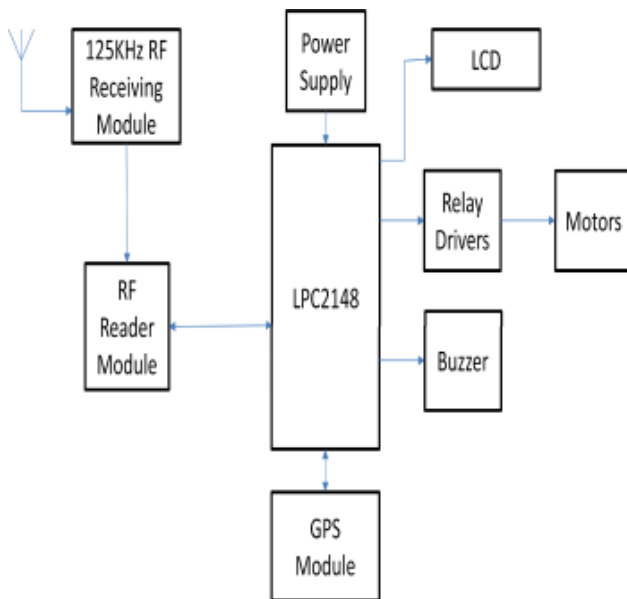
## III. APPLICATIONS

1. It can be implemented in automated systems for wireless control.
2. Can be used at heavy traffic areas.
3. Used in school zones and ghat roads.
4. This can be used in driving guidance systems and automatic navigation system.

## IV. BLOCK DIAGRAMS

1. **Receiver**

### 2. Transmitter



## V. METHODOLOGY

This paper aims at automatically controlling the speed of vehicles at speed restricted areas such as schools, hospital zones etc. The RFID reader is attached along with the vehicle and the RFID reader Tag with these zones. These tags are programmed to send a coded signal when the reader comes in proximity. Whenever the vehicle enters into these zones their receiver will receive this code and the speed of the vehicle is controlled automatically with the help of the microcontroller unit present inside the vehicle.

## V. SOFTWARE SPECIFICATIONS

- **Windows operating system**
- **Software: Keil micro vision 5**

Keil Micro Vision 5 is the complete software development environment for a wide of Arm cortex-M based microcontroller devices.

- **Language used: Embedded C**

Embedded C is a generic term given to a programming language written in C, which is associated with particular hardware architecture. Embedded C is an extension of C language with some additional header files.

- **Software used for uploading code: Flash magic**

Flash magic is a PC tool for burning(or writing) Hex file into any flash based microcontrollers using a serial of Ethernet protocol from a computer.

- **Simulation Software: Proteus 8 professional**

Proteus 8 professional is software which can be used to draw schematics, PCB layout, and code and even simulate the schematic. It is developed by Lab center Electronic Ltd.

## VII. WORKING

The main objective is to replace road signs with RFID tags, and use in-vehicle RFID Reader-enabled modules to sense them, and provide useful information to the driver and design Electronic Display Controller meant for vehicle's speed control which is an embedded system.

The RF tag can be placed on an existing road sign to transmit the information provided by signals placed on the road to adapt the vehicle's speed.

Once the information is received from the RF tags, the vehicle's Electronic Display Controller automatically warns the driver, to reduce the speed according to the traffic sign indicated by the tag.

It waits for few seconds for the driver's response to the information received, otherwise vehicle's EDC unit automatically reduces the speed.

This also detects gas leakage if any and warns the driver.

The Zone between two tags where the speed is controlled or reduced is called as Sensitive Zone. This process can be used not only to indicate Sensitive zones but also provide additional information to the drivers.

Along with the primary objective of road safety, a plethora of other information can be provided to the commuter. Tags could disseminate additional information such as locations of nearby hospitals, fuel stations and food centers, by serving as Navigator. If there is road work or a construction in progress in a locality, installment of a tag a few km before the distressed area can be used to suggest suitable detours, thereby averting potential traffic jams and blockades.

## VIII. CONCLUSION

In this project the prototype design of a system that can deliver road signs to commuter's vehicles and can control the speed of the automobile has been demonstrated. This project is very simple which is durable and is of low cost. This project consumes less power. This system is easy to implement on present system which ensures maximum safety for drivers, passengers and pedestrians. The driver can get the information without any kind of distraction. This proto-type works even in bad weather conditions while the technology of artificial vision-based recognition of traffic signals might fail if visibility is poor and GPS Navigation system may not work due to the sheer distance of satellites or weak signals Radio Frequency signals might still be transmitted reliably through all the conditions. Driving safety will be enhanced and offers a positive cost differential to the government. We are trying to work with the all-pros and cons related to this project. In this proto-type only one vehicle is considered. Practically other vehicles moving nearby can block or attenuate RF signals. This project may be enhanced further by establishing vehicle to vehicle microcontrollers' communication through Radio frequency so as to avoid accidents.

## REFERENCES

[1]. Pratik Mhatre,Ketan Thakur , "Automatic Vehicle Speed Control with Wireless In vehicle Road sign Delivery System Using ARM 7" .[International Journal of Scientific and Technical Advancements]

[2]. Manjunath Chincholi,Dr K Chandrasekhara , "Design & Analysis of Vehicle Speed Control Unit Using RF Technology". International Advanced Research Journal in Science, Engineering and Technology Vol. 2, Issue 8, August 2015]

[3]. R.Senthilkumar, S.Nandini, A.Priyanka- "Automatic Vehicle Speed Reduction System in Various Zones". [International Journal of Advanced Research in Biology Engineering Science and Technology (IJARBEST) Vol. 2, Special Issue 10, March 2016]