



**INTERNATIONAL JOURNAL OF ENGINEERING SCIENCES & RESEARCH
TECHNOLOGY**

**IMPLEMENTATION OF VEHICLE OVER SPEED VIOLATION INDICATOR AND IR
BASED HORN SYSTEM**

**Prof Rudrappa B Gujanatti, Kadappa Akkatangerhal, Sahana Hosamath, Amruta Nanjanavar,
Diwakar kumar**

Dept. of Electronics And Communication, KLE Dr.M.S.Sheshgiri College of Engineering and
Technology,Belgaum,Karnataka.

Prof Sachin A Urbinahatti

Dept. of CS, TKIET Kolhapur, Maharashtra
INDIA

Abstract

In the present day scenario traffic rules are frequently violated by the drivers and over speeding occur due to bad driving behavior's. So driver assistance system is provided to prevent over speed, violations of road rules and also to display alert messages on LCD. The proposed violation management system has an alerting, reporting and recording system for over speed violation management. The RF transmitter sends the speed limit of the particular lane entered by the vehicle in LCD. The receiver unit placed in the vehicle receives the messages and sends to the microcontroller and stores the speed limit of zone. When speed of the vehicle near the speed limit it displays the warning and if it exceeds the speed limit, the microcontroller records the violated speed and time.

The LCD displays the lane speed limit and RF Tx module sends message to the nearest traffic personnel immediately after a violation occurs. An authenticated module is also provided, which can be operated only by traffic police in which he can retrieve the stored data at any time. Increase in the count of violation increases the penalty amount which can be collected in toll gates located nearby.

Keywords: RF Tx/Rx, microcontroller,,Vehicle section, School zone, Traffic police section,IR Tx/IR Rx

Introduction

Speed control is in the need of the hour due to the increased rate of accidents reported in our daily life. During the year 2011, in India a 4,97,686 road accidents were reported which is a result of lack of speed control and violating the road rules. Road accidents can also be prevented by adopting measures such as Traffic management, improving the quality of road infrastructure and safer vehicles. To Ensure decline in accidents and also to improve road safety, speed control techniques can be used such as speed control in school and college zones by using RF transceiver, ABS(Automatic Braking Systems), Camera based and RFID technology based detection are implemented. The existing techniques still not able to reduce the number of accidents. Hence need to implement Intelligent Speed Adaptation (ISA) in which violation management provides efficient monitoring, registering and reporting system of speed of the vehicle which exceeds the speed limit. The

driving behavior of the driver is monitored and based on which penalty points are calculated. A message sent to the remote station so that an immediate action can be taken. Speed limit information of the zone is sent through RF system which uses wireless mode of communication and proves to be more effective.

Materials and methods

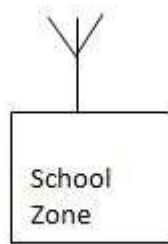
Major Components Used

- 1.Microcontroller(89C51)
- 2.RF Tx, RF RX
- 3.LCD Display
- 4.Relay Drivers
- 5.Relay
- 6.DC Motor
- 7.Comparator
- 8.Opto-coupler
- 9.Buffer

These proposed system consist of zone transmitter sections continuously transmit the signal. So that if any vehicle enters in to the region at any time, then the signal will be received by the vehicle. The data will be unique for each and every area. So that the vehicle will set into different speed. This signal will be transmitted by the encoder. Here, an active type radio frequency generator is used

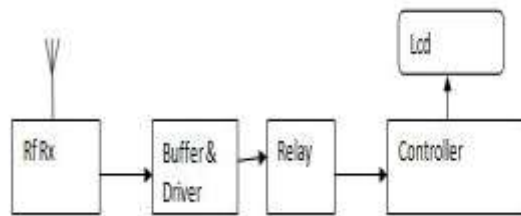
This Receiving unit will be fixed inside the vehicle. This unit will give the intimation to the driver regarding the details like speed changes, zone alerts and so on.

Figure 1:



School zone

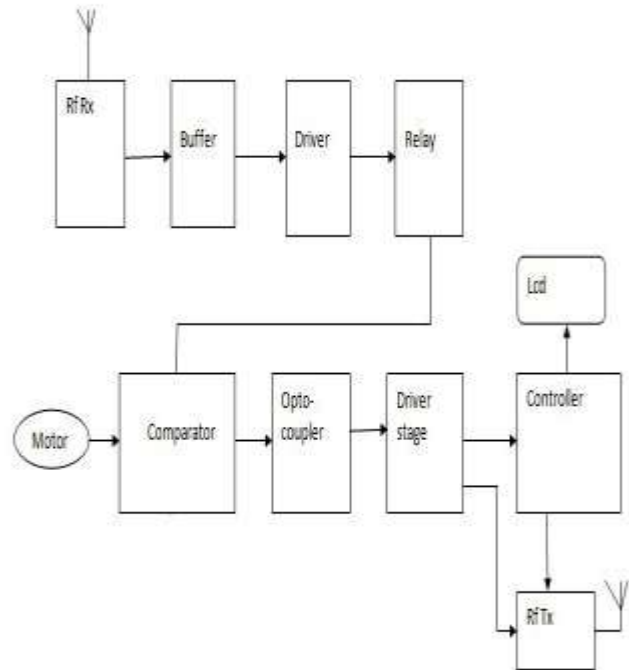
Figure 2:



Traffic police control unit

The RF transmitter fixed in each and every zone will be having a unique digital code. In an RF there are two factors one is the range of the radio wave and the other is address match between the transmitter and receiver. In this project we have used an RF with a range of 433 MHz The address of RF Tx and the RF Rx should be same.

Figure 3:



Vehicle section

In the vehicle section, an RF receiver is fixed. If the vehicle enters in to any particular area then the RF receiver will receive the signal and then it decodes to get the correct digital code and then it compares the given code with the processor program.

If the received code matched with any of the digital code in the processor, then the processor does the desired function that has been mentioned on the program. Accident intimation and the obstacle detection are also added with this system. RF based speed Indication and the zone information will be displayed on the vehicle display section. RF communication is used in this system to send alert information to the Control unit.

Figure 4:

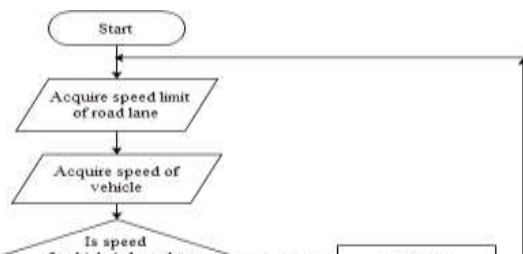


diagram if behind vehicle wants to give horn to the front vehicle need to send the IR signal in the direction of front vehicle. The IR transmitted signal will be received by the front vehicle and buzzer gets ON within the vehicle using driver and relay circuits.

Results and discussion

The proposed system was successfully designed as per the block diagram with all the components required for the proposed system.

Whenever the vehicle enters into the speed limit zone lanes, the vehicle gets indication of the zone name and speed limit as shown in below figure displaying output.

Figure 6:



Vehicle entered in a speed zone

If the vehicle speed is not reduced within given minimum period of time then the violation is recorded and fine generated message sent to the traffic police station as shown in below figure displaying output.

Figure 7:



Fine generated message to Traffic Police station module

The one more application of the project is to reduce the noise pollution caused by the vehicle horns. As shown in below output figure IR transmitter is used to send the IR signals and signals received by the IR receiver, then LED and buzzer gets ON within the vehicle.

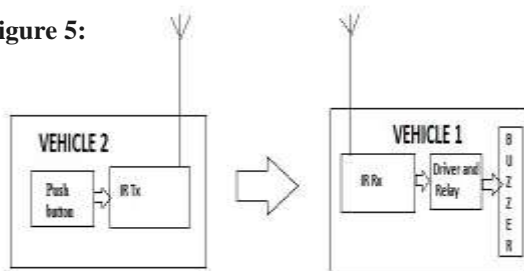
Figure 8:

Flow chart for software implementation

The above figure shows the flow chart for the software implementation of the project. In the project we need to acquire the speed limit of the road lane. This speed limit is compared with the speed of the vehicle. If the speed of the vehicle is less than the speed limit of the road then no action is required else a warning is given to reduce the vehicle speed below the given speed limit. If the vehicle speed is reduced within a minimum time period then no action is required else a violation is recorded and a fine generated message is sent to the traffic police station.

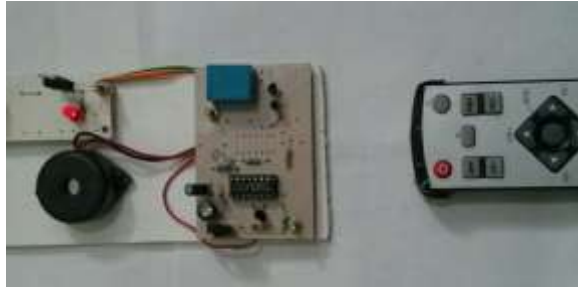
IR based horn system

Figure 5:



IR based horn system

The noise pollution caused by the vehicle horns can be reduced as shown in figure. It uses the IR transmitter and IR receiver blocks. In the block



IR vehicle horn indicator

Conclusion

The project succeeded in implementing a system to reduce the traffic violations. The driver is made aware of his driving behavior and violations made so that careful and conscious driving can be achieved. Repeated violations lead to increase in penalty amount which effects in reduction of violations by the vehicle user. Wireless transmission is achieved successfully with the help of RF, which provides low cost transmission of data. RF system sends message to the remote station about violation. Traffic signs and other alert messages can be intimated to the user of vehicle which greatly helps in maintaining traffic and also to follow road rules.

Acknowledgements

The authors wish to thank all the teaching and non-teaching staff of our department for the help rendered during the course of our project. We also thank head of our department Prof S.B.Kulkarni and our beloved principal Dr.Basavaraj.Katageri for their continuous support in completing our project successfully. At the outset we thank God almighty for making our endeavor a success.

References

- [1] C.-Y. Chan "On the detection of vehicular crashes system characteristics and architecture", IEEE Trans. Veh. Technol., vol. 51, no. 1, pp.180 - 193 2002
- [2] M.H. Pham, A. Bhaskar, E. Chung, and A.G. Dumont, "Random forest models for identifying motorway rear-end crash risks using disaggregate data".
- [3] J. Kim and J. Kim, "Intersection collision avoidance using wireless sensor network". IEEE, 2009.

[4] H. Gharavi, and S. Gao, "3-D Motion Estimation Using Range Data," IEEE Trans. Intell. Transp. Syst., vol. 8, pp. 133-143, 2007.




[5]Telaprolu,m.k.sarma,V.V.Ratankanth,E.K.Rao,S. N.Banda, vehicular Electronics and safety (ICVES), IEEE international conference Pune (2009).



[6] Gangadhar.S.; R N Shetty Inst. Of Techno, An intelligent road traffic control system, IEEE Conference publication kahargpur (2010).

[7] Swati S Sarowar, Prof Seema M Shende, "Over Speed Violation Management and Control of Vehicle Based on Zigbee", International Journal of Engineering Research and General Science Volume 3, Issue 1, January-February,2015.

[8] Muhammad Ali Mazidi, Janice Gillispie Mazidi, Rolin D. McKinlay, "THE 8051 MICROCONTROLLER AND EMBEDDED SYSTEMS", second edition.

Author Bibliography

	<p>Prof .Rudrappa.B.Gujanatti Assistant Professor in the Dept. of E&C, K.L.E DR. M.S.Sheshgiri College of Engineering and Technology, Belgavi. 590008 Email: rudraguj@gmail.com</p>
	<p>Kadappa Akkatangerhal Pursuing UG degree in the discipline of Electronics and Communication Engineering at Dr.M.S.Sheshgiri college of Engineering and Eechnology, Belgavi. 590008 Email: kaadz1008@gmail.com</p>
	<p>Sahana Hosamath Pursuing UG degree in the discipline of Electronics and Communication Engineering at Dr.M.S.Sheshgiri college of Engineering and Technology, Belgavi. 590008 Email: sahanahosmath@yahoo.com</p>

	<p>Amruta Nanjannavar Pursuing UG degree in the discipline of Electronics and Communication Engineering at Dr.M.S.Sheshgiri college of Engineering and Technology, Belgavi. 590008 Email: amruta14.n@gmail.com</p>
	<p>Diwakar Kumar Pursuing UG degree in the discipline of Electronics and Communication Engineering at Dr.M.S.Sheshgiri college of Engineering and Technology, Belgavi. 590008 Email: diwakar0kumar@gmail.com</p>
	<p>Prof. Sachin A Urbinhatti Assistant Professor in the Dept. of CS, TKIET Kolhapur. Email: sachu400@gmail.com</p>