ISSN (Online): 2278-1021
ISSN (Print) : 2319-5940

International Journal of Advanced Research in Computer and Communication Engineering
Vol. 1, Issue 8, October 2012

Design of RF based speed control system for vehicles

Ankita Mishra[1], Jyoti Solanki[2] , Harshala Bakshi[3], Priyanka Saxena[4]Pranav Paranjpe[5]
Student, Electronics & Communication Engineering Department, VITS, Indore, India
Assistant Professor, Electronics & Communication Engineering Department, VITS, Indore, India

ABSTRACT: **Nowadays people are driving very fast; accidents are occurring frequently, we lost our valuable life by making small mistake while driving (school zone, hills area, and highways). So in order to avoid such kind of accidents and to alert the drivers and to control their vehicle speed in such kind of places the highway department have placed the signboards. But sometimes it may to possible to view that kind of signboards and there is a chance for accident. So to intimate the driver about the zones and the speed limit automatically, is done by means of using RF technology. The main objective is to design a Smart Display controller meant for vehicle's speed control and monitors the zones, which can runon an embedded system. Smart Display & Control (SDC) can be custom designed to fit into a vehicle's dashboard, and displays information on the vehicle. The project is composed of two separate units: zone status transmitter unit and receiver (speed display and control) unit. Once the information is received from the zones, the vehicle's embedded unit automatically alerts the driver, to reduce the speed according to the zone, it waits for few seconds, and otherwise vehicle's SDC unit automatically reducesthe speed.**

Keywords: Automobile, RF, traffic, embedded system.

I. INTRODUCTION

Road facilities are a major concern in the developed world. Recent studies show that one third of the number of fatal or serious accidents are associated with excessive or inappropriate speed, as well as changes in the roadway (like the presence of road-work or unexpected obstacles). Reduction of the number of accidents and mitigation of their consequences are a big concern for traffic authorities, the automotive industry and transport research groups. One important line of action consists in the use of advanced driver assistance systems (ADAS), which are acoustic, hectic or visual signals produced by the vehicle itself to communicate to the driver the possibility of a collision. These systems are somewhat available in commercial vehicles today, and future trends indicate that higher safety will be achieved by automatic driving controls and a growing number of sensors both on the road infrastructure and the vehicle itself. A prime example of driver assistance systems is cruise control (CC), which has the capability of maintaining a constant user preset speed and its evolution, the adaptive cruise control (ACC), which adds to CC the capability of keeping a safe distance from the preceding vehicle .A drawback of these systems is that they are not independently capable of distinguishing between straight and curved parts of the road, where the speed has to be lowered to avoid accidents.However, curve Warning systems (CWS) have been recently developed that use a combination of global positioning systems (GPS) and digital maps obtained from a GeographicalInformation System (GIS), to assess threat levels for a driver approaching a curve to quickly, Likewise, intelligent speed assistance (ISA) systems warn the driver When the vehicle's velocity is inappropriate, using GPS incombination with a digital road map containing information about the speed limitsHowever useful, these systems are inoperative in case of unexpected road circumstances (like roadwork, road diversions, accidents, etc.), which would need the use of dynamically-generated digital maps. The key idea offered by this paper is to use Radio Frequency Identification (RFID) technology to tag the warning signals placed in the dangerous portions of the road. While artificial vision-based recognition of traffic signals might fail if visibility is poor (insufficient light, difficult weather conditions or blocking of the line of sight by preceding vehicles), RF signals might still be transmitted reliably.In the last years, RFID technology has been gradually incorporated to commercial transportation systems. A well-known example is the REID-based highway toll collection systems which are now routinely employed in many countries, like the Telepass system in Italy or the Auto pass system inNorway. Other uses include monitoring systems to avoid vehicle theft, access control to car parking or private areas and embedding of REID tags in license plates with specially codedIDs for automatic vehicle detection and identification. Placement of REID tags on the

ISSN (Online): 2278-1021
ISSN (Print) : 2319-5940

International Journal of Advanced Research in Computer and Communication Engineering
Vol. 1, Issue 8, October 2012

road lanes has been proposed in order to provide accurate vehicle localization in tunnels or downtown areas where GPS positioning might be unreliable. In the work by REID tagging of cars is offered as an alternative to traffic data collection by inductive loops placed under the road surface. The information about the traffic collected by a network of RE readers is then used to regulate traffic at intersection or critical points in the city. The work by Sato describes an ADAS, where passive REID tags are arranged in the road close to the position of real traffic signals. An antenna placed in the rear part of the car and close to the floor (since the maximum transmitting range of the tags is about 40 cm) permits reading of the information stored in the tag memo and conveys a visual or auditive message to the driver. Initial tests at low driving speeds (20 km/h) show good results The work described in this paper is collaboration betweenAUTOPIA (Autonomous Vehicles Group) and LOPSI (Localization and Exploration for Intelligent Systems), both belonging to the Centre for Automation and Robotics (CAR, UPM-CISC).

The aim of the research is to build a sensor system for infrastructure to vehicle (l2V) communt10n, which can transmit the information provided by active signals placed on the road to adapt the vehicle's speed and prevent collisions. By active signals we mean ordinary traffic signals that incorporate long-range active RFID tags with information stored into them. This information is collected in real time by RFID sensors placed on board of the vehicle (an electric Citroën Berlin go), which we have modified to automatically change its speed to adapt to the circumstances of the road. In particular, we have implemented a fuzzy logic control algorithm acting on the longitudinal speed of the vehicle, with actuators which control the vehicle's throttle and brake to reach and maintain a given target speed.

II. BLOCK DIAGRAM

1) TRANSMITTER

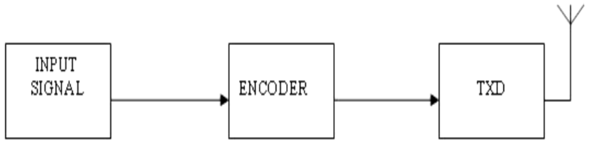


Fig1. Showing transmitter

2) RECEVIER

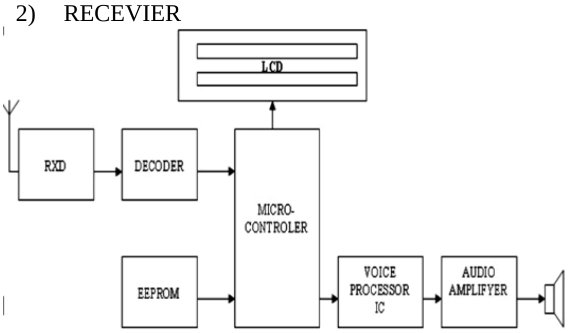


Fig.2 Showing Receiver

III. CIRCUIT DIAGRAM

1) TRANSMITTER

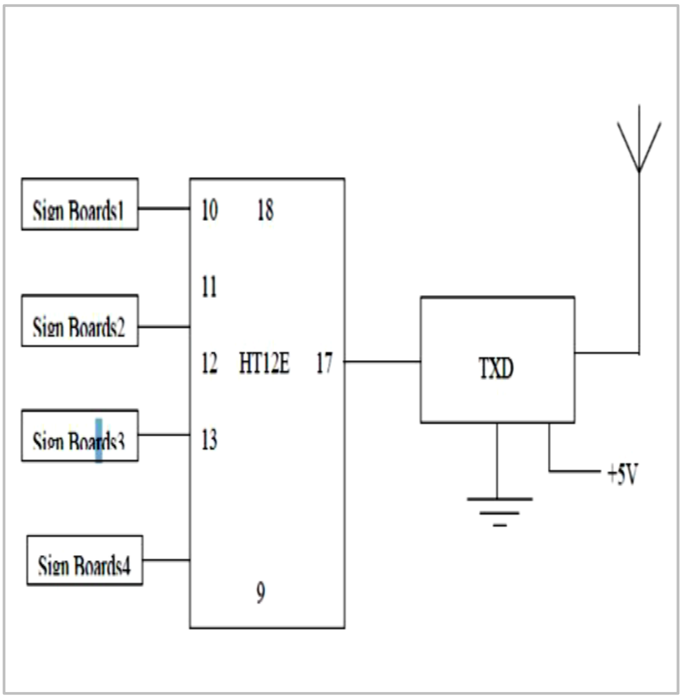


Fig.3showing transistor circuit diagram

ISSN (Online): 2278-1021
ISSN (Print) : 2319-5940

International Journal of Advanced Research in Computer and Communication Engineering
Vol. 1, Issue 8, October 2012

2) RECEIVER

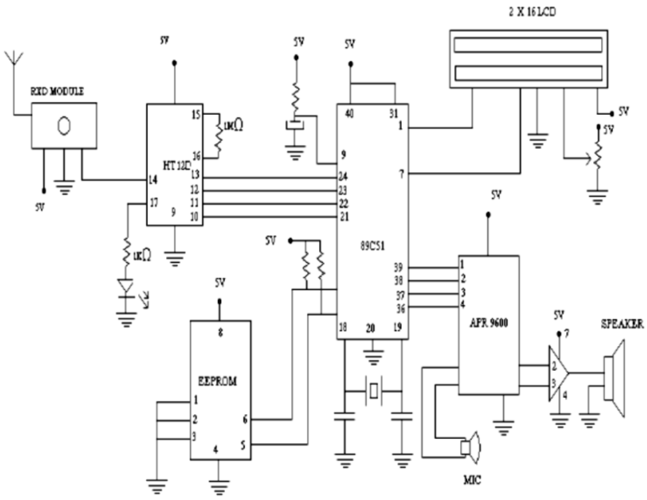


Fig.4 Showing Receiver circuit diagram

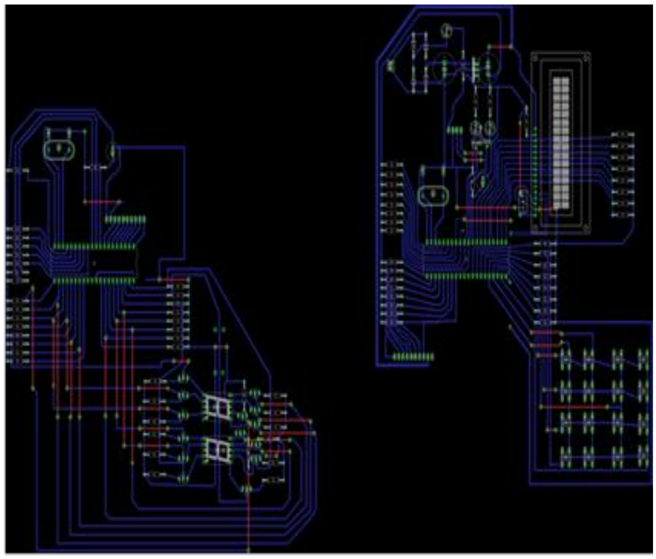
IV. WORKING

In the project there are two part transmitter and receiver in the transistor when press the micro switches key given some input of microcontroller , the microcontroller check the key input whose key press and what is the data or information sending after this process the microcontroller1 encoded the input by the RE module the receiver the data by RE module and collected by receiver microcontroller and the microcontroller decoding the information signal and display on the seven segment and microcontroller sending the data in dc Motor, and motors start the receiver part send feedback which data is receives ,sending by the RF module again the transmitter RF module receive feedback information and decoding by microcontroller and display on LCD (liquid crystal display). It's whole process based on the frequency modulation**.**

IV. PROPOSED RESULT

The proposed result for this topic is to prepare a model which will show the experimental view of this project covering the theoretical as well as practical areas related to this project this model will also show the practical implementation of the device which could be fitted in to the automobiles for safety purposes. We are trying to work with the all-pros and cons related to this project. Hopefully we could come with a model which will show the experimental view of Smart Display and control device through which the Idea of automated speed control concept to prevent the accident and control traffic would be more clearly understood. We are actually presenting the layout of the project on which we will be working. Basically it consists of two sections: zone status transmitter according to the zone, it waits for few seconds, otherwise unit and receiver (speed display and control) unit.

Once the information is received from the zones, the vehicle's embedded unit is automatically alert the driver, to



reduce the speed vehicle's SDC unit automatically reduce the speed.

VI.CONCLUSION

Here by we conclude that this project is very easy to implement on current system, low cost and durable, ensures maximum safety to passengers and public, the driver gets all information about the road without distracting him from driving, driver gets all information even in bad weather conditions, low power consumption. This project is further enhanced by automatic speed control when the vehicles get any hazard signal from outside environment.

ISSN (Online): 2278-1021
ISSN (Print) : 2319-5940

International Journal of Advanced Research in Computer and Communication Engineering
Vol. 1, Issue 8, October 2012

REFERENCES

1) Telaprolu,m.k,sarma,V.V.;.;ratankanth,E.K.;Rao,S. N.;Banda,v.,vehicular Electronics and safety (ICVES), IEEE international conference pune (2009).
2) Gangadhar, S.; R N shetty Inst. Of Technol, An intelligent road traffic control system, IEEE conference publication kahargpur (2010).
3) Berndt, Don, Real-Time Embedded Technology and Applications Symposium (RTAS), IEEE Education & Learning (2005).
4) Kassem, N. Microsoft Corp., Redmond, WA, USA Kosba, A.E.; Youssef, M.;VRF-Based Vehicle Detection and Speed Estimation vehicular Technology Conference (VTC Spring), IEEE (2012).
5) Murthy, C.; Manimaran, G.; Resource Management in Real-Time Systems and Networks2001.
6) Nishiyama, Y. ISUZU Advanced Engineering Center LTD., Kanagawa, JapanKondoh, A.; Hirado, A.; Akiyama, H. The system and the function of position regulated speed control device, Vehicle Navigation and Information Systems Conference, 1996. VNIS '96