Automatic Over speed Controlling of Vehicle

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Abstract: Now a day's traffic rules are frequently violated by the drivers and over speeding occur due to bad driving behavior. 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 foraccident.The main objective of the Project is to design and develop a new system that can effectively detect speed violations on the road and supports the driver to obey traffic rules while driving by maintaining the speed of vehicle according to the speed limit prescribed by particular zone. It will use zigbee technology. The proposed system gives an alert with the help of buzzer and LCD. In this system, ifover speeding vehicles don't get controlled manually, then system turns ON and will get controlled automatically.

Keywords: Zigbee, Automatic speed control, Over speeding vehicles, Monitoring.

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 reported 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.Again with growth in traffic, there is occurrence of bundle of problems too; these problems include traffic jams, accidents and traffic rule violation at the heavy traffic signals. This in turn has an adverse effect on the economy of the country as well as the loss of lives.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 college zones by using ZIGBEE transceiver, automatic braking systems, Camera based detection, ZIGBEEID technology based detection are implemented. The existing techniques still doesn't able to reduce the number of accidents. Hence there is a 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 limit. . Speed limit information is sent with the help of Zigbee which uses wireless mode of communication, proves to be effect.

II. LITERATURE SURVEY

[1] GummarekulaSattibabuet proposed a system that describes 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 an 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. This system if adopted by some state 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. This paper presents a new design to control the speed of the automobiles at remote places for fixed time.

[2] Rubini.R, proposed a system has an alerting, recording and reporting system for over speed violation management. The Zigbee transmitter sends the speed limit of the particular lane entered by the vehicle and also gives alerts like "road works", "steep slopes", "school zone" in the form of acoustical messages and also in LCD. The receiver unit placed in the vehicle receives the messages and sends to the microcontroller. When speed of the vehiclenears the speed limit it displays the warning and if exceeds the limit, the microcontroller records the violated speed and time. The LCD displays the lane speed limit and shows the number of times, speed was violated. A GSM module sends message to the nearest traffic personnel immediately after a violation occurs. An authenticated device is also provided, which can be operated only by the traffic police in which he can retrieve the data stored at any time. Increase in the count of violation increases the penalty amount which can be collected in toll gates located nearby.

III. PROPOSED SYSTEM

The system consists of a transmitter and a receiver as shown in figures. The transmitter module is fixed at pre-determined lanes/areas. Speed limit and traffic signs are pre-programmed in microcontroller. This information is transmitted as wireless signals through Zigbee. This module is experimented

with zones namely: School zone, University zone, Hospital Zone, Steep Curves Ahead, Bridge Works Ahead, and Accident Prone Area Ahead. The speed limit of different zones may range from 30 km/hr to 50 km/hr. Here , the driver can control the vehicle manually with in the given short timelimit after the road sign tag is detected,if driver is not responded in that time then speed control system gets activated and controls the speed of the vehicle.
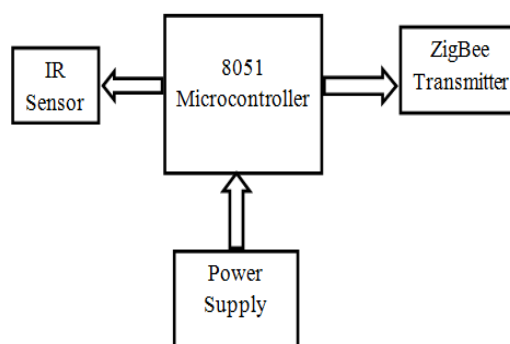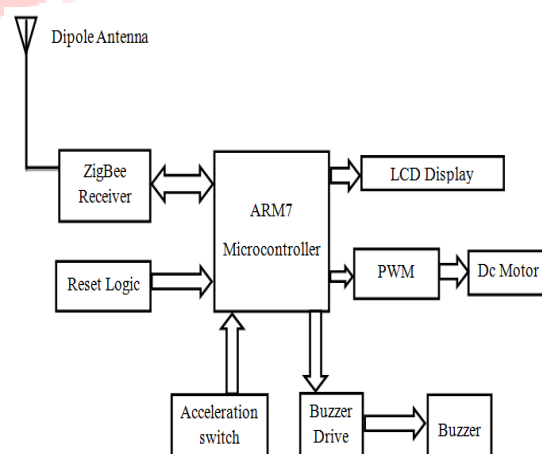
IV. BLOCK DIAGRAM

Fig.1 Transmitter

Fig.2Receiver

V. WORKING PRINCIPLE

The main aim is to control the overspeed of vehicle, so in order to achieve this we use ZigBee technology for wireless transmitting and receiving of data. The ZIGBEE is placed along with road signs in which it transmits the data, and it is used in the vehicle to sense the data and provide useful information to the driver. Once the information is received from the ZIGBEE, it automatically warns the driver by LCD and buzzer, once the tag is detected the timer will start, it waits for few seconds for the driver's response to the information received to reduce the speed according to the traffic sign indicated by the tag. The Zigbee transmitter sends the speed limit of the particular lane, present speed of vehicle is compared with the speed limit, and if it's exceeded then it should be controlled by the user within time limit ,If the time is out still the speed is not controlled manually by driver then system itself will control the speed of vehicle automatically. This process can be used not only to indicate Sensitive zones but also provide additional information to the drivers. 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. The possibilities are numerous.

VI. HARDWARE

A. ARM 7 Microcontroller

ARM-7 microcontroller acquires and stores different parameter of vehicle. The ARM-7 micro controller which is heart of the system which provides monitoring and controlling actions. It senses signals from input blocks and processes output blocks. The software program is stored in ARM-7 microcontroller on chip memory, according to which it provides the controlling actions. The on chip ADC converts these parameters into digital form and gives to the ARM-7 microcontroller
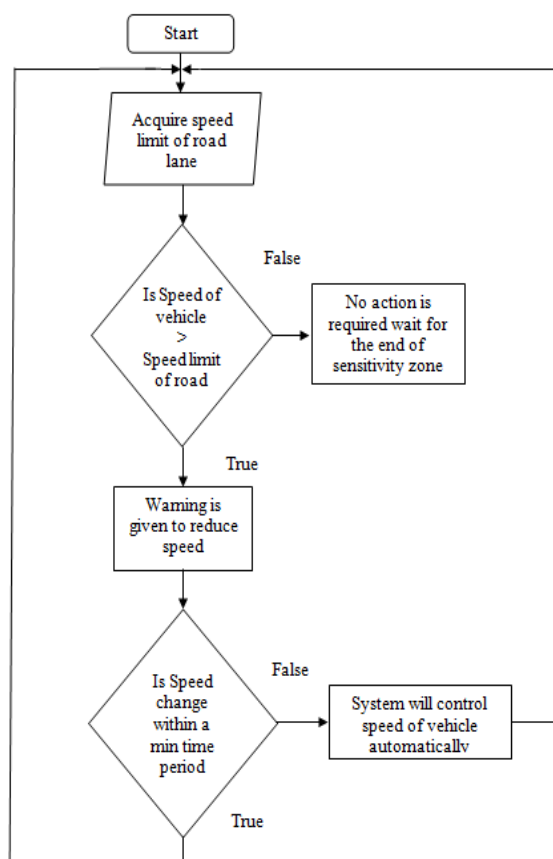
B. Zigbee

An IEEE 802.15.4-based specification for a suite of high-level communication protocols used to create personal area networks with small, low-power digital radios.The technology defined by the ZigBee specification is intended to be simpler and less expensive than other wireless personal area networks (WPANs), such as Bluetooth or Wi-Fi. Applications include wireless light switches, electrical meters with in-home-displays, traffic management systems, and other consumer and industrial equipment that requires short-range low-rate wireless data transfer.Its low power consumption limits transmission distances to 10–100 meters line-of-sight, depending on power output and environmental characteristics.[1] ZigBee devices can transmit data over long distances by passing data through a mesh network of intermediate devices to reach more distant ones. ZigBee is typically used in low data rate applications that require long battery life and secure networking (ZigBee networks are secured by 128 bit symmetric encryption keys.) ZigBee has a defined rate of 250 kbit/s, best suited for intermittent data transmissions from a sensor or input device.

C. DC Motor

DC Motor is a mechanically commutated electric motor powered from direct current. DC Motor can operate directly from batteries which are rechargeable, providing the motive power for electric vehicles.

VII. FLOW CHART

VIII. REFERENCES

[1] GummarekulaSattibabu and Satyanarayan Kona "Automatic Vehicle Speed Control With Wireless In-Vehicle Road Sign Delivery System Using ARM 7"International Journal Of Technology Enhancements And Emerging Engineering Research, Volume 2, Issue 8 ISSN 2347-4289 (2014).

[2]Swati S Sarowar and Seema M Shende "Overspeed Vehicular Monitoring and Control by using Zigbee"Dept. of Electronics & Telecom, , SYCET, Aurangabad, India. Accepted 30 June 2015, Available online 03 July 2015, Vol.5, No.4 (Aug 2015)

[3] K.Govindaraju, S.Boopathi, F.Parvez Ahmed , S.Thulasi Ram , M.Jagadeeshraj "Embedded Based Vehicle Speed Control SystemUsing Wireless Technology" International Journal of Innovative Research in Electrical and Electronics, Instrumentation and Control Engineering vol2. Issue 8, August 2014.

[4]Abdul-WahidA.Saif,HaythamSammak (2010), "Automatic Monitoring and Speed Violation Ticket System" IEEE ISSN 978-14244-6588-0/10, pp- 1068-1075.

VII. CONCLUSION

In this paper the prototype design of a system that can deliver road sign to commuter's vehicles and can control the speed of the vehicle has been demonstrated. This project is very simple which is durable and is of low cost.It consumes less power.The driver can get information without any kind of distraction. This prototype works even in bad weather conditions. This is easy to implement on present system which ensures maximum safety for drivers, passengers and pedestrians.