



CAR OVERSPEEDING DETECTION

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ABSTRACT

Nowadays in a fast moving world all the peoples are not have self-control. Such peoples are driving vehicles in a high speed in restricted areas like (school, parks, hospitals, hills area, Highways and in speed limited areas etc.) so that accidents are occurred more frequently. Because of this we lost our valuable life by making small mistakes while driving like high speed driving in restricted area, do not view the signboards which are placed by the Highway Department on the road. So in order to avoid such kind of accidents and to control their vehicle speed in restricted area like (school, parks, hospitals, hills area, Highways and in speed limited areas etc.) speed limit area, we can develop a system which can limits the speed of vehicle according to the speed limit of that particular area. So to intimate the driver about the zones and the speed limit, the project has an aim to control the speed of any vehicle automatically by means of using RF technology.

Keywords: Automatic speed control, RF transmitter and receiver, Microcontroller

1. 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 occurred 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. 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 hospital zones by using RF transceiver. In fast moving world's, accidents are mostly occurs due to breaking the rules of the road and over speeding. The accidents rates are increasing

year to year by more vehicles onto ground and heavy traffic. The government has taken to many steps to prevent this kind of things, but it is not enough. Most of the manufactures has developed a laser based control system but its cost is too high. But, there is problem using this system is that whenever human crosses the road it cannot detect properly so we develop a new system to control these things in a simple way using IR module which has some drawbacks that is it can works under line of sight. So we can chose RF module.

The RF transmitter is placed in the speed limit areas and RF receiver is placed in the system which is placed inside the vehicle. RF transmitter transfers the information about the speed of the zone to the receiver which is interfaced with microcontroller. The current speed will be sensed by the proximity sensor using dc motor that also

sends information to controller. The controller compares both speed, if speed of vehicle is greater than speed limit of the area then message is given to the driver through LCD Display to reduce the speed. The microcontroller calculates the speed of the vehicle based on time needed and displays the speed on LCD screen. The buzzer alarm sounds if an over speed is detected.

2. Methodology

Block diagram

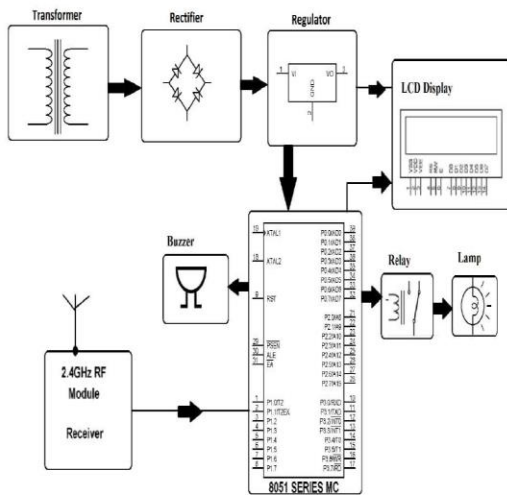


Fig 2: block diagram of car overspeeding detection

2.1 Proposed system

Our proposed project aims to develop a system that detects car s driving at speeds over specified limit and inform oncerned authorities immediately. Road accidents occurrences have increased recently so there needs to be a system that allows to detect overspeeding cars. Current speed detection systems are handheld guns held by police personnel that allow them to check car speed and then manually inform authorities about

the vehicle. Whereas this proposed system does not need any human interception and records car speed as well as wirelessly informs authorities of overspeeding detections The system first calculates the time required by the specific car for moving from first point to the second. Based on this data it calculates the car speed. This data is gathered and then transmitted by the system wirelessly to concerned authorities at a remote location. The mechanism consists of RF transmitterreceiver pair that work in combination for vehicle detection purpose. The microcontroller is now used to process this data and calculate the time required by vehicle to travel from one point to the other. Depending upon this time it now calculates vehicle speed as well as displays this on an LCD display. The system also sends this data wirelessly. It sounds a buzzer alarm if an overspeed vehicle is detected. Enhancements

3. Problem of statement

.Number of ways are being implemented to check and identify the over speeding vehicle. But no automatic system has been developed so far that can perform the task of speed detection and vehicle identification without human assistance. The major issues seen at the present context are :

- Road accidents are increasing day by day with prime cause being the over speeding of the vehicle.
- The use of human resources to check this issue can be very tedious and time consuming and sometimes become irrelevant.

Advantages

- .a Effective method to record vehicle speed.
- .b Does not need any human interception.
- .c They reduce the risk of accidents.
- .d It is easy to implement.
- .e It reduces the man-effort.

Disadvantages

- .a Sometimes the circuit got failure and causes various problems.
- .b Infrared detectors are extremely expensive, which limits their Use in mobile.

Future modifications

a The CCTV Camera can be installed on highways along with speed detector. If any vehicle has violates the maximum speed limit then this implementation of CCTV will be triggered to take a picture of the vehicle.

b Major benefit is adding voice announcement system. By adding this in system, it will notify the driver that vehicle has crossed the over speed conditions.

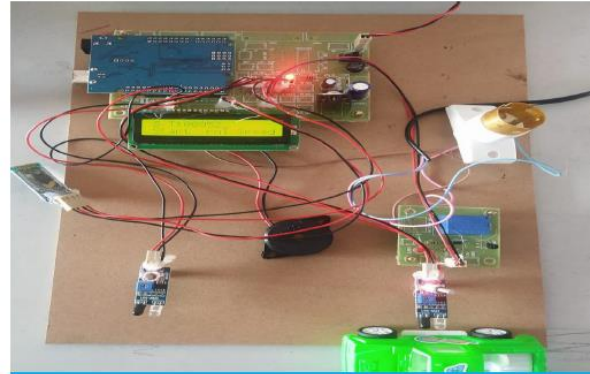


Figure 4.2.2 : starting point of IR sensor

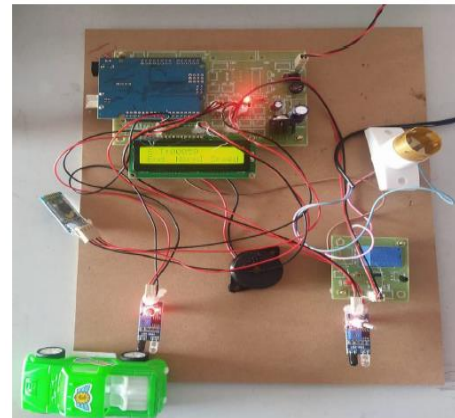


Figure 4.2.3 : ending point of IR sensor

sResults:

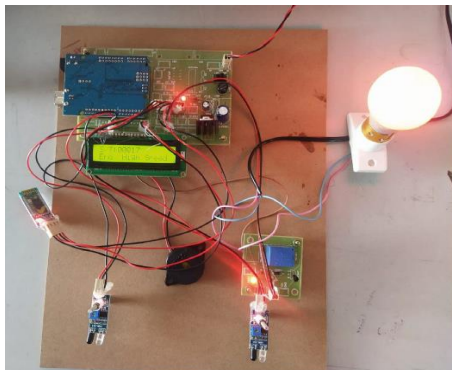
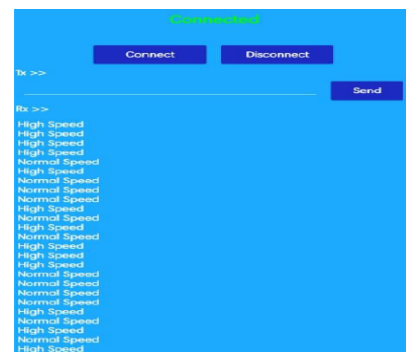


Figure 4.2.1 :equipment project of car overspeeding detection



Project implementation :

Power supply connected to the Arduino uno board.



Make all the necessary connections with respect to the circuit diagram and upload the

- code to Arduino.
- Place the two IR Sensors on the edge of the board so that the distance between them is
- approximately 10 centimeters.
- Simulate a car movement in front of the sensors either by using your hands or a toy car.
- Arduino calculates the speed and displays the result on the 16×2 LCD.
- Calculated speed data transmits mobile phone through Bluetooth device.
- Car speed is high then sound the buzzer and lamp is on .

The working of the Arduino based car speed detector project is very simple. Arduino continuously reads the inputs from the IR Sensors. When a car moving in front of the setup reaches the first sensor, Arduino becomes alert and capture a time stamp the moment the car leaves the first IR Sensor. Another time stamp is recorded when the car reaches the second IR Sensor. Millis() function of Arduino used for capturing the time stamps. Arduino then calculates the velocity by assuming the distance as 5 meters between the two IR Sensor and displays the result in kilometers per hour on the 16×2 LCD Display

Applications

- Helps in capturing speed of vehicles without any human involvement.

- This project can also be used as traffic logger, traffic counter and few other traffic related applications.

4. Conclusion

The car over speeding detection system reduces the number of road accidents and provides a safe journey by controlling the speed of vehicles, in turn avoiding traffic collisions. The designed speed detection system was capable of continuously monitoring the speed of the approaching vehicle. The sensor worked well for the vehicle at a close range of about 7 meters. The output was more accurate with no other moving objects in the surrounding. The value of speed of each passing vehicle was displayed in the LCD display. Thus, the work of the traffic police authorities is minimized and they can control the rash driving of cars efficiently and accurately with ease by just sitting in the control room. In future, this concept can be further extended by integrating a camera with this system that will capture the picture of the over speeding vehicle's number plate and send it to the police authority for further process.

5. Future scope

- Road safety: The timely checking of the over speeding vehicle will reduce high percentage
- of road accidents.
- Automation in law enforcement: The system being completely automatic, reduces the
- number of traffic police officers needed to deploy in the real field for checking speeding



- vehicles. With very few enhancements in the proposed system new features can be easily
- incorporated such as: Vehicle security: The lost out cases of the vehicle are increasing day by day, the stolen vehicle
- can be easily detected by comparing with the registered entry of stolen vehicles.
- Parking: The vehicles can be easily registered using automatic system with this system in the
- parking lounge or similar purpose complexes.
- Visitor management: This system can be effectively used to assist visitor management
- systems in recognizing guest vehicles.
- Major benefit is adding voice announcement system. By adding this in system, it will notify the driver that vehicle has crossed the over speed conditions.

communication.(ISBN NO.978- 1-4799-404001/14/31:002014IEEE).

[4] Mike Golio, "Microwave and RF Product Applications", 1st Edition, 2005, CRC PRESS [5] Traffic Signal Control System Using Camera Sensor and Embedded System" TENCON 2011-2011 IEEE Region 10 Conference, pp. 1261-1265, 2011

[6] David A Bell, "Operational Amplifiers and Linear Ics" , 2nd Edition, 1997, Pearson

[7] Muhammad Ali Mazidi, "The 8051 Microcontroller and Embedded System", 2nd Edition, 2008, Pearson Education

REFERENCES

[1] Dinesh Mohan, Omer Tsimhoni, Michael Sivak, Michael J Flannagan Road safety in India: challenges and opportunities repost number UMTRI-2009-1 .

<http://www.deepblue.lib.umich.edu>

[2] Harper Finch Lawyers, Speed Detection Methods. Available on: On eld performance analysis of IEEE 802.11p and WAVE protocol stack for V2V V2I communication (ISBN No.978-1-4799-3834-6/14/31:002014IEEE)

[3] Safety alert advisory information system using vehicular