

AUTOMATIC SPEED CONTROL OF VECHILES IN RESTRICTED AREAS USING IR AND GSM

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ABSTRACT

This system is aimed at making vehicle driving safer than before. This is implemented using Arduino. Nowadays in a fast-moving world people does not have self-control. Such people are driving vehicles in a high speed. This project provides a way for how to control the speed without harming others. This project has an aim to control the speed of any vehicles automatically in cities and also in restricted areas such schools, parks, hospitals and in speed limited areas etc.

And also, We have derived the driver's condition in real time environment and we propose the detection of alcohol using alcohol detector connected to Arduino such that when the level of alcohol crosses a permissible limit, the vehicle ignition system will turn off thus making vehicle stop. And Proposed system automatically detects traffic signals and follows them in order to avoid any accidents.

Keywords: IR Transmitter, IR Receiver, GSM Module, Arduino uno, Relays, IR sensors, 555 Timer, LCD Display.

I. INTRODUCTION

Every life that is alive in this universe likes to enjoy the beauty of the nature. In these human beings are also one kind. Towards achieving these enjoyments human beings invented and created the vehicles. But actually, what happens, they are satisfying their needs by using these, but also suffering with accidents and losing valuable lives and property due to rash driving of the drivers especially in highly populated regions. Research on fully and partially automated roadway systems is being conducted in most developed countries. Many technologies are introduced to control this problem. For this, there is no any system to control the speed of vehicle. That's why, there is need to invent such system which control the speed of vehicle automatically at given limit at particular limiting distance. If this concept methodology system is possible, the problems related to traffic as well as accidents due to collision will be controlled. Now it is possible to control or set the speed of vehicle at a given limit on the roads like highways, express highways and any area where the speed limit is desired by the technique suggested in methodology described in this project.

II. METHODOLOGY

Automatic speed control of vehicles in some restricted areas can be developed by using wireless technologies. In this model we can restrict the speed of a vehicle. If a particular zone is registered with a restricted speed it cannot exceed that speed. If the Particular speed is exceeded by the driver then with the help of IR transmitter transmits the signals it will be received by the IR receiver by giving a beep sound and the speed of the vechicle is automatically returned to the particular zone limit speed. And we can able to receive a message to particular registered number by GSM module. It will control the speed of vehicle in limited zones it prevents accidents.

III. MODELING AND ANALYSIS

A. Components Required

- LCD Display
- Arduino
- GSM module
- 9V Battery
- DC motor
- IR Transmitter

- IR Receiver
- Relays

B. Procedure

1. Connect the Arduino pins to the lcd display and dc motor.
2. Relays are connected in such a way that it should switch to given condition.
3. IR sensors are placed and connected to the Arduino.
4. Insert the sim card to the GSM module slot to send messages to particular number given in program.
5. LCD display is to be interfaced to the specified pins of Arduino.
6. DC motor is connected in such a way that it can be controlled by the ir signals.

C. Circuit diagram

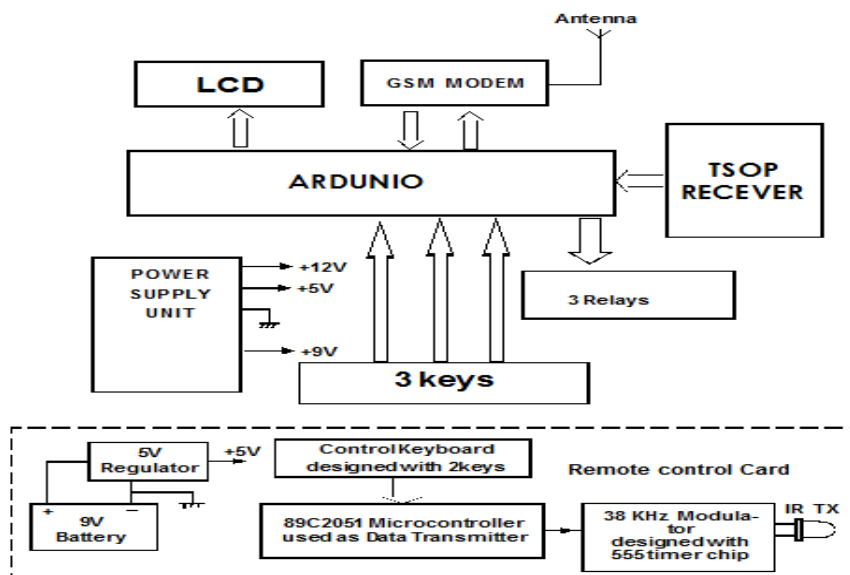


Fig-1 circuit diagram

D. WORKING

When the vehicle enters in the normal area its speed does not decrease, and it goes normally no action is performed. When the vehicle enters into the restricted areas that means it enters into the speed limiting. Whenever it enters the transmitter module just send an information that contains how much speed a vehicle can go inside the speed limited region. Then the signal or information is received by the receiver and the signal acquired from the speed meter is also given to the Arduino. The signal is basically analog in nature that will be converted into digital so only the Arduino is able to process the signal.

The signal from the transmitter and the speed meter is compared by the Arduino. In this there are two cases. First, the current speed is less than the transmitted speed the vehicle goes normally no action is required. Second, the information from the speed meter is greater than the transmitted speed by the transmitter module the Arduino waits for a few seconds whether the driver reduces the speed to the below value. If the driver does not reduce the speed means it automatically takes the control and reduces the speed according to it and at the same time the information is transmitted to the nearest police station.

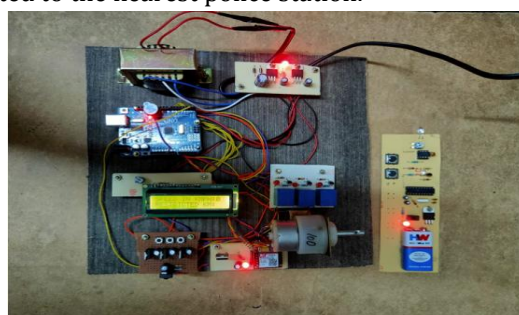


Fig-2 working model

IV. CONCLUSION

Graph and tables should not use in conclusion. This project work presents architecture for automatic adaptation of the longitudinal speed control of a vehicle to the circumstances of the road which can help to decrease one of the major causes of fatalities: the excessive or inadequate vehicle speed. Our approach is based on a combination of different sensor technologies: The proposed on-board architecture is portable and easily adaptable to any commercial car with minimal modifications. By this system, our approach is to control the speed of vehicle at limiting road area to avoid the accidents. The accidents and rash driving can be reduced up to 80 % and can save many lives and many valuable properties. In the empirical trials in our installations, the vehicle's speed was successfully changed as a result of the detection of the signals, increasing the driver's safety. The technology developed can assist human drivers in difficult road circumstances. By using this system, it can be reduced the rash driving within cities, within the regions of school zones, villages that are located at the highways and beside the highways. The project work is designed and developed successfully. For the demonstration purpose, a prototype module is constructed; and the results are found to be satisfactory.

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V. REFERENCES

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