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Automatic Speed Control of Vehicle Using RF Near Restricted Zones

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ABSTRACT

This project is developed to control the Speed of the vehicle, when it crosses Hospital. In front of Hospital zone roads a RF is placed. A RF component is connected in the Vehicle. The signal from the component is given to the microcontroller through a driver section. The vehicle motor is driven by DC power supply. When the RF component senses the signal from transmitter, it sends signal to the microcontroller. The microcontroller immediately controls the driver section to control the speed of the motor. Therefore when the vehicle crosses the Hospital, the speed of the vehicle will be automatically decreased. This will prevent unnecessary accidents.

Keywords : Radio frequency (RF) , Microcontroller, LCD, RF transmitter, RF receiver.

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 occured 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 choose 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. And if driver does not decreases the speed, the control transfers automatically. But the driver again operates it manually and exceeds the limited speed the message is given to the nearest RTO Office through GSM. The

message contains the current speed and number of the vehicle.

BLOCK DIAGRAM

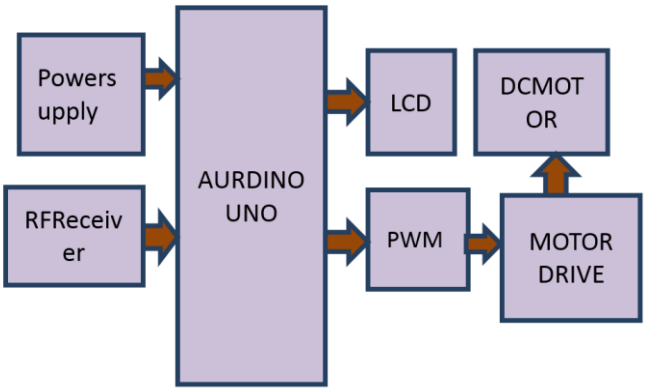


Fig 1. Receiver block diagram

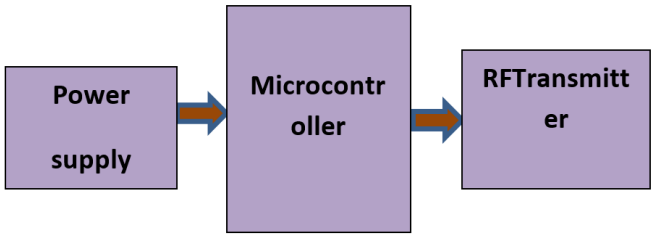


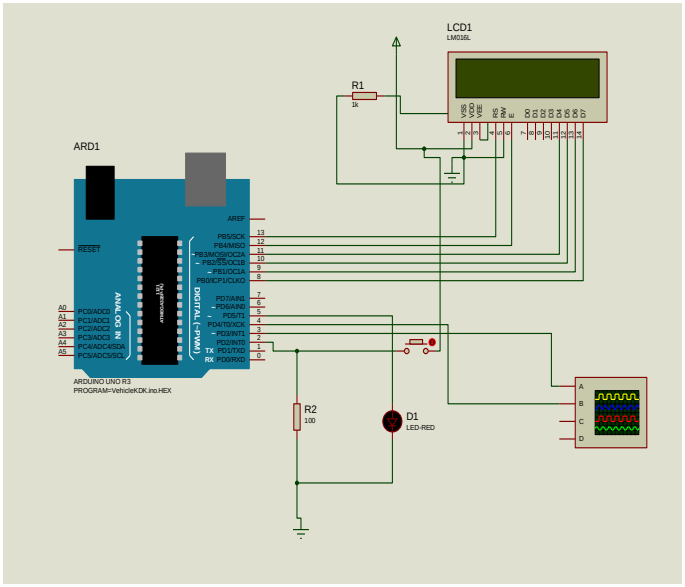
Fig 2. Transmitter block diagram

II. IMPLEMENTATION

When the vehicle enters in the normal area it's speed does not decrease and it goes normally means there is a no action is required. Whenever it enters, the transmitter module just send an information to the receiver that contains how much speed a vehicle can go inside the speed limited region. The actual speed of the vehicle is measured by using DC motor which can be sensed by proximity sensor. The signal is basically analog in nature that will be converted into digital so only the microcontroller able to process the signal.
The microcontroller compares both the signals.IN this there are two cases:

1) If speed of vehicle is less than the speed limit of road, then no action required, vehicle goes normally.
2)If speed of vehicle is greater than the speed limit of the road zone then the actual speed of vehicle and speed of that zone is displayed on LCD Display also the message is given to the driver to reduce the speed below the limit.
If speed change is occur within minimum time period then it is ok. But, if driver does not reduce the speed below speed limit of that zone then our system will work automatically means the vehicle can goes with speed limit of that zone.

CIRCUIT DIAGRAM



III. RESULT

When motor rotate, the output of the LCD Display is "Vehicle Running". When RF sense the signal, the output of the LCD Display is "Hospital aheadSPEED LOW"After Detected the Restricted Zone, the motor speed is controlled.

IV. CONCLUSION

The proposed system mainly designed in order to avoid accidents and to alert the drivers about the speed limits for safe traveling. An effective solution is provided to develop the intelligent vehicle which will operates on safest speed at critical zones. It is used to control the speed of the vehicle in hospital, school, and work zones. Accidents can be prevented which are caused by the negligent driving or speeding of the user. Heavy traffic zone are schools, hospitals, Highways, U-turn etc. There the Vehicle speed can controlled automatically without the help of the driver. At the same time it detects obstacle and stops the vehicle, so that accident will be prevented.

V. FUTURE SCOPE

Impact sensor can be used for detecting the damage cause to a vehicle during an accident.
GSM and GPRS can be used for tracing the location of the vehicle and message is send to user relatives and the police station in case of accident.

VI. REFERENCES

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