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CONTROLLING SPEED OF VEHICLES IN RESTRICTED ZONES USING RF-TRANSMITTER

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Abstract:

Every life that alive in this universe likes to enjoy the beauty in the nature, in this human beings also one kind. To words achieving these enjoy , human beings invented & created the vehicles but actually what happens they are satisfying their needs by using these, but also suffering with accidents and losing valuable lives due to rash driving of drivers especially in highly populated regions and restricted areas.

Since there is no technology involved into much controlling the speed of vehicles leads to accidents our project is based on to control the vehicle speed to reduce accidents. Till now the speed control only in heavy vehicles (trucks) in that they uses a fixed speed limit control after vehicle reached to that speed limit they can't increase their speed, now we are improving advanced technology of this, if any vehicles enters into a restricted zones (hospitals, school zones,...etc.,) then the speed of vehicle is reduced to minimum speed limit(40kmph) by speed controllers in this project by this the speed of vehicle is governed than control the accidents in restricted areas and highly populated regions.

I. Introduction

Most of the road accidents occur due to over speed and rash driving of vehicles on public roads. The road accident graph is drastically increasing in day to day life, we are losing their lives to reduce this graph the government introducing so many rules but they can't controlling fully accidence ,to reduce accidence we are going through this project ,when we started these project we decided to do with RFID because but RFID covers the complete road because it detects the tag

between very smaller distance So, we are moving to RF-TRANSMITTER by this we can overcome from this problem and it is also not expensive.

When, vehicle enters into a restricted zones for example take a school zone the input is given to the controller by Rf-transmitter (vehicle enters into a school zone) then controller controls the speed of vehicle by speed controller present in the vehicle.

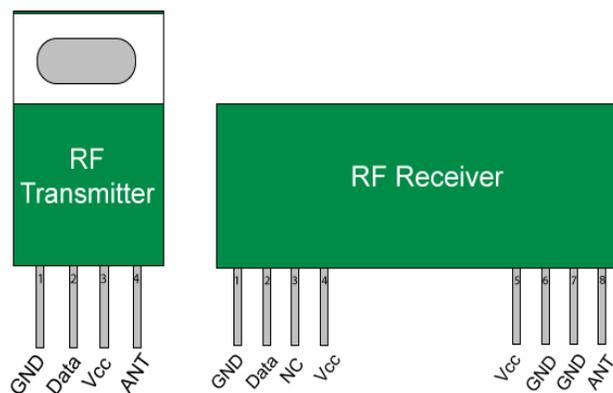
1. RF-Module

The RF module, as the name suggests, operates at Radio Frequency. The corresponding frequency range varies between 30 kHz & 300 GHz. In this RF system, the digital data is represented as variations in the amplitude of carrier wave. This kind of modulation is known as Amplitude Shift Keying (ASK).

Transmission through RF is better than IR (infrared) because of many reasons. Firstly, signals through RF can travel through larger distances making it suitable for long range applications. Also, while IR mostly operates in line-of-sight mode, RF signals can travel even when there is an obstruction between transmitter & receiver. Next, RF transmission is more strong and reliable than IR transmission. RF communication uses a specific frequency unlike IR signals which are affected by other IR emitting sources. This RF module comprises of an RF Transmitter and an RF Receiver.

The transmitter/receiver (Tx/Rx) pair operates at a frequency of 434 MHz. An RF transmitter receives serial data and transmits it wirelessly through RF through its antenna connected at pin4. The transmission occurs at the rate of 1Kbps - 10Kbps. The transmitted data is received by an RF receiver operating at the same frequency as that of the transmitter.

The RF module is often used along with a pair of encoder/decoder. The encoder is used for encoding parallel data for transmission feed while reception is decoded by a decoder.



2. RF-Transmitter Working

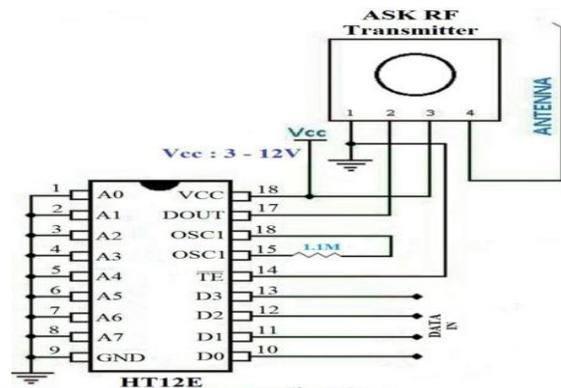
I. Transmitter modules

An RF transmitter module is a small PCB sub-assembly capable of transmitting a radio wave and modulating that wave to carry data. Transmitter modules are usually implemented alongside a micro controller which will provide data to the module which can be transmitted. RF transmitters are usually subject to regulatory requirements which dictate the maximum allowable transmitter power output, harmonics, and band edge requirements.

II. Receiver modules

An RF receiver module receives the modulated RF signal, and demodulates it. There are two types of RF receiver modules are super heterodyne receivers and super-regenerative receivers. Super-regenerative modules are usually low cost and low power designs using a series of amplifiers to extract modulated data from a carrier wave. Super-regenerative modules are generally imprecise as their frequency of operation varies considerably with temperature and power supply voltage. Super heterodyne receivers have a performance advantage over super-regenerative they offer increased accuracy and stability over a large voltage and temperature range. This stability comes from a fixed crystal design which in turn leads to a comparatively more expensive product.

III. Transmitter circuit diagram



3. Working

In this we keep two transmitters in school zone transmitter-1 is keeping one end of the school zone and transmitter-2 is keeping in another end of the school zone. When vehicle enters into a school zone Rf-transmitter transmits the data (entered into a school zone) rf-receiver present in the vehicle receives this data it gives input to the microcontroller, especially in school zone busy hour is between only 8am-10am, 12pm-1:30pm, and 3pm-5pm because these are the break

times and school opening and closing times remaining time speed controlling is no need in vehicles because apart from this time school zone will not be so busy, when it is school zone microcontroller check with timer also, if time is between the specified time(only in school zones time is considering), parallel it gets the data from speed detecting sensors(to know the speed of vehicle) microcontroller compares the data is getting from speed controller with minimum speed limit, if speed is greater than minimum speed microcontroller gives the instruction to speed controller to control the speed of vehicle to the minimum speed.

4. Conclusion

The paper has an RF-transmitter gives input to the vehicle, when vehicle enters into a speed limited zone automatically control speed of vehicle, speed of the vehicle can be maintained in the limited speed without interaction by driver .By this we can control the accident in speed limited areas .If it is implemented in road ways of our country we can reduce the accident in populated areas large extend.

5. Advantages

- Accident reduce in populated zones.
- Reduces rash driving in populated areas.

6. References

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