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ZONE BASED VEHICLE SPEEDCONTROLLER

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ABSTRACT

To control the speed of the vehicle in speed limit zones, the drivers are alerted that they are in a speed limit zone by sign boards nearby roads. In case of not controlling the speed manually the speed will be controlled automatically by the zone based vehicle speed controller and also the ahead of speed limit zones will be indicated before 5 meters in the vehicles display. Smart display and control can be custom designed to fit into a vehicles dashboard, and display information on the vehicle. Once the data is received from the zones, the vehicles embedded unit automatically give the signal to the engine control mechanism for the limiting the vehicle speed. In this mechanism mainly there will be a RF transmitter and receiver. The receiver will be attached in the vehicle that is controlled with a micro Controller. Whenever the vehicle is within the transmitter zone, the Vehicle speed is controlled by receiving the signal, i.e.., every time the vehicle speed is reduced to Some Cutoff and kept constant Until the vehicle moves out of the transmitter zone, and then the vehicle can get accelerated by itself.

Key Words: ***RF, Speed Reduction Of Vehicle, Embeddedsystem***

I INTRODUCTION

Road safeties are the major concern in the developed world. Recent studies show that one third of the number of fatal or serious accidents are associated with excessive or inappropriate speed, as well as changes in the roadway[1] (like the presence of road-work or unexpected obstacles). Reduction of the amount of accidents and mitigation of their consequences are a huge concern for traffic authorities, the automotive industry and transport research studies.This current system is advanced driver assistance systems (ADAS) which indicates a visual signal. The driver manually controls the speed after seeing the signal. Zones are identified by GPS technology that maintains a constant user preset speed. Problems in this system is that visual signals produced by the vehicle to communicate to the driver are acoustic, hectic which results in the possibility of a collision. The dynamic updating of the road map is not always available. The driver may not consider the speed limits.The main objective of this paper is to design a display controller meant for vehicle speed control which indicates the zones. It plat formed on an Embedded System. Smart display and control can be custom designed to fit into vehicles dashboard.

II BLOCK DIAGRAM

The signal data is encoded by the encoder and the RF transmitter propagates the signal through antenna.On the receiver end, the antenna receives the signal and decodes it using decoder which is then send to micro controller. Based on the micro controller output it is passed to vehicle unit which then alters and controls the speed of the vehicle. The block diagram for the RF transmitter and receiver are shown in the fig 1 and 2 respectively.

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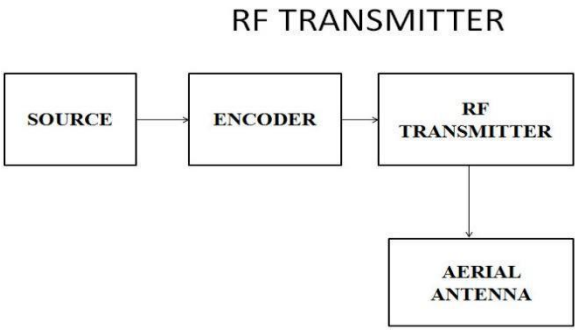

Fig 1: RF Transmitter

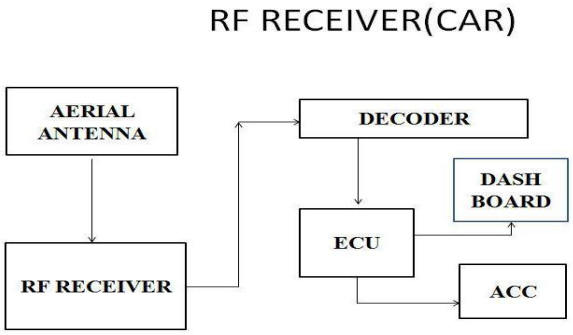

Fig 2: RF Receiver

III CIRCUIT DIAGRAM

The circuit diagram for the RF transmitter and the receiver is shown in the fig 3 and fig 4 respectively. These diagram shows the interconnection of transmitter and the antennas

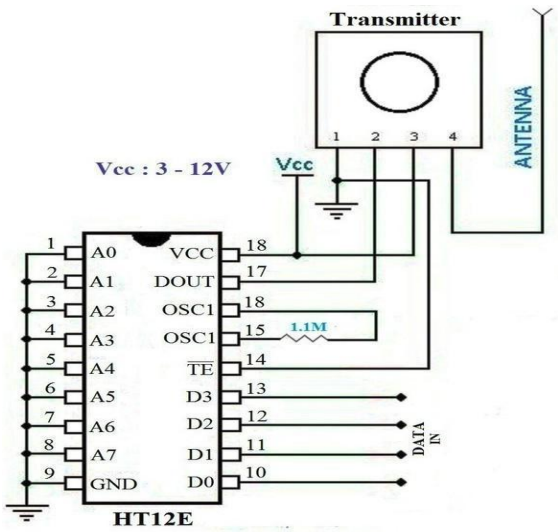

Figure 3: Transmitter-Circuit Diagram

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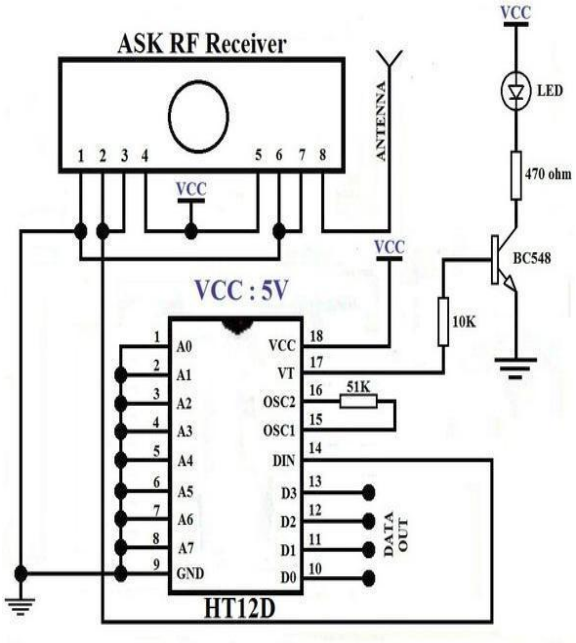

Figure 4: Receiver-Circuit Diagram

IV WORKING

The following section will give the details of the working of the transmitter and receiver used in the vehicle controller

4.1 Transmitter

The HT12E Encoder encodes 12-bit parallel data to serial data. These 12 bits are divided into 4 data bits and 8 address bits. When the trigger signal is received on the transmitter enable pin14 the address and data bits are transmitted symultaneously.HT12E establish a 4-bit transmission cycle upon the receiving of the enabled signal. The transmission cycle is repeated till the transmitter enable pin is kept low. The RF transmitter follow ASK (Amplitude shift keying) technique for transmitting data. It produces an output frequency of 433MHz.

4.2Receiver

RF Receiver antenna receives the information from RF Transmitter (Fig.1). The data output is given to the decoder HT12D.The decoder converts serial input data into parallel data. The valid transmission is indicated by a high at VT pin17.

The VT pin output is given to the relay driver circuit. Relay is driven to switch the voltage. If the VT pin output is high relay switches the +5V to micro controller input pin4.If the VT pin output is low relay switches 0V to the microcontroller input pin4.Microcontroller receives input from the relay driver. When the input is 5V, microcontroller produces the output at pin18and pin19 and also to the LCD display.

The output of pin 18 is given to relay driver circuit. By this time relay 2 switches to 1.5V, now the speed of the

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vehicle is decreased. The output of pin19 is given to buzzer for indicating school zone area.

The above process is done only when the vehicle is in the range of RF TX area. (i.e. School zone area).If the vehicle is out of RF TX area, then the output of microcontroller pin18 and pin 19 is low. The buzzer and the LCD display is switched off. This time relay 2 switches to 3V so the vehicle runs at full speed.

V CONCLUSION

Here by we conclude that this project is very easy to establish on current system. It is cost efficiency and durable. It ensures maximum safety to passengers and public, the driver will know all information about the road without distracting him from driving. The driver gets all information even in bad weather conditions. It works on low power. The system will serve as an additional precautionary as well as safety enhancement if the application find its way into the automobile industries

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