Vehicle Monitoring System using IoT

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Abstract: "Violation of traffic rules may leads to traffic congestion and accidents". India is the most populated Country. Death rate is increasing day by day due to more accidents and people are exhausted by the severe traffic congestions. To reduce these traffic congestions and accidents we are proposing a model which will help to ensure the safety of riders and also the traffic congestions. We have used different sensors like Vehicle Speed Sensor (VSS) and the Vehicular Motion Sensor (VMS) and alarms. We have proposed an IoT (Internet of Things) based model which will continuously monitor the values of the sensors.

Keywords: Accidents, Traffic Congestion, Sensors, Alarms, IoT, Microcontroller.

I. Introduction

India is the most populated country. Traffic control is being a biggest challenge for the traffic police. Though the government is taking the necessary measures to control the traffic, the citizen's co -operation is less. Reaching the destinations is becoming the major task for the people. Because of busy schedules and hurry, people are violating the traffic rules and so leading to traffic congestions and accidents.

In this paper we are proposing a model which controls the traffic congestions and accidents. In this model, we have used different sensors like -

Vehicle Speed Sensor which measures the speed of the vehicle and alerts the rider when the speed limit of 60KMPH is crossed. Vehicular Motion Sensor will alert the rider when the other vehicles/obstacles are approaching near.

IoT (Internet of Things) is relatively new and fast developing concept. By using IoT- Based technology people can reduce the traffic congestion and the accidents.

II. Block Diagram
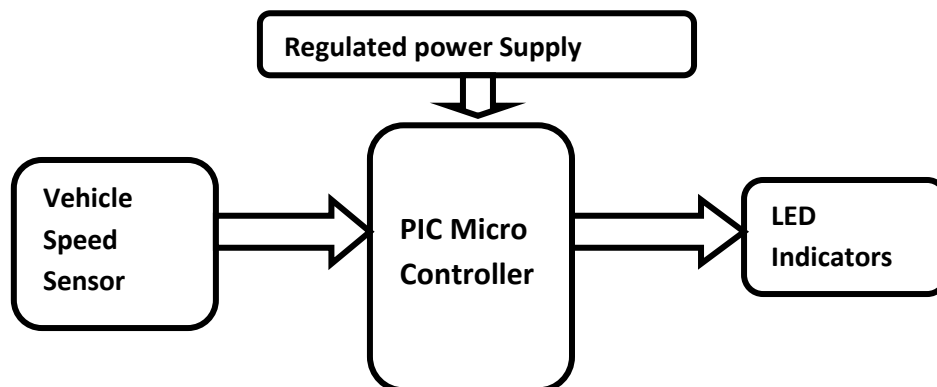
Block diagram of vehicle Speed Sensor.

Fig: 2.1

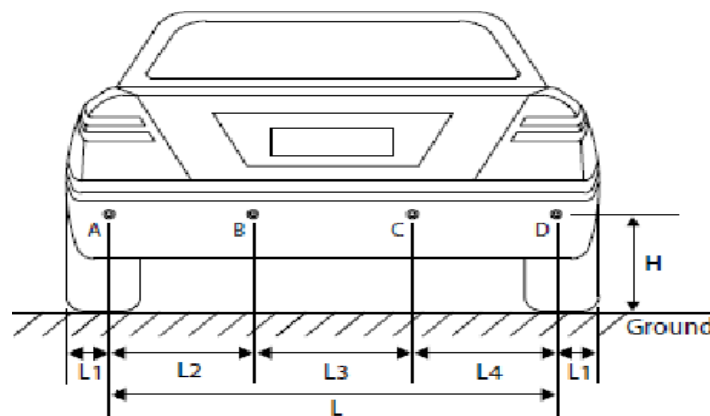Block diagram showing the Vehicular motion sensors mounted on the vehicle:
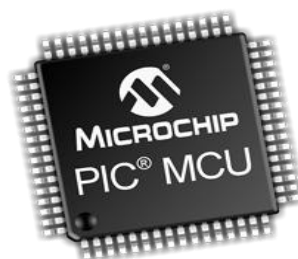
Fig: 2.2

III. Hardware

A) Vehicle Speed Sensor:

In the Fig 2.1, we have used a Vehicle Speed sensor to measure the speed of the vehicle. This sensor mainly works with the Hall Effect Principle. This sensor is given 12Volts from the ignition key and it receives the signal indicates the speed of the vehicle from the hall switch.

B) PIC Micro controller:

In the fig 2.1, we have used a PIC micro Controller which is termed as Peripheral Interface Controllers developed in the year 1993 by Microchip technology. The advantages of using this microcontroller include low power consumption, high performance, supports hardware and software.

Peripheral Interface Controller

C) LED Indicators:

In the Fig 2.1 we used the LED indicators to indicate vehicles to maintain the distance from the other vehicle.

D) Vehicular Motion Sensor:

In the Fig 2.2, the vehicular motion sensors are mounted on the vehicle. This sensor consists of two main parts:

1) A collection of sensors that monitor the surrounding area to detect obstacles in the vehicles path.

2) A user device that alerts the rider when an obstacle is present.

IV. Working

In this model, the PIC micro controller is connected with vehicle speed sensor and the LED indicators. When the vehicle is started, the microcontroller internal timer and counter start automatically and calculate the vehicle speed and if the speed limit crosses over 60 KMPH the alarm raises and the LED indicators start blinking to alert the back vehicles. The entire hardware runs automatically with the help of embedded C programming dumped into PIC microcontroller. The vehicular motion sensors are mounted on the vehicle. This sensor monitors the surrounding area to detect obstacles in the vehicles path and alerts the rider when an obstacle is reaching near to it.

V. Conclusion

IoT (Internet of Things) is a simple concept, taking all the things in the world and connecting them to the internet. The real power of Internet of things is, it can send information and receive the information from the things and act upon it. IoT has become very popular and it has been used in various applications like farming, Health and Safety, Disaster management, etc.   The proposed model ensures the safety of the people from accidents and also reduces most of the traffic congestions.

VI. References

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