Smart Vehicle Monitoring System

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Abstract— Security in travel is primary concern for everyone. This Project describes a design of effective information system that can monitor an automotive / vehicle / car condition in traveling. This project is designed to inform about the location of vehicle, accident that is occurred to a vehicle to the family members of the traveling persons and leakage of gases from the vehicle which in turn causes accidents. This project uses accelerometer sensor which can detect the unevenness of vehicle and vibrations when an accident is occurred. This sends a signal to microcontroller. Vehicle accident detection system using GSM and GPS modems is done. Messages notifications are sent to the mobile number which is prescribed. This monitoring system is composed of a GPS receiver, pic and a GSM Modem. GPS Receiver gets the geo satellite information satellites in the form of latitude and longitude. The arduino processes this information and this processed information is sent to the user/owner using GSM modem. A GSM modem is interfaced to the MCU. Heat sensor used to detect temperature level and leakage of harmful gases in the vehicle.

Key words: Smart Vehicle, GSM Modem, Monitoring System

I. INTRODUCTION

Smart vehicle monitoring system this project is basically based n the various sensors and output devices .This is also called as the automatic vehicle monitoring devices. This is very unique technique to know the actual position and current status of your vehicle simply on you're on your cell phone .it is very convenient as we get the status of your vehicle on your mobile phones. This device this very usefull for those people who are involved in the transport business. however the traditionally used medium to monitor the vehicle have to a saturation level. There is need to explore the new kind of technique which is simpler to implement and this project is not that costly and affordable to everyone. This can implement in household application as well as commercial purpose. The main advantage of this system is simplicity of automation on just cell phone. Another major factor is the simplicity and easily availability of the ground level of information by just requesting on a text message. This project will enhance the productivity of the transport system and it will useful to detect the fraud business in the transport sector. By the use of many sensors we can get valuable data and this will easily available platform to monitor the current situation of the driver and condition of vehicle
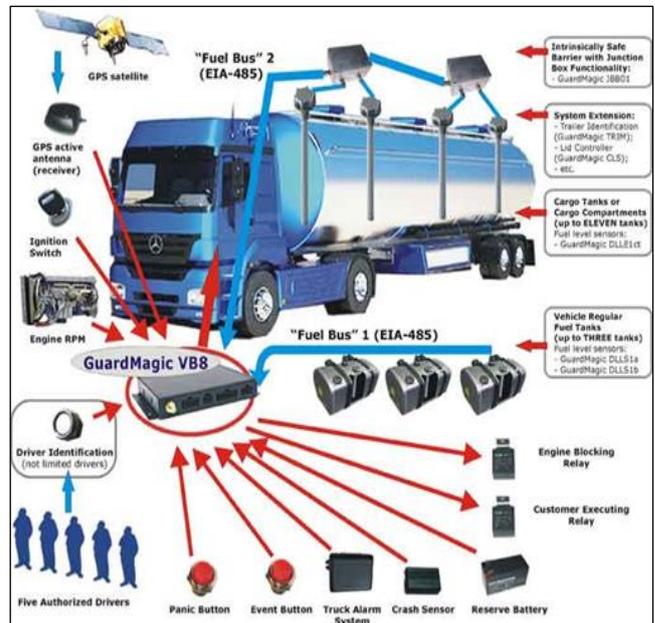
II. PROBLEM STATEMENT & OBJECTIVE

Problem statement: To design user friendly kit for the people who are involved in the transport business, to transmit the data on the users cell phone just by sending the request message.

A. Objective

Our goal is to successfully transmit the current status of the vehicle in terms of
1) Tyre status
2) Fuel status
3) Speed status
4) Viper status
5) Alcohol status

This kit is very promising technology with many probable application which would immensely benefits all. Through our project we look forward to contributing to this technology and search for ways to make it more consumer friendly.

III. BLOCK DIAGRAM
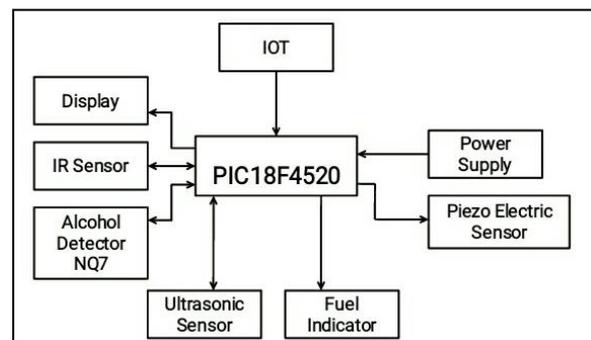
A. Power Supply

Power supply gives 5v supply to the PIC microcontroller and other block also work on 5v DC.

B. Ultrasonic Sensor

It emits short and high frequency sound pulse at regular interval of time, if the obstacle occurs then it gets reflected back as sound echo itself as a computer. The distance to the target based on the time span between emitting the signal and receiving the echo.

C. Alcohol Sensor

It is suitable for detecting the alcohol concentration on your breath, just like your breath analyzer. It has a high sensitivity and fast response time sensor provides an analog resistive output based on alcohol concentration.

D. Piezoelectric Sensor

It is the device that works on the piezoelectric effect to measure changes in pressure, acceleration, temperature, strain and force by converting them into an electrical charge. The prefix pieze is greek for press and squenze.

E. IR Sensor

The circuit required to make an IR sensor consists of two parts, the emitter circuit and receiver circuit the emitter is simply an IR led and detector is simply and photodiode which is sensitive to IR light of the same wavelength as that emitted by the IR LED.

F. Fuel Indicator

The level detection and measurement by using capacitance sensor principle of operation. The principle of capacitive level measurement is based on the change of capacitance. There are two capacitive sensors. One plate is acts as insulated plate and other plate is acts as fuel wall.

IV. CONCLUSION

In this paper, we have reviewed a various existing techniques of vehicle tracking, monitoring and alerting system. We have studied various technologies, algorithms and methods for tracking, monitoring and alerting system. Every system has its own importance; different authors have tried different methods based on applications. Still there is scope to optimize different methodologies and algorithm to make system more users friendly and wide application areas. For future enhancement, we may develop a vehicle tracking, monitoring and alerting system using combination of RFID system, GPS, GSM/GPRS with high speed processor. The system will have latest technology and optimized algorithm with moderate cost. The system may focus on accurate arrival time prediction and real time position of vehicle. The system can be installed in cargo, trucks, buses, cars and boats.
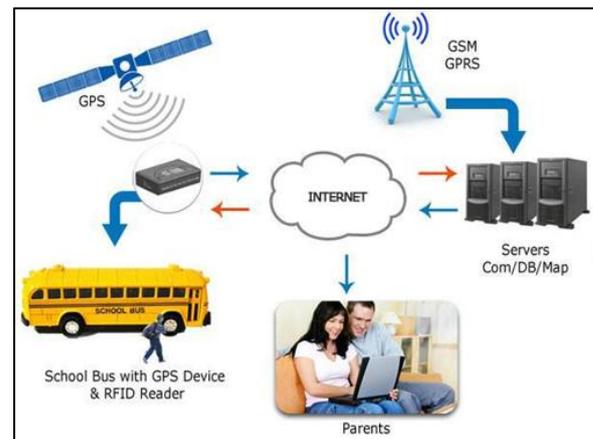
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