IOT Based Anti-Theft Petrol Using Electric Control Valve

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Abstract: Tracking system that basically locates the vehicle to which it is attached to is the major objective and this can be achieved by the combination of a tracking sensor plus the devices or things that can communicate the got data to the junction point from where it will be sent to the server and the rest of the processing takes place thereby providing a correct notification or alarm for the user that his or her vehicle is been misused in terms of fuel theft.

Keywords: Devices, Fuel, Internet of things, Theft.

I. Introduction

Thousands of vehicles such like two wheelers and four wheelers are lost and some are recovered by the police using the filed complaints. Tracking the actual owner of a vehicle by an official with the help of the RTO records is a tedious and time consuming process.

Many technologies has been introduced but still they fails to give a perfect solution for the theft matters. This project with a Fuel monitoring system controlled by an android device seems to give a perfect solution for the problem.

The system uses geographic position and time information from the Global Positioning Satellites. The system has an "On-Board Module" which resides in the vehicle to be tracked and a "Base Station" that monitors data from the various vehicles. This module provides information about the accident to the hospital and police station. A server computer at the (remote) monitoring station, that is continuously waiting for data from the system, should record the actions of the vehicle into a database. This contains the information regarding Vehicle velocity, position, identity and temperature in two fashions. The information given to monitoring station is in continuous manner and when the accident occurs. The development of vehicular design brings public many convenience in life but also brings many problems at the same time, for example, traffic congestion, difficulty in monitoring dispersive vehicle, theft and other series of problems [4]. We are intended to made this monitoring wireless using RASPBERRY PI [3] hardware platform ported with real time operating system

II. Literature Survey

Tracking based on GSM and GPS using smartphone [1], this technologies can track and monitor by the authorized person.

GSM module send the data or the command to the microcontroller and the vehicles are acted by using the smartphones with the help of GSM module. The ATmega microcontroller is used in this module along with the two solenoid's, one is air solenoids and another one water solenoids valves interface with the GSM and GPS module.

The existing concept compared with this paper which says that the tracking and monitoring vehicles which sends information to the respective person after that they have to register the complaints which take little delay. To avoid this, the proposed system of this paper plans an commanding module which can stop the vehicles when an unauthorized person tries to steel.

An Intelligent Anti-theft Control System Using GSM and GPS [2], this paper also based on tracking, monitoring and controlling the vehicles using the android phones. This papers proposed system is mainly based on integrated smart phones placed in the vehicles with the use of an interface to an ECM using the CAN bus. Here, the ECM denoted as Engine Control Module and CAN denotes as Control Area Network.

If any unauthorized person tries to steel petrol / steel vehicles, it automatically lock the vehicles. Here the final process locking and unlocking is checked through the fuel value.

The proposed system, which can enhance the finger print monitoring system. The authorized person should register their finger print in the hand of the vehicles. So if any of the unauthorized person touch the vehicle then it automatically inform to the corresponding owner of the vehicles.

In this paper the hardware used are GPS, GSM is interfaced with atmega 162v microcontroller. A 16x4 LCD display is used to show some message to the user. First the thermal electrical generator is attached with battery. Small amount of power is generated from the silencer of the bike. AIR solenoid, then the microcontroller cut the fuel supply into the engine by solenoid valve operation. The solenoid valves are operates by the microcontroller output.

Commonly the Tracking System is used are:

Most commonly used services or system that works based on tracking the location are basically mobiles devices that carries sensitive information like credit card data, then the rest of the devices and machines like lorries, IOT etc.

III. Field Sales

Tracking user location for the travelling salesman will be a boon for their working. For example it will be easy for them to calculate the optimal route to travel.

IV. Trailer Tracking

A lorry that is used for logistics may have multiple compartments and detaching the compartments from the running lorry may be possible by expert thefts. So tracking them using the location will solve a problem.

V. Surveillance

GPS tracker in the machine that keeps track on the location and its movements. During a crisis time its much important to track of critical or vulnerable areas.

VI. Transit Tracking

Cargos while loading and unloading there is a possibility to be missed or theft so tracking them temporary will be efficient in the loading and unloading time.

VII. Fuel Monitoring

A fuel sensor that keeps track of amount of fuel inside will be a best solution to find the fuel theft.

VIII. Distance Calculation

Calculate the distance travelled by the fleet.

OBD II

Plug and play interface which provides most engine diagnostics information. In this vehicle tracking we are going to do anti-petrol theft. Which is one of the most common problem faced by the people nowadays.

Nowaday the Fuel theft is increasing day-by-day. It increases by 1.47 million throughout the world.

For that purpose we have planed to the bring solution with the motive:

- Have to stop the theft control with the simple installation.
- It should very less in cost which is affordable to Each and Every vehicle holder.
- We have decided to form an electric circuit which controls the Electric valve instead of manual valve.

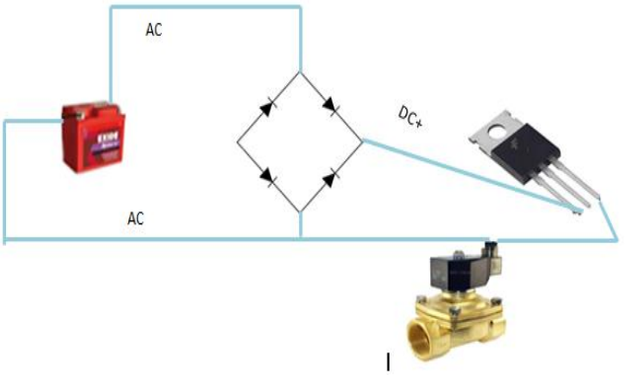

Fig. 1: Process of the Commanding Module

IX. Hardware Implementation

Materials required for the installation:

1. Electric control valve
2. Voltage regulator
3. Diode
4. Battery
5. Tubes

X. Advantage of this Circuit

It has a bridge rectifier so allows current only in one direction, so no more supply can interrupt the valve, so the theft is completely impossible until the valve or tank is broken.

If we done the project in large quantity it will be only around 100-200 rupees.

XI. IOT Concept

The IOT concept plays a vital role in this project. Here the information regarding the bike such like the level of petrol, then about the usage i.e. mileage given by the bike and if some other tried to theft the bike means those information are intimated to the User mobile.

XII. Conclusion

Monitoring Fuel Theft-Using this monitoring process it provides a threshold value to fuel engine which will not allow the fuel to go below a certain level. Each process is monitored and if the petrol level is reduced when the vehicle is in rest then it is informed through SMS to the registered number.

In this paper, a proposed system called novel method which is mainly used for tracking the vehicles and monitoring the petrol when they are in rest at a place. This monitoring and tracking process is used by GPS and GSM technology. Each vehicle is monitored; if the theft is identified using the GSM the message is send to the registered number, responsible person for the vehicles. Using the GSM process, the SMS gives the alert to the micro controller, and then the process gives the request to the control signals to stop the engine motor. Then all the doors are locked and those doors can be released only after the authorized person enter the password and restart the vehicles. Hence, this method is easy to track and monitor the vehicle and lock the door when the unauthorized person tries to steel. For future purpose a camera can be attached with this. Long range IR sensors can also be used to avoid vehicle collision. Finger print scanner can be one of the future process which scan the authorized person finger and can easily detect if any unauthorized person touch the vehicles and also detecting the behavior is also implemented, whether the driver / authorized person who is driving is in sleepy mood or alert mood.

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