

VEHICLE THEFT DETECTION/NOTIFICATION WITH REMOTE ENGINE LOCKING

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Abstract:

The main purpose of this paper is to prevent vehicle theft. This functionality is achieved by detecting vehicle status in theft mode and by sending an SMS which is generated automatically. This SMS is then sent to the owner of the vehicle. The owner can then send back the SMS in order to disable the ignition of the vehicle. Thus in this way crimes can be reduced to a great extent as vehicles today are being stolen in large number. Hence, vehicles today require high security which can be achieved with the help of this application. How the system works is when a person tries to steal the vehicle, the microcontroller is interrupted and the command is sent to the GSM modem to send SMS. On the receipt of the message, the owner sends back the SMS to the GSM modem. This is done in order to stop the engine. This GSM modem is interfaced to the microcontroller. This microcontroller on the receipt of the message uses a mechanism that helps to stop the engine. Motor is being used in this project in order to indicate vehicle ON/OFF state. Further enhancement can be done to this project by using a GPS system that helps to find out the exact position of the vehicle with the help of its latitude and longitude which then can be sent to the owner of the vehicle via SMS. This data can be then entered by the owner on Google map to find out the exact location of the vehicle.

Keywords: Vehicle theft, GSM modem, GPS system, Security, tracking.

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INTRODUCTION

Vehicle tracking system main aim is to give Security to all vehicles. Accident alert system main aim is to rescuing people in accidents. This is improved security systems for vehicles. The latest like GPS are highly useful now a days, this system enables the owner to observe and track his vehicle and find out vehicle movement and its past activities of vehicle.

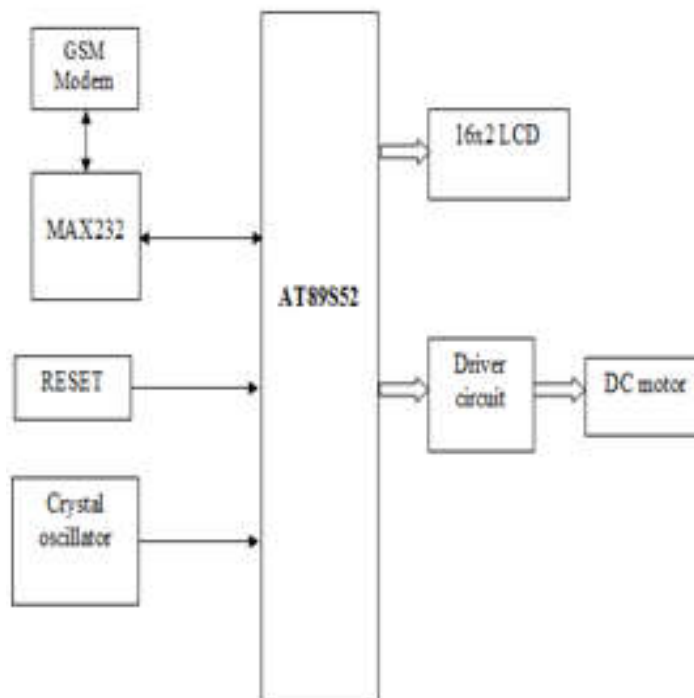
This new technology, popularly called vehicle Tracking Systems which created many conditions and sends GPS coordinates to the specified mobile, computer etc. The fire detector circuit in it is used to detect fire in the vehicle, if the temperature inside the vehicle goes above a certain limit then a warning will be automatically send to the intended receiver. The infrared sensor which is additionally interfaced to the microcontroller is used to detect the obstacles and accidents, in any case if any mishap occurs then its warning will be directly send to the intended receiver.

When a request by user is sent to the number at the modem, the system automatically sends a return reply to the particular mobile indicating the position of the vehicle terms of latitude and longitude. A Program has been developed which is used to locate the exact position of the vehicle and also to navigated track of the moving vehicle on Google Map.

The proposed system is used for positioning and navigating the vehicle with an accuracy of 10 m. The Exact location is indicated in the form of latitude and longitude along with the exact Navigated track on Google map. The system tracks the location of particular vehicle and sends to users mobile in form of data and also to microcontroller. The arrived data, in the form of latitude and longitude is used to locate the Vehicle on the Google maps and also we can see the output on the LCD.

WORKING:

Block diagram:



1) Vibration Sensor: It is a kind of piezoelectric sensor. It detects the amount of vibration, compares it with threshold level set by user and gives high pulse at its output. We have used Digital output vibration sensor.

2) Ignition Lock: This is used to identify that owner has left the vehicle. Any action after key removal will be considered as invalid access to the vehicle.

3) Microcontroller: We have used 8051 series Microcontroller, AT89S52.8051 communicates with sensor, ignition key, LCD display, GPS modem and GSM modem.

4) LCD display: This is non-mandatory component of the circuit. However, it is important part while developing the project.

6) GSM Modem: Microcontroller sends AT commands to the GSM modem. Then GSM modem sends SMS.

7) Buzzer: This will be turned on when Vibrations are detected. The embedded system installed in the engine of the vehicle along with the GSM modem. By entering a correct password, the instrument allows to activate the 12v relay and then ignition of the engine will start. Hence starts the vehicle. If anyone tries to access the vehicles password or theft the vehicle, then the MCU will block the entry of further password. Then the buzzer will turned on to create a noise to panic the culprit, followed by sending a message "Alert: Car Is Under Threat" through GSM modem to the owner's mobile for further action for prevention of his vehicle. According to the prototype model after entering correct password the Fan will move and at the same time, according to the instruction it will run forward for 10 sec and backward for 10 sec like an automobile. Password can be changed by the following proper procedure. First enter #, then enter the old password, then new password. Now test, whether the new password is working or not. As per algorithm given below the new password will retain even after power failure. So it will work as usual. The source code is written in the embedded C language.

RESULT:

This is our project how it looks. In this Project we are using secondary transformer it is connected to the main circuit. Microcontroller is connected to the LCD Screen. Motor is used to demonstrate as the vehicle engine. Interfaced GSM to send notification to the owner as soon as the theft is determined and the owner sends the SMS back with a particular code to stop the engine and after the theft has been determined. So the system works as follows.

We are using two models.

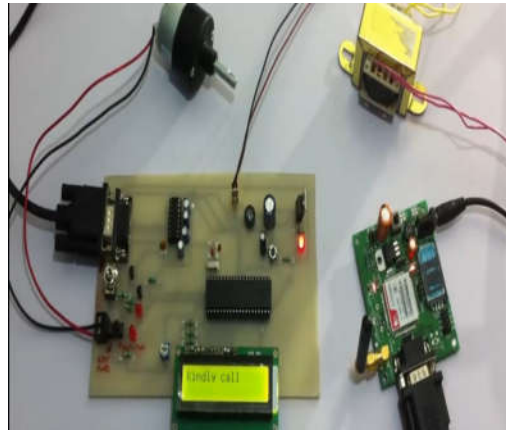
1. User mode
2. Theft mode

If the user drive in normal mode. After parking the vehicle whenever he leaves the car make sure that switch on the button on theft mode.

Somehow he starts the engine. After he starts there is some delay in message and system has been sent to the owner of the vehicle notifications the theft.

And the user get the message and the owner sends the 'X' message to the vehicle in order to stop the engine, while the vehicle receives the message and the engine stops remotely.

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CONCLUSION:

Vehicle tracking system makes better fleet management and which in turn brings large profits. Better scheduling or route planning can enable you handle larger jobs loads within a particular time. Vehicle tracking both in case of personal as well as business purpose improves safety and security, communication medium, performance monitoring and increases productivity. So in the coming year, it is going to play a major role in our day-to-day living.

Main motto of the paper is to incorporate different types of sensors so that they help in decrease the chances of losing life in such accident which we can't stop from occurring. Whenever accident is alerted the paramedics are reached to the particular location to increase the chances of life. This device invention is much more useful for the accidents occurred in deserted places and midnights. This vehicle tracking and accident alert feature plays much more important role in day to day life in future.

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The following are the references made during the development of this project work.

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