



VTDS: VEHICLE THEFT DETECTION SYSTEM

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Abstract— Now a days the cases of vehicle theft detection increases very much especially in developing country's like India .security for vehicle is available only in costly editions. This project deals with a sensor based vehicle theft detection system along with some other features like fire detection which can be implemented in any vehicle. The sensors in the system identifies any anomalies occurred in the system and inform the owner using some messages. The owner can control the vehicle from a distant location based on the messages received using an android application in his mobile device.

I. INTRODUCTION

The project deals with a novel method for vehicle tracking and locking system used to track the vehicle by using GPS and providing an alert to the owner of the vehicle by communication between android devices in occurrence of a theft. The development of satellite communication technology helps in easily identifying the vehicle location. Vehicle tracking and theft detection systems have brought this technology to the common people all around the world.

Due to fact that the cases of vehicle theft increases day by day, an efficient security mechanism is needed for our vehicle in order to protect it from robbery. There exist a lot of security mechanisms provided by the manufacturer in addition to the extra technologies available in the market, but there

exist some problems for all of this technologies and have a high cost too.

The available security systems in the market contain either a locking system or a GPS based tracking system. The problem with the normal locking system is that an expert can easily unlock the vehicle if he have the necessary tools. The GPS only tracking system also face some vulnerabilities like jamming devices and network coverage problems. These systems also come with a high implementation and maintenance cost. Most of these systems need further updates which cost more money. Currently the inbuilt security system is provided only for higher editions by most of the manufactures. The implementation of additional security system cost a large amount of money which cannot afforded by a normal user.

II. SYSTEM OVERVIEW

In VTDS we propose a combination of GSM and sensor based anti-theft detection system. This system is used to provide security for a number of vehicles. Each vehicle has an android device with in it which will help to uniquely identify the vehicle. Every android device has an IMEI number which will identify the vehicle.

The main problem with the existing theft detection systems is that there is limited user interactive methods. Our system overcome this problem by providing an efficient user interface. Through any mobile android device, we can control and track the vehicle very easily. Communication can be established between the

two android devices- one which is placed inside the vehicle and the other which is with the owner.

- Realtime Tracking System
- Fire Detection System
- User End Application

III.SYSTEM DESIGN

Our system consists of four main components:

- Theft Detection System

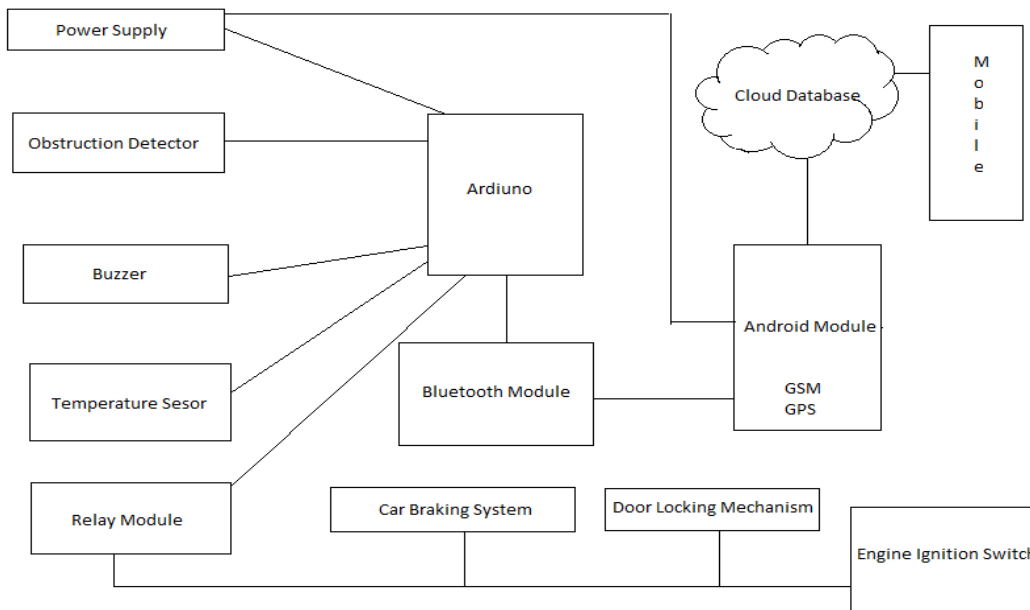


Fig 1: Block Diagram for vehicle theft detection

BLOCK DIAGRAM DESCRIPTION

The block diagram of Vehicle Theft Detection System is shown in the figure 1. It consists of a power supply section, Obstruction detection system, Relay Module, Buzzer, temperature sensor, Android Module. The power supply gives 5v DC to the circuit. Obstruction detection Sensor consists of an IR Transmitter receiver pair for detecting an intrusion. Relay block which is a 3 channel relay act as a digital switch for braking system, door locking mechanism and engine ignition switch. Buzzer is used to make an alarm when theft occurs. Bluetooth Module connects the Arduino which is the main controller to the Android Module. Arduino sends/receives messages to the android module for an action to occur. Android Module containing GSM and GPS technologies allows to retrieve location and also to communicate with Cloud Server.

THEFT DETECTION SYSTEM

The detection system includes an obstruction detection system combined with user authentication. The android module in the car needs to be setup the first time with the username and password obtained from registration on manufacturers server. On a successful login system asks to set up a password, which is used for authentication of Car. The owner has the ability to reset both the passwords ie, one in the server and the other stored in the car.

The theft detection system consists of an obstruction detection sensor which is a IR sensor placed inside the vehicle. It is placed across the driver seat. When door is locked with the key/UserEnd Application the IR sensor is enabled and if an attempt of intrusion occurred at the door the sensor detects it and the system sends an alert to the Users Mobile through the User end Application. Then user can control his vehicle using this Application on their handheld

device. On entry into the car user goes through the second stage of the verification, i.e.; The password authentication. The driver needs to enter the password in the screen placed on the car to start the vehicle. The display is a part of the android device placed in the car and if someone incorrectly type the password three times or if he try to damage the system, an alert message is send to the user device.

REALTIME TRACKING SYSTEM

Realtime tracking system consists of a satellite based GPS receiver which is present in the android module in the car. The car notifies its location to the manufacturers server whenever there is change location. The car owner can track his car's location using the user end application on his device. The car's location is calculated accurately by using measurements from both network and GPS receiver, So on locations where GPS service is not available, data from network is used or viceversa. User End Application uses Google Maps Service to precisely point the location on the device. Then using Maps service user can navigate to car's location.

FIRE DETECTION SYSTEM

Fire detection system consists of series of temperature sensors which is placed in appropriate positions in the car both inside and outside. The android module checks the temperature reported by these sensors and do necessary actions required. A threshold temperature value is calculated on base of location where sensor is placed and other conditions that affect the temperature values. Whenever there is a temperature increase than the threshold values, an alert is sent to the user. The system also sends alert to the fire & safety department to do recovery actions.

USER END APPLICATION

User end application consists of a notification system and a remote control panel to control car features such as to shutdown the car's engine, track the car, to fully lock/unlock the car and car door lock/unlock. Using this panel to user can remotely control car. The manufacturers server acts as a communication medium between

the system and the user end application. The notification system in the App notifies user whenever there is one to notify and make sure user sees it. The remote control panel can be accessed only after successful login which need the username and password of the owner obtained after registration of the product to the manufacturers server. This password can be changed by the owner through the application.

IV. CONCLUSION

In this paper, we have proposed a novel method of vehicle tracking and locking systems used to track the theft vehicle by using GPS and GSM technology. This system is in active mode whenever the user leave the vehicle and in any case of intrusion the system will detect it and inform the owner. Owner can control his vehicle remotely using is android device. When the theft identified, the owner can send SMS to the micro controller, then issue the control signals to stop the engine motor. After that all the doors locked. To open the doors or to restart the engine authorized person needs to enter the passwords. In this method, easily track the vehicle place and doors locked.

V. ACKNOWLEDGEMENT

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VI. REFERENCES

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