

GSM BASED ANTI THEFT SYSTEM FOR VEHICLES

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ABSTRACT

Antitheft security system security system utilizes an embedded system design with GSM to monitor and safeguard a car. It secures the car against theft. Upon activation, it secures the car using the designed circuitry. In an attempt of theft through the car doors or boot, the system sends text message to the car owner and at the same time starts up an alarm. This design popped out due to the increasing rate at which packed cars are stolen especially in our country, but with this design this packed car is being monitored irrespective of where it is packed, provided there is GSM network coverage. From the research conducted, it was found out that majority of the existing car security system uses only alarm, and doesn't send text message to the car owner let alone of demobilizing the car. But with the use of GSM network, the owner is guaranteed that the car will send text message to his phone, and at the same time, have people around alerted of what is happening. Added to this is that the car will not be that easily stolen. The use of AT&T COMMAND made the design use very few electronics component, look very small and compact that it can be hardly seen when mounted in the car

Keywords: Communication, AT&T Command, Microcontroller, GSM, Networks, Text message, Feedback.

I. INTRODUCTION

In a situation where there is high level of theft, there is need for better security system. It is much safer to have a system that monitors and communicates to the device owner. This tends to utilize the availability of GSM network, mobile phone and electronics circuit to achieve an automated system which is programmed to work as a thinking device to accomplish this purpose. With this if anyone tries to steal a vehicle then in fraction of seconds a text alert or message is sent to the registered or stored mobile communication number reporting of tempering with vehicle. This further reduces chances of theft. An embedded system is a special-purpose system in which the computer is completely encapsulated by or dedicated to the device or system it controls. This insecurity has paved way to increasing rate of stealing packed cars – even with security. In order to enhance an improved and life risk free security system, the purpose of this study is to aid a better security system of cars with the use of GSM. Anti theft system is being designed by using embedded systems and GSM technology. A brief overview of embedded system is following: Unlike a general-purpose computer, such as a personal computer, an embedded system performs one or a few predefined tasks, usually with very specific requirements.

Since the system is dedicated to specific tasks, design engineers can optimize it, reducing the size and cost of the product. Embedded systems are often mass-produced, benefiting from economies of scale.

II. RELATED WORK

The developed system makes use of an embedded system based on GSM technology. An interfacing mobile is also connected to the microcontroller. When an unauthorized person tampers with a vehicle in which an anti theft system is settled up then the microcontroller commands the GSM modem to send a text alert to the vehicle owner. Once, the vehicle is being stolen, the information is being used by the vehicle owner for further processing. In this system we interfaced 8051 microcontroller with sim-com 300 modem to decode the received message and do the required action. The protocol used for the communication between the two is AT command. The microcontroller pulls the SMS received by phone, decodes it, recognizes the Mobile no. and then switches on the relays attached to its port to control the appliances. After successful operation, controller sends back the acknowledgement to the user's mobile through SMS.

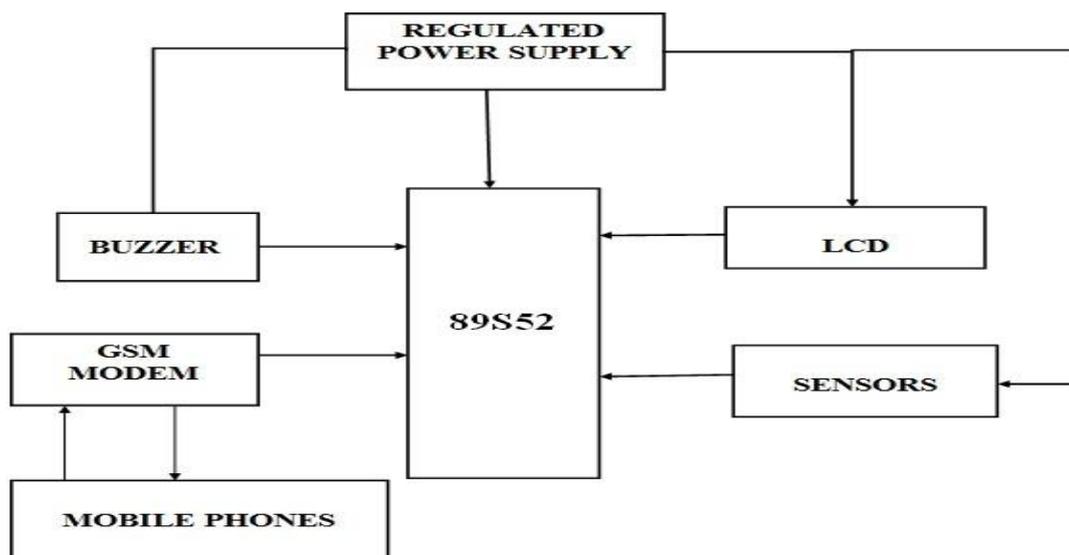


Figure: Block diagram of the GSM based Anti Theft System

III. PROPOSED METHODOLOGY

After analysing the security conditions in current day nation, this paper proposes a systematic framework that is based on the GSM and Embedded System for improving security management. This framework takes account of several key aspects such as vehicle owner authentication, identity authentication, security workflow, etc. The proposed framework has the following advantages: low cost, high performance, easy to implement, and strong security control pattern. In addition, this paper proposes a dynamic security strategy that is about authorizing user ID and conforming the rightful owner of the object else action is to be taken place.

It based on the Microcontroller and GSM detection of anyone to enter in the secure area or vehicle.

When a person want to enter in the vehicle or cabin he/she has to enter the premises with the method which is normal in nature ie: by using keys or security cards then the person is allowed to enter in the cabin or particular area. If the user tampers with the entrance or door of vehicle or any other subject where the system is installed then the rightful owner of the property receives a alert message sent by GSM module that your vehicle or property in under unauthorized control or being stolen. Further if we install a camera and a GPS device in the system then we can also identify the person responsible and can even track the location and path of stolen vehicle or object with the help of GPS device.

IV. APPLICATIONS

- Vehicles
- House hold use
- Vault purposes
- Container/ Yard Management
- Theft tracking
- Anti tampering systems
- Access management
- Security of commercial bodies

V. POSSIBLE FUTURE MODIFICATIONS

- Ignition of vehicles can also be attached to microcontroller.
- Cameras can be added to identify person responsible.
- GPS system can be added to keep the track of the stolen vehicle.
- Alarms and buzzers can be attached with the circuitry for more caution.

VI. MOTIVATION

Our final year project is GSM based Anti Theft System. This idea came to our mind when we came to know that vehicle theft rate in our country is much greater than other developing and developed countries. We thought we can integrate the GSM based Anti Theft System in vehicles for the security sake. We thought that we can also implement this in homes which have costly belongings in it. That what our final year project is doing.

VII. CONCLUSION

GSM based Anti theft system implemented on 8051 microcontroller. This is a very useful application of GSM (Groupe Special Mobile) and is very commonly used in homes, offices, vehicles, communication and so on. An GSM system consists of a modem. The modem acts as a modulator and demodulator for GSM signals. The relevant messages are also displayed on a computer screen.

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