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EMBEDDED BASED VEHICLE THEFT DETECTION AND LOCKING SYSTEM USING GSM AND GPS

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ABSTRACT

This proposed work is an attempt to design an advanced vehicle safety system that uses GSM to prevent theft and to determine the location of vehicle. Today theft is happening on the parking or in some insecure places. The safety of the vehicle is exceptionally essential. This paper deals with the design & development of an embedded system, which is being used to prevent /control the theft of a vehicle. The developed instrument is an embedded system based on GSM technology. The instrument is installed in the engine of the vehicle. When someone tries to steal the car then microcontroller gets an interrupt and orders GSM Modem to send the sms, the owner receives a SMS that his car is being stolen then the owner sends back the SMS to the GSM modem to 'STOP', while the vehicle will be stopped The control instruction is given to the microcontroller through interface, the output from which activates a relay driver to trip the relay that disconnects the ignition of the automobile resulting in stopping the vehicle.

Keywords- Automobile vehicle, GSM,GPS Location detector ,Theft Protection, Seat belt.

I.INTRODUCTION

In these days, automobile thefts are increasing at an alarming rate all over the world. So to escape from these thieves most of the vehicle owners have started using the theft control systems. The system permits localization of the automobile and transmitting the Position to the owner on his /her mobile phone as a short message (SMS) at his/her request. In case of vehicle theft situations the owner can know the vehicles current location and based on that he/she can stop the vehicle by sending a predefined SMS message to this system. After receiving SMS message from owner this system automatically stops the ignition system hence the vehicle will not function any more. The Global system for mobile communications (GSM) is the most popular and accepted standard for mobile phones in the world. It operates in 900 MHz frequency. Many people use GSM service across the world. The usage of the GSM standard makes international roaming very common between mobile users, by accessing subscribers to use their mobile phones in many areas of the world.

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II.A BRIEF REVIEW

Baburao K.,Raju V.K., SrinivasaRao S., Prabu AV., AppaRao T., Narayana . Y. V., [1] describes development of GSM (global system for mobile communication) and GPS (global positioning system) based vehicle location and tracking system. This is an embedded system which will continuously monitor a moving vehicle and report the status of it on demand, recover a stole vehicle, field service management and it is used for food delivery and car rental companies. This project is designed using 8051 microcontroller. Pethakar et al [2] Paper on RFID, GSM based vehicle tracking and employee security system consolidate the establishment of an electronic gadget in a vehicle, with reason planned machine programming to empower the organization to track the vehicle's area. At the point when the vehicle picks the worker; he/she needs to swap the RFID card. The micro controller matches the RFID card no. with its database records and sends the representative's id, taxi id & the taxicab position co-ordinates to the organization unit by means of GSM module. The GSM modem will get the message through the organization unit. On the off chance that workers end up/herself in an issue, he/she will press the catch. Microcontroller will distinguish the activity and sends a sign to the GSM which will arrange with to the organization unit and police.

III.PRESENTATION OF THE MAIN WORK

In present life, we all people can't live without transportation service for proper and perfect communication. We also know that the own vehicle play an important role in today's life. So owner not want to loss that, because of this security issues we presented this system.

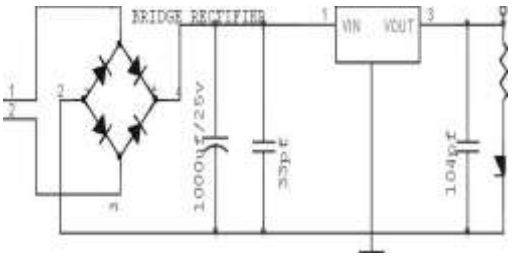

Figure :Circuit diagram of power supply

IV.METHODS

4.1 ASSEMBLY OF THE SYSTEM

We assembled all the electronic components on a single Vero board. Firstly, power supply unit is constructed using a 230V AC followed by a step down transformer and a full wave bridge rectifier. Other components like MCU, LCD, buzzer, keypad are mounted and soldered. Keypad is connected from pin 0 to 3 row wise and from pin 4 to 6 of port1 column wise.GSM modem is connected to pin 0 & 1 of port 3.LCD is connected to pin 0 to 7 of port-2 and pin 2 to pin 4 of port-0. The L293D IC is interfaced with port 0-5&6 and port 3-3 & 4.

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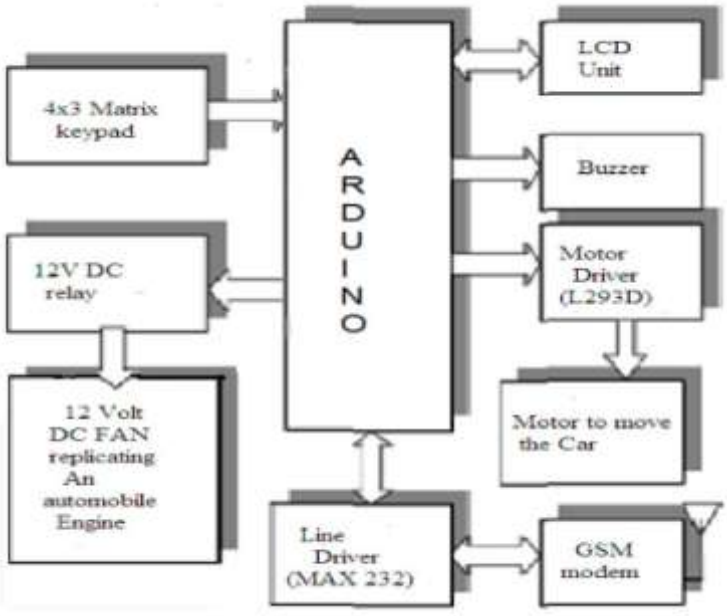
4.2 WORKING OF THE MODULE

The entire system is installed in the engine along with GSM modem. After giving the power supply and checking the status of the GSM, we enter the 4 digit password using 4x3 keypad, if the entered password matches the default password (xxxx), an SMS ("correct password, give confirmation") is sent to the owners mobile. On receiving the confirmation ("OK"), MCU starts the engine and vehicle moves forward. Else if the password is incorrect, buzzer is turned on and SMS ("incorrect password") is sent to mobile. After 3 such wrong attempts, the entire system turns off. If the status of the GSM is off, then we can operate the entire system with a switch. We can also access the kit by other mobiles, this can be done by entering 1234 on the keypad, now by sending SMS("OK") from the desired mobile to the GSM, the engine can be started.

BLOCK DIAGRAM



V.CONCLUSION

This method of the design is unique and it has features like low cost,compact and reliable theft control system for an automobile.It is a threat to vehicle thieves and it cannot be accessed by an unknown persons since it is based on GSM technology.

5.1FUTURE SCOPE

This embedded system will be used in all automobile vehicles in next generations due to its features.In addition to this we can also add extra features like GPS to identify the location of the vehicle and also to prevent vehicle collision and accidents.

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