

ADVANCE ELECTRIC SHOCK BASED VEHICLE SECURITY SYSTEM

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ABSTRACT

In this project we give a new idea of vehicle security. This idea is future applicable in India and other country. In this system we use advance technology of security. If any person wants to start the vehicle system demand id for security. If ID is valid vehicle is start and provide GSM calling to respective person and person want to lock the car and electronic shock can be activated by GSM technology. If person's id is in valid system automatically check the status of id and provide the GSM calling to honor person and person can be start electronic shock. In this case any person cannot touch the vehicle.

KEYWORDS: *Microcontroller 89S52, Global Positioning System (GPS), Global System for Mobile Communications (GSM) and tracking.*

I. INTRODUCTION

In this project we give a new idea of vehicle security. This idea is future applicable in India and other country. In this system we use advance technology of security, if any person want to start the vehicle, system demand id for security if ID is valid vehicle is start and provide GSM calling to respective person and person want to lock the car and electronic shock can be activated by GSM technology. If person id is in valid system automatically check the status of id. And provide the GSM calling to honor person. And person can be start electronic shock. In this case any person cannot touch the vehicle.

- Part of project:
 1. Electronic shock: in this mode we make 180v shock, 220v shock.
 2. Password security: in valid person cannot start the vehicle.
 3. GSM info: GSM system provide the wireless information to honor of vehicle.
 4. Full-duplex communication; person can be lock or stop the car by GSM technology.
- SURVEY OF THE RELATED WORK

Many researchers have proposed many anti-theft systems. This system is an integration of more modern technologies System included in uses a GSM which serves as a mediator between outside world and system, its output is in form of frequency, there is need of Dual-tone multi-frequency decoder for converting frequencies into voltage levels of zeros and ones. Microcontroller used as an 8-bit which serves a less than other 16-bit, 32-bit microcontrollers. The proposed system in this paper is designed to give complete security to automobile.

- PROPOSED METHOD

In this proposed work, a novel method of vehicle tracking and locking system used to track the theft vehicle by using GPS and GSM technology. This system puts into sleeping mode while the vehicle handled by the owner or authorized person otherwise goes to active mode, the mode of operation changed by in person or remotely. If any interruption occurred in any side of the door, then the IR sensor senses the signals and SMS sends to the microcontroller. The controller issues the message about the place of the vehicle to the car owner or authorized person. When send SMS to the controller, issues the control signals to the engine motor. Engine motor speeds are gradually decreases and come to the off place. After that all the doors locked. To open the door or restart the engine, authorized person needs to

enter the passwords. In this method, tracking of vehicle place easy and doors locked automatically, thereby thief cannot get away from the car.

II. GPS TECHNOLOGY

The Global Positioning System (GPS) is a satellite-based navigation system consists of a network of 24 satellites located into orbit. The system provides essential information to military, civil and commercial users around the world and which is freely accessible to anyone with a GPS receiver. GPS works in any weather circumstances at anywhere in the world. Normally no subscription fees or system charges to utilize GPS. A GPS receiver must be locked on to the signal of at least three satellites to estimate 2D position (latitude and longitude) and track movement. With four or more satellites in sight, the receiver can determine the user's 3D position (latitude, longitude and altitude). Once the vehicle position has been determined, the GPS unit can determine other information like, speed, distance to destination, time and other. GPS receiver is used for this research work to detect the vehicle location and provide information to responsible person through GSM technology.

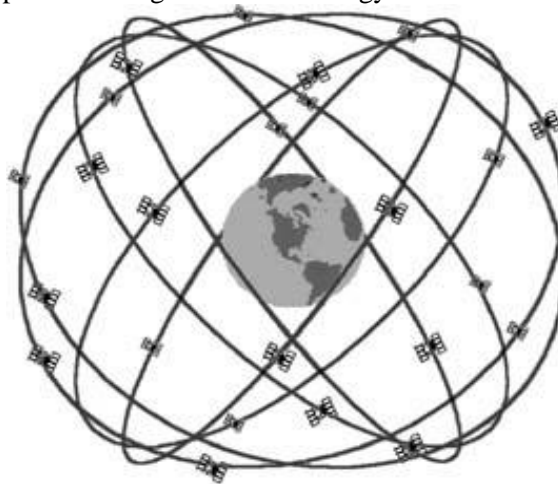


Fig 1: GPS Satellite in Orbit

III. GSM



Fig 2: GSM Layout

GSM is the most popular technology in the world. The name GSM first comes from a group called Group Special Mobile (GSM), which was formed in 1982 by the European Conference of Post and Telecommunications Administrations (CEPT) to develop a pan-European cellular system. That would

replace the many existing incompatible cellular systems. When GSM service started in 1991, the abbreviation "GSM" was renamed to Global System for Mobile Communications. GSM uses Frequency Division Multiplexing and Time Division Multiplexing. FDMA divides the frequency ranges for GSM.

IV. DESCRIPTION OF COMPONENTS

- Microcontroller

A microcontroller is a single chip that contains the processor (the CPU), non-volatile memory for the program (ROM or flash), volatile memory for input and output (RAM), a clock and an I/O control unit. Also called a "computer on a chip," billions of microcontroller units (MCUs) are embedded each year in a myriad of products from toys to appliances to automobiles. For example, a single vehicle can use 70 or more microcontrollers.

The AT89S52 is a low-power, high-performance CMOS 8-bit microcontroller with 8K bytes of in-system programmable Flash memory. The device is manufactured using Atmel's high-density non-volatile memory technology and is compatible with the industry-standard 80C51 instruction set and pin out. The on-chip Flash allows the program memory to be reprogrammed in-system or by a conventional non-volatile memory programmer. By combining a versatile 8-bit CPU with in-system programmable Flash on a monolithic chip, the Atmel AT89S52 is a powerful microcontroller which provides a highly-flexible and cost-effective solution to many embedded control applications.

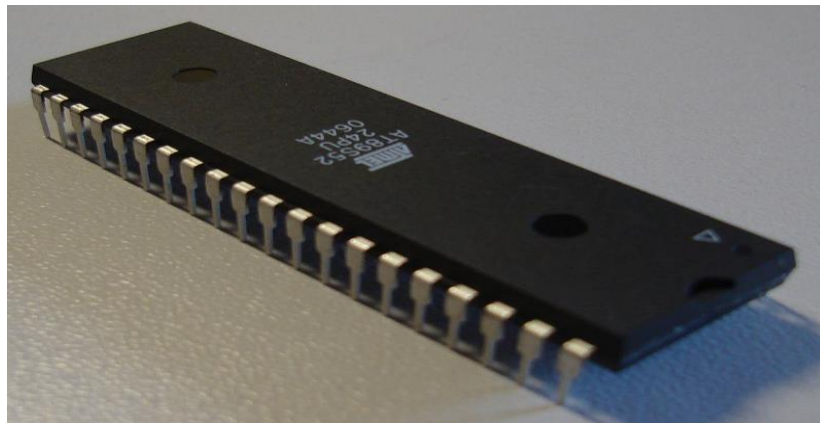


Fig 3: Microcontroller.

- LCD

LCD (Liquid Crystal Display) screen is an electronic display module and find a wide range of applications. A 16x2 LCD display is very basic module and is very commonly used in various devices and circuits. These modules are preferred over seven segments and other multi segment LEDs. It is a flat-panel display or other electronic visual display that uses the light-modulating properties of liquid crystals. Liquid crystals do not emit light directly. LCDs are available to display arbitrary images (as in a general-purpose computer display) or fixed images with low information content, which can be displayed or hidden, such as preset words, digits, and 7-segment displays as in a digital clock. They use the same basic technology, except that arbitrary images are made up of a large number of small pixels, while other displays have larger elements.



Fig. 4: LCD

V. BLOCK DIAGRAM

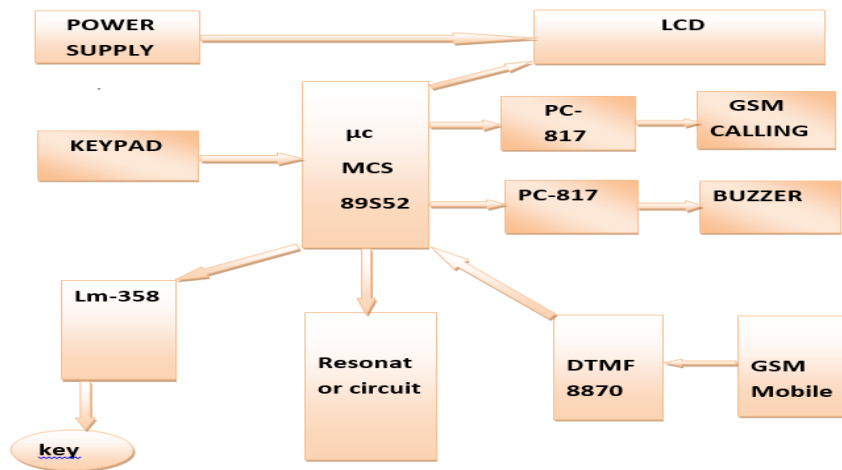


Fig. 5: Block Diagram of Electric Shock Based Vehicle Security System

The working of the project can be best described with the help of the following block diagram. Advanced electric shock based vehicle security system consist of GSM mobile , DTMF ,resonator circuit, lm-358 keypad, power supply, LCD and microcontroller.

VI. CIRCUIT SIMULATION

The block diagram shows the circuit simulation of the project. The software used for simulation of the Project is Proteus design suite version 8.4. Proteus developed by Labcenter Electronics, is a software with which you can easily generate schematic. Proteus also has the ability to simulate the interaction between software running on a microcontroller and any analog or digital electronics connected to it.

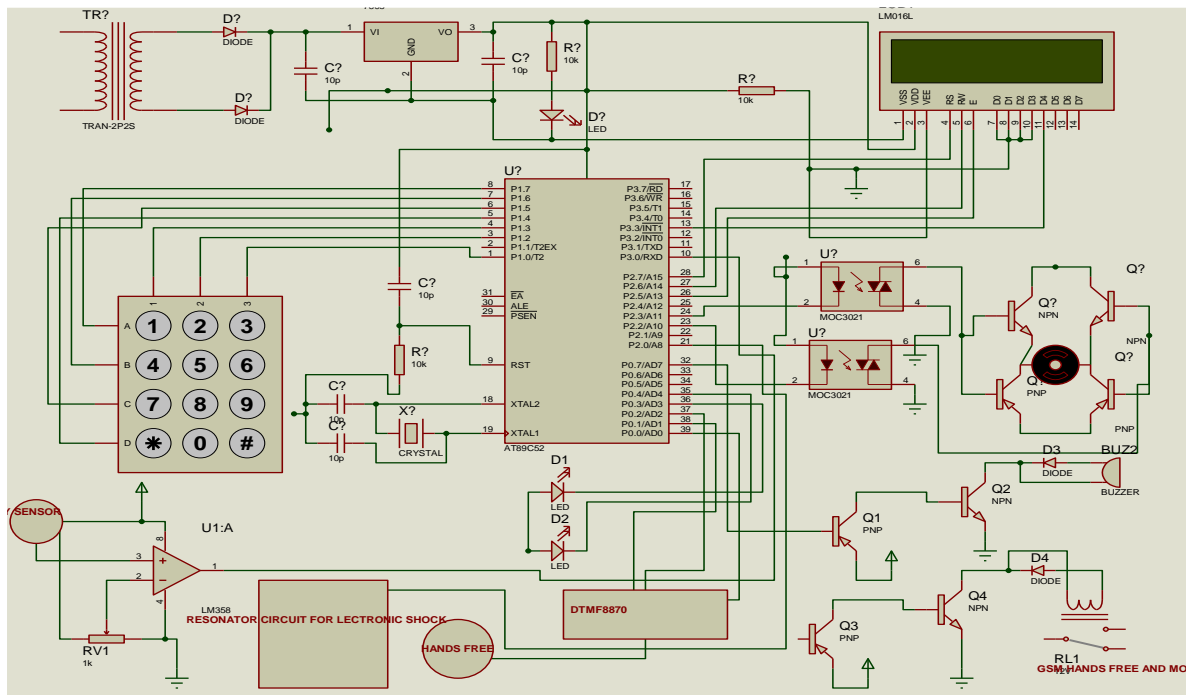


Fig. 6: Circuit Simulation of Electric Shock Based Vehicle Security System

VII. HARDWARE ASSEMBLING AND TESTING PROCESS

First step, we need to make single side PCB layout for the given circuit diagram. After made the PCB the following process is required to complete the project.

1. Assemble all the components on the PCB based on circuit diagram. TX and RX pins of the GSM modem to pins 13 and 14 of MAX 232 and insert a valid SIM in the GSM modem.
2. Connect the GPS module according to circuit diagram.
3. This projects implemented and tested successfully by us.
4. This system is very useful and secure for car owners.

Doing well design of a microcontroller-based system requires skills to use the variety of debugging and testing tools available. The debugging and testing of microcontroller-based systems divided into two groups: software-only tools and software-hardware tools. Software-only tools come as monitors and simulators, which are independent of the hardware under development. Software-hardware tools are usually hardware dependent, more expensive and range a microcontroller-based system is a complex activity that involves hardware and software interfacing with the external from in-circuit emulators and in-circuit simulators to in-circuit debuggers. In general, the higher the level of integration with the target hardware, the greater the benefit of a tool, resulting in a shorter development time, but the greater the cost as well.



Fig 4: Project Overview

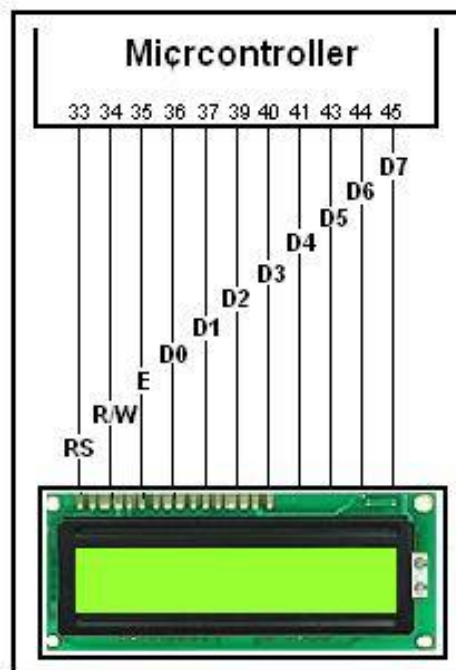


Fig. 7: Interfacing of LCD with Microcontroller

VIII. IMPLEMENTATION & DESIGN

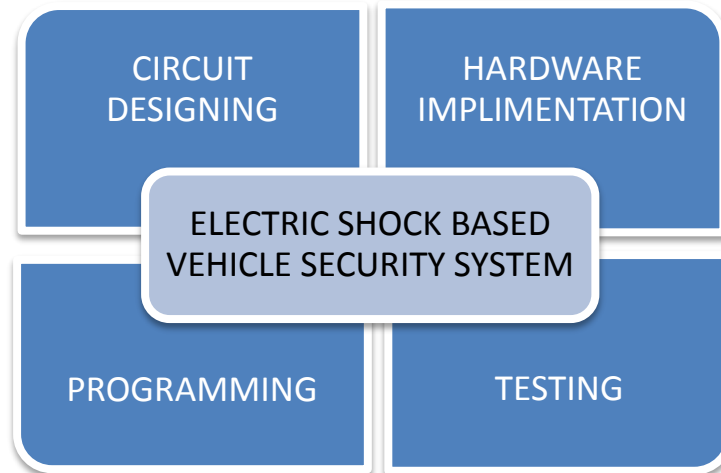


Fig. 8: Working Process through block diagram

The above block diagram shows the working progress of the project. The development of the project is divided in to four sections which are Circuit design, Hardware Implementation, Testing and Programming. This is a step by step procedure in which firstly pay attention towards circuit design, place the components in there suitable place with their suitable configuration after that the next step is the hardware implementation on general purpose PCB (Printed Circuit Board) and connections. When above two steps completed then next step is testing in which the testing of circuit and circuit design are performing. Last and measure step of the project is the programming of microcontroller & smart card memory so that it perform required functions. For programming the programming kit or burner is used.

IX. RESULTS AND DISCUSSION

This project involves security of vehicles using electric shock i.e.; if any person want to start the vehicle, system demand id for security if id is valid, vehicle is start and provide GSM calling to respective person and person want to lock the car and electronic shock can be activated by GSM technology. If person id is invalid, system automatically check the status of id. And provide the GSM calling to honor person. And person can be start electronic shock. In this case any person cannot touch the vehicle. The research project successfully carry out the task of identifying the correct person for vehicle starting. This method is verified to be highly beneficial for automated vehicles. The system responses are a little bit slower than expected. It can be improved by using a more advanced GSM module and microcontroller. User interfaces also can be provided as a modification which will enable the on demand reconfiguration of the security in a better way.

X. 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 puts into the sleeping mode vehicle handled by the owner or authorized persons; otherwise goes to active mode. The mode of operations changed by persons or remotely. When the theft identified, the responsible people 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. Antitheft security system can be installed in automobile easily. Because of this security system, it is too hard to an unknown person to access. Here an attempt is made to make a low-cost and excellent vehicle anti-theft control system which uses very low power supply, not only this but also some extra features like face recognition, alcohol sensor can be added to

give more security. Future scope is that the system should be more compact (i.e. can be embedded on single chip) and more secure.

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