

ANTITHEFT PROTECTION OF WHEELERS BY TRACKING AND BIOMETRIC PROTECTION SYSTEM USING GSM AND GPS

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ABSTRACT

The aim of our project is to prevent the car theft using micro controllers and GSM modules. It can be helpful to those people who want better and more advanced security in their vehicle. A vehicle tracking system combines the installation of an electronic device in a vehicle, or fleet of vehicles, with purpose-designed computer software to enable the owner or a third party to track the vehicle's location, collecting data in the process. Modern vehicle tracking systems commonly use Global Positioning System (GPS) technology for locating the vehicle, but other types of automatic vehicle location technology can also be used. Vehicle information can be viewed on electronic maps via the Internet or specialized software. To avoid this kind of steal we are going to implement a system it provides more security to the vehicle.

1.INTRODUCTION

The main objective of our project to protect our vehicles from stealing by GSM and GPS with fingerprint verification. This research work explores how to avoid this kind of stealing. It mainly provides high security to the vehicles. This project not only protects the vehicles and also helps us to arrest the thief without any drift and police complaints by the door locking system.

The Arduino Mega 2560 is a micro controller board based on the ATmega2560 (data sheet). It has 54 digital input/output pins (of which 14 can be used as PWM outputs), 16 analog inputs, 4 UARTs (hardware serial ports), a 16 MHz crystal oscillator, a USB connection, a power jack, an ICSP header, and a reset button. It contains everything needed to support the micro controller; simply connect it to a computer with a USB cable or power it with a AC-to-DC adapter or battery to get started. The Mega is compatible with most shields designed for the Arduino Duemilanove or Diecimila

The Arduino Mega2560 can be powered via the USB connection or with an external power supply. The power source is selected automatically. External (non-USB) power can come either from an AC-to-DC adapter (wall-wart) or battery. The adapter can be connected by plugging a 2.1mm center-positive plug into the board's power jack. Leads from a battery can be inserted in the Gnd and Vin pin headers of the POWER connector.

The board can operate on an external supply of 6 to 20 volts. If supplied with less than 7V, however, the 5V pin may supply less than five volts and the board may be unstable. If using more than 12V, the voltage regulator may overheat and damage the board.

The recommended range is 7 to 12 volts. The Mega2560 differs from all preceding boards in that it does not use the FTDI USB-to-serial driver chip. Instead, it features the Atmega8U2 programmed as a USB-to-serial converter.

2. POWER SUPPLY

The Arduino Mega2560 can be powered via the USB connection or with an external power supply. The power source is selected automatically. External (non-USB) power can come either from an AC-to-DC adapter (wall-wart) or battery. The adapter can be connected by plugging a 2.1mm center-positive plug into the board's power jack. Leads from a battery can be inserted in the Gnd and Vin pin headers of the POWER connector. The board can operate on an external supply of 6 to 20 volts.

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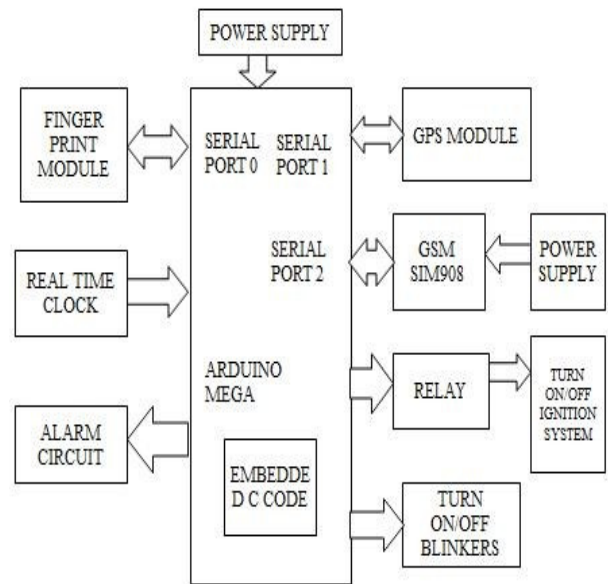
2.1.VIN

The input voltage to the Arduino board when it's using an external power source (as opposed to 5 volts from the USB connection or other regulated power source). You can supply voltage through this pin, or, if supplying voltage via the power jack, access it through this pin.

2.2.5V

The regulated power supply used to power the micro controller and other components on the board. This can come either from VIN via an on board regulator, or be supplied by USB or another regulated 5V supply.

3.SYSTEM DESIGN



3.1.FINGERPRINT MODULE

The module itself does all of the heavy lifting behind reading and identifying the fingerprints with an on-board optical sensor and 32-bit CPU.

All you need to do is send it simple commands. To get started, just register each fingerprint that you want to store by sending the corresponding command and pressing your finger against the reader three times. The fingerprint scanner can store different fingerprints and the database of prints can even be downloaded from the unit and distributed to other modules. As well as the fingerprint "template," the analysed version of the print, you can also retrieve the image of a fingerprint and even pull raw images from the optical sensor. This is the more economical version of the GT-511 which has a decreased memory capacity (compared to the GT-511C3). The module can only store up to 20 different fingerprints but is capable of 360° fingerprint recognition and download and upload templates using serial interface. If you are on a budget and need only a small number of fingerprints stored, this is the perfect option for you.

The module is small and eas mount using two mounting tabs on the of the sensor.

The on-board JST-SH connector has four signals: V cc, GND, T x, Rx A compatible J S T- S H pigtail can be found in the related items below.

Demo software for PC is available in the documents below, simply connect the module to your computer using an FTDI Breakout and start the software to read fingerprints.

3.2.GSM(SIM 908)

A GSM modem is a device which can be either a mobile phone or a modem device which can be used to make a computer or any other processor communicate over a network. A GSM modem requires a SIM card to be operated and operates over a network range subscribed by the network operator. It can be connected to a computer through serial, USB or Bluetooth connection.

A GSM modem can also be a standard GSM mobile phone with the appropriate cable and software driver to connect to a serial port or USB port on your computer. GSM modem is usually preferable to a GSM mobile phone.



Fig.2 GSM MODEM

3.3.GPS/GRPS

A GPS navigation device, GPS receiver, or simply GPS is a device that is capable of receiving information from GPS satellites and then to calculate the device's geographical position. Using suitable software, the device may display the position on a map, and it may offer directions.

The Global Positioning System (GPS) uses global navigation satellite system (GNSS) made up of a network of a minimum of 24, but currently 30, satellites placed into orbit by the U.S. Department of Defense. The GPS was originally developed for use by the United States military, but in the 1980s, the United States government allowed the system to be used for civilian purposes. Though the GPS satellite data is free and works anywhere in the world, the GPS device and the associated software must be bought or rented.

3.4.RELAY

A relay is an electrically operated switch. Many relays use an electromagnet to mechanically operate a switch, but other operating principles are also used, such as solid-state relays.

Relays are used where it is necessary to control a circuit by a separate low-power signal, or where several circuits must be controlled by one signal. The first relays were used in long distance telegraph circuits as amplifiers: they repeated the signal coming in from one circuit and re-transmitted it on another circuit. Relays were used extensively in telephone exchanges and early computers to perform logical operations.

4.RESULT AND ANALYSIS

After doing hardware and software related works,the entire system was tested in vehicle to ensure that the vehicle tracking system is working well and meets the requirement.When the vehicle moves without proper fingerprint verification,then an SMS is sent to the owner's cell phone with link including vehicle's co-ordinate.

After that,an SMS is sent automatically after every 10 seconds including updated location's co-ordinate. Then proper fingerprint is given and sending messages has been stopped.Door locking is implemented here to arrest the thief.

5.CONCLUSION

In this research work, vehicle location can be tracked and prevention of it from theft with fingerprint verification is done with minimum cost in quasi real-time mode.fingerprint technology is very effective security check technology and also in lower cost to avoid stealing of vehicles. In future smart phone applications can be made and interfacing a dedicated smart phone installed in vehicle with fingerprint device can be done to get real-time vehicle tracking with inter active mapping.

In this door locking can be implemented by using relay so we can easily arrest the thief and we can easily reduce the stealing of vehicles in the society.

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