

Smart Car Locking System

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ABSTRACT

The main aim of this project is to track down the vehicles position, this system uses GPS receiver/transmitter, GSM receiver/transmitter with a micro controller. Position of the vehicle can be tracked down, by Authorized owner of the vehicle with this module installed in his vehicle. Owner wants to know where his vehicle is, he will send an SMS to that particular SIM number which is present in the modem of the module. The SMS, which has sent, by the owner will reach the vehicle, which is travelling and there it will compare the password and the command. If every thing matches then it will get the coordinates of the vehicle position. In this way we can easily map the vehicle position from the place where they are residing. In our project the PCB is designed by using Express PCB & the circuit is designed by using Proteus software.

Keywords: Smart Vehicle, Proteus, GPS.

I.INTRODUCTION

Increasing day by day, it has gotten to be difficult to give a vehicle an outstanding security with the main focus being kept on the burglary gadget. Vehicle locking framework pledges the best ensure way to secure the vehicle from various types of theft cases. It is a vehicle security gadget that offers a better and fancy insurance to one's vehicle. However this framework cannot be established to give complete security and directness to the vehicle in the event of burglary. [1]So a more secure framework makes the utilization of an inserted framework which is being focused around GSM and GPS innovation. This demarcated and created framework is introduced in the vehicle which aims at providing real time tracking and active notification to user and helps prevent the probable theft.

Passwords are the weakest component of many important security systems, so there is an interrelated push from various directions towards passwords with less friable security measures. While pushing it has some effects, particularly in situation that require more security, it has failed to replace passwords. The vast mainstream of computer user's still use passwords on a routine basis. Since the haven of password relies mostly on user behavior, studies that empirically scrutinize patterns of passwords creation and use the remaining important in the assessment of various security policies. The main emphasis while developing this car anti-theft system was to assimilate the above features equally. The most significant feature is the vehicle security from theft and it has been guaranteed by providing certain layers of anti-theft protection.

II. LITERATURE REVIEW

“Vehicle Starting System Using Finger Print” Dr.V.Nandagopal¹ Dr.V.Maheswari¹ C.Kannan² ¹ Professor, Department of Electrical and Electronics Engineering, Sri Krishna College of Engineering and Technology Coimbatore, Tamil Nadu, India. Volume 119 No. 18 2018, 1753-1760

The issue of vehicle hijacking or car theft due to easy access to vehicle's functional system can be reduced by using a biometric system. The starting of vehicle's engine as the necessity of protection and access restriction in many luxurious assets is now very important. Biometric systems have in a long time served as a strong security system in many different applications and it will be implemented in automobile industry. Biometric system is a technological system that uses information about a person to identify such the person. It relies on specific data about unique biological trait in order to work effectively. This system involves running data through algorithms for a particular result, usually related to a positive identification of a user or other individuals. The signals are generated by the arduino to appropriate module circuit.

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In this age of soaring vehicle thefts, vehicle safety has become a matter of prime importance. Investigators owe this increase in thefts to the lack of proper parking spaces in residential areas and lack of availability of sophisticated security devices. As a solution to the aforementioned problem, we have developed a prototype model of a fingerprint-based security system for vehicles by interfacing Fingerprint sensor module R307 along with Arduino Uno. A person can start the vehicle, but only upon fingerprint authentication can the person put the vehicle into motion. In recognition of the fingerprint, the valve fixed in the outlet of fuel tank opens, thereby allowing the flow of fuel to the engine.

“Anti-Theft Protection of Vehicles by using Fingerprint” Bindu Nagendra¹, B Bhargavi¹, Ramyashree K¹, Sukanya K¹, Nagashree R²
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The use of vehicle is a must for everyone. In the same way, safeguarding the vehicle against theft is also very essential and it is done by vehicle tracking system. The roots of Vehicle Tracking Systems lie in shipping industry. They required some sort of system to determine where each vehicle was at any given time and for how long it travelled. Modern vehicle tracking uses the active vehicle tracking and GPS technology. This technology provides with a split screen view when reviewing your driver's route. Stop and transit times, as well as speed information, are displayed in the bottom pane.

III. IMPLEMENTATION AND METHODOLOGY IMPLEMENTATION:

- We made an attempt to develop a system based on Internet of things technology. Here we are using finger print which works on image-based finger authentication method. When the owner wants to start the bike means he will place the finger and the finger print is compared with the datasets given by the owner. Then the system classifies the user is super user or a normal user, if he is a super user
- This project consists of GPS receiver and IoT modem with a micro controller. The whole system is attached to the vehicle. In the other end owner's mobile will receive the location of the vehicle, where it will be currently residing. So, the GPS system will send the longitudinal and altitude values corresponding to the position of vehicle to IoT Modem.
- The SMS sent would come through the IoT service provider and then reach the vehicle, which is traveling, because the vehicle has an IoT device.
- A place name is assigned for each longitude & latitude. The owner's mobile will receive the place name where the vehicle is residing.

METHODOLOGY :

1. Sensor and Detection:

GPS and GSM: These technologies are used for real-time tracking and communication. GPS determines the vehicle's location, while GSM allows for sending alerts and commands to the vehicle.

Infrared (IR) Sensors: IR sensors can be used to detect unauthorized intrusion into the vehicle, such as when doors are opened or broken into. Alcohol Sensors and Eye Blinking Sensors: Some systems incorporate these sensors to monitor driver sobriety and drowsiness, potentially locking the vehicle if the driver is incapacitated.

2. Communication and Control:

Microcontroller: This acts as the central processing unit, coordinating the operation of the system, including receiving sensor data, processing it, and sending commands to other components.

Mobile App and SMS: The owner can use a mobile app or receive SMS alerts to monitor the vehicle's location, trigger locking/unlocking, and receive alerts about potential theft attempts.

Remote Engine Locking: When a potential theft is detected (e.g., through IR sensor or unauthorized access), the microcontroller can send a signal to the engine, stopping it and preventing it from being driven away.

3. Security Features:

Password Protection: Some systems require a password or PIN to unlock the engine or doors, preventing unauthorized access.

Biometric Identification (Fingerprint): Biometric systems can verify the owner's identity before allowing the vehicle to be unlocked or started.

Cloud-Based Tracking and Alerts: Some systems leverage cloud platforms to store and process vehicle data, providing a more robust and accessible tracking and alerting system.

3.1 Block Diagram

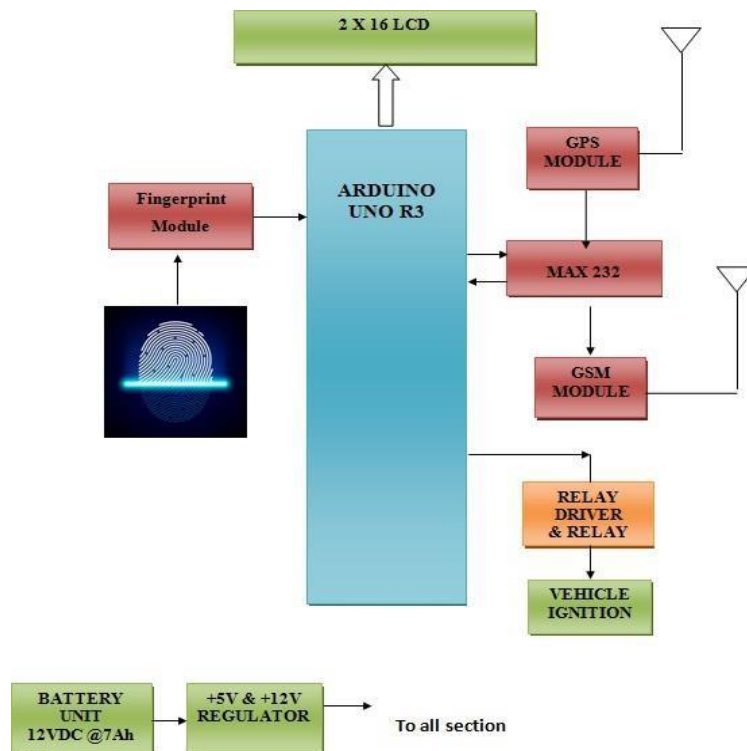


Fig 3.1: Block Diagram of Vehicle Theft Monitoring with GSM and GPSIV.

IV. ADVANTAGES, DISADVANTAGES AND APPLICATIONS

4.1 ADVANTAGES:

- Only the authorized person will be able to ignite the car.
- Implementing this relatively cheap and easily available system.
- Greater security and exclusivity than that offered by a conventional lock and key.
- Remotely Lock/Unlock the vehicle.
- This approach allows 1000 fingerprint samples to control the device functionality and the authentication facility provided by the fingerprint.

4.2 DISADVANTAGES:

- Hacking: Smart locks and keyless entry systems can be susceptible to hacking, allowing unauthorized access. Thieves can potentially intercept and mimic signals to unlock or start a vehicle.
- Cyber attacks: Smart vehicles, with their interconnected systems, are potential targets for cyber attacks, which could compromise security features like locking and unlocking.
- Battery Life: Smart locks often rely on batteries, which can run out, leaving the vehicle locked or unable to start.

4.3 APPLICATIONS:

1. For finding location of person, vehicles etc
2. For finding location of the school bus.
3. Vehicle Transportation.

V.CONCLUSION

In conclusion, Smart vehicle locking technology offers a more convenient and secure way to manage vehicle access and security compared to traditional methods. This technology, often integrated with IoT devices, allows for remote locking/unlocking, location tracking, and alerts, enhancing both security and convenience for users. However, it's important to consider potential vulnerabilities related to cyber attacks and the need for robust security measures to protect against unauthorized access.

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