SMS Based Two Wheeler Locking system

Atharva Guruprasad Dabholkar, Rohit Anil Kindre , Azam Raj Kazi,Rohit Kadam,
Prof . A.T Jadhav
B.E Student Department of Mechanical Engineering
Rajgad Dnyanpeeth Shri Chhatrapati Shivajiraje College Of Engineering Dhangawadi Pune.

ABSTRACT

Due to the rising number of car theft incidents that have been recorded globally, vehicle security systems have garnered a lot of attention over the years. The majority of cutting-edge vehicle security systems are more effective on four-wheelers. The two-wheeler security solutions that are currently on the market are insufficient to thwart skilled thieves. These devices can only disable the engine and emit a loud alert when under assault. It is a significant restriction. In this work, we suggest a dependable and strong design for the Two Wheeler Vehicle Security System (TWVSS), with features that increase vehicle security and guarantee rider safety. Additionally, our suggested security system includes a number of innovative features.

I. INTRODUCTION

In 2011 alone, 122,367 two-wheeler vehicles were reported stolen in India, according to the National Crime Records Bureau (NCRB). Only 32,826 of the cars were discovered [1]. A lot of times, two-wheelers are snatched just off the streets or from apartment parking lots. By the time the police are contacted (which might be many hours after the crime), the cars are built underground and leave almost no evidence. The owner and law enforcement are helpless to catch the thief since the cars are afterwards either dismantled or sold for pennies on the dollar in nearby states or districts. The story remains the same for the rest of the planet. The only realistic answer to this problem is to install a security system in the automobile

RELATED WORK

We are not the first to notice the shortcomings and restrictions of the current car security systems, in fact. Potential weaknesses in car security systems have been reported by a number of researchers. Traditional security systems are inexpensive, but they just serve as alarms and cannot deter a skilled robber. Over the years, a number of security systems have been developed, but practically all of the modern, complex security systems were created specifically for automobiles. To identify the incursion, some researchers have even employed image processing technology to record the driver's face and compare it to images of authorised drivers. In contrast, some suggested systems combine facial and fingerprint recognition. These security measures are difficult to deploy and expensive.

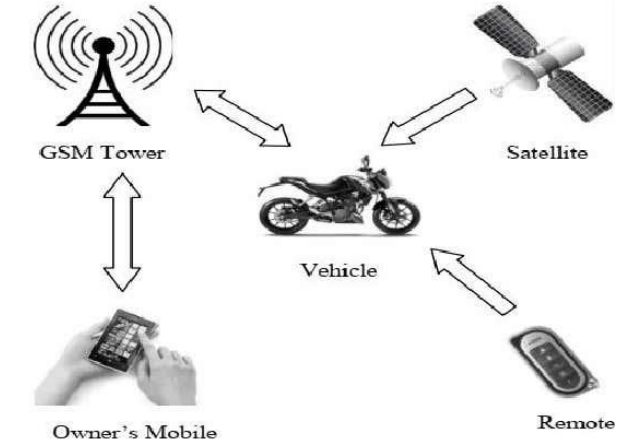
DESCRIPTION OF PROPOSED TWO WHEELERVEHICLE SECURITY SYSTEM

This section first provides a summary of the whole system before going into depth on the requirements and specifications for each system module. The overall perspective of how the suggested security system operates The knob at the fuel tank's nozzle is replaced with a fuel lock. The project's goal is to create a car locker security system based on SMS.

In several western nations, M-vehicles have emerged as one of the most well-known technologies for delivering vehicle services.

Through the use of mobile networks, a network now includes billions of people. nonetheless, in a two-wheeled commercial vehicle. This technique is still not widely used. It will be suggested to use an SMS-based mobile vehicle system to deliver a number of necessary vehicle services by simply sending SMS to the vehicle server from the car. interfa cing module, SMS technology adoption module, SMS vehicle registration module, service generation module, and data fail over module. This system facilitates vehicle customers by providing four major services like balance enquiry , balance transfer between authenticated customer

Currently almost of the public having an own vehicle, theft is happening on parking and sometimes driving insecurity places. The safe of vehicles is extremely essential for public vehicles. Vehicle tracking and locking system installed in the vehicle, to track the place and locking engine motor. The place of the vehicle identified using Global Positioning system (GPS) and Global system mobile communication (GSM). These systems constantly watch a moving Vehicle and report the status on demand. When the theft identified, the responsible person send SMS to the microcontroller, then microcontroller issue the control signals to stop the engine motor. Authorized person need to send the password to controller to restart the vehicle and open the door. This is more secured, reliable and low cost



HARDWARE MODULE

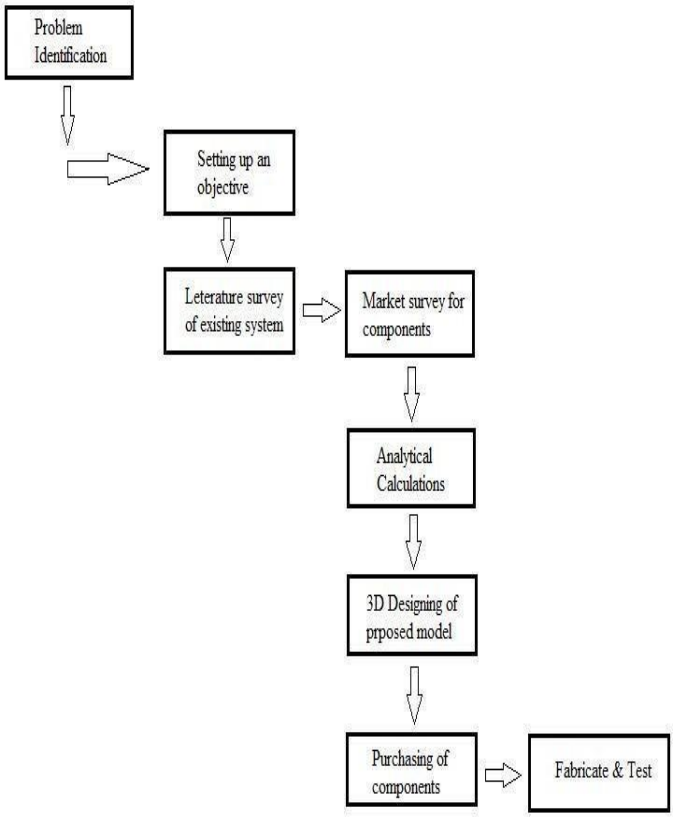
4.1. SYSTEM SPECIFICATION AND BLOCK SCHEMATIC

- **System specification :**
  - Arduino Uno At Mega Module
  - Service Provider
  - User Interface Mobile
  - GSM Module
  - LCD
  - LED
  - Access Control Unit
  - Locking System

- **Block diagram:**

Figure.1.

Step 1: - We started the work of this project with literature survey. We gathered many research papers which are relevant to this topic. After going through these papers, we learnt about ideology.
Step2: - After that the components which are required for vehicle thfeft are decided.
Step 3: - analytical calculation will be prepared
Step 4: - After deciding the components, the 3 D Model and drafting will be done with the help of CATIA software.
Step 5: - The components will be manufactured and then assembled together.
Step 6: - The testing will be carried out and then the result and conclusion will be drawn



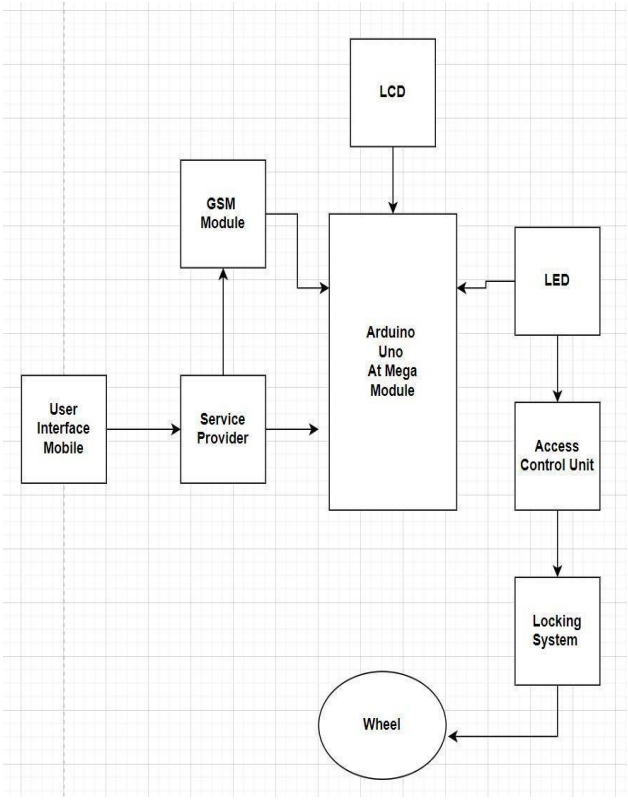


Figure.2. Block diagram

4.2. Locking system

Relays control the fuel, locking, and engine systems. A lock is installed at the gasoline tank's nozzle to prevent fuel theft. As a valve, this lock operates. gasoline lock stops the nozzle after the car is secured, interrupting the flow of gasoline in the tube. The engine cannot be started because there is no gasoline entering it, fulfilling two objectives. To jam the wheel sprocket, another lock is installed on the back side of the vehicle. The wheel cannot turn once the sprocket is stuck. This guarantees the suggested security system's redundancy. Owner may manage the locking system using a mobile device. (sendinga SMS) or RKS remote.

4.3. Display Unit

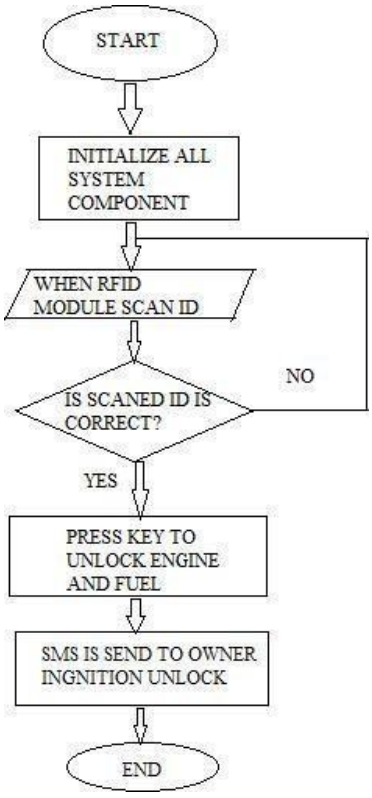
The system displays the results using an LCD display device. Four data pins and a 16x2 display are employed. The LCD's working voltage is 5V. With a 16x2 LCD, there are 2 lines that can each display 16 characters. Each character on this LCD is presented using a 5x7 pixel matrix. There are two registers on this LCD: Command and Data..

4.4. GSM Module

A communication channel between the vehicle owner and the security system must be established using the GSM module [8], [17]. In our system, we employed a SIM800 GSM module. This module may be controlled using AT commands. The tri-band GSM/GPRS engine SIM800 operates on EGSM 900 MHz, DCS 1800 MHz, and PCS 1900 MHz frequencies. The General Packet Radio Service (GPRS) is also offered by SIM 800. The present

usage in sleep mode is as low as 2.5 mA.Messages are stored in the SIM's memory. Asynchronous serial communication with a 9600 baud rate is used by the SIM 800 module and the MCU to communicate. To secure the bike, the vehicle's owner may send an SMS. If the remote is taken, the owner can also turn off the remote keyless system. If a duplicate or stolen remote is used to open the car, these capabilities come in quite handy. As a result, the owner's mobile phone with the registered SIM serves as the master key, which can overrule the remote's commands.

II. SOFTWARE FLOW



flowchart

V. TEST SETUP AND TESTING PROCEDURE

- The prototype must be produced in accordance with the design drawing once the PCB and related peripheral devices have been installed. Writing multiple little programmes, starting with the most basic programme and expanding on the success of each, allows for the verification of the concept. The following actions should be followed to test and troubleshoot the hardware: Physically check all the connections.
- Check whether power supply wires are firmly connected to all boards.
- Look for any dried-up solder.
- Verify that the ICs are indeed present.
- Verify that every component is attached properly.
- Verify whether the ground and VCC are shorted.
- There is just one main VCC and ground track on the PCB.
- Verify the IC's ground and VCC:
- After completing the aforementioned procedure, examine each individual IC to ensure that the proper pins are connected to VCC and Ground.

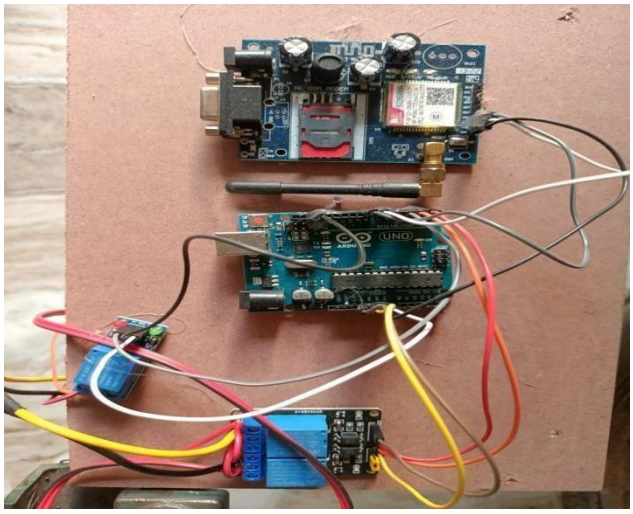
VII. FUTURE ENHANCEMENTS

a. Hopping code algorithm could be used in Remote Keyless System (RKS) for added security.

This can be achieved by checking the voltage levels on multi-meter at each VCC and Ground pins of all IC's.

VI. RESULTS

• When the lock button on the RKS remote control is pressed, the vehicle is first unlocked (Lock = 0), and the locking sequence is then carried out (Lock = 1).
The RFID module scans this ID number when we present a card. The microcontroller receives a signal if this number is appropriately recognised.
• To start a bike, the user can depress a key to unlock the ignition.
• The system indicates that fuel and ignition are unlocked, and the user may start the bike after pressing a button to unlock the fuel lock and a second button to open the ignition lock.
SMS are sent simultaneously to the owner's mobile device for security reasons.



b. Presently only SMS feature is available, we can include the Call feature for ease of operation. Like for example giving miscall would lockdown the vehicle.

c. SIM 800 even supports GPRS coding schemes hence data network could be used to send alerts and receive control messages.

d. Microphone could be interfaced to the GSM module so that during theft activity voice call could be established with the owner enabling him/her to be able to listen and record the conversation of people around the vehicle.

e. In future GPS technology can be used to trace the locatin of vehicle.

VIII. CONCLUSIONS

The modern, dependable, and strong form of the two-wheeler security mechanism is what we offer as the Two-Wheeler Vehicle Security System. The suggested security system also provides room for adding customised apps to increase the product's usability in terms of hardware and software. The proposed TWVSS may be placed on two-wheelers of any class or manufacturer, which greatly expands the market for the device. It was important to focus on creating a system that was affordable so that owners of budget bikes could also purchase it. The module's small size enables it to be installed beneath the vehicle's seat without requiring any structural modifications.

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