# Smart Vehicle Security

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*Abstract:*An efficient automative security is implemented for anti-theft using an embedded system occupied with a Global Positioning System and a Global System of Mobile. The client interacts through this system with vehicles and determines the current locations and status using Google Earth. Using GPS locator the target current location is determined and sent, along the various parameters received by vehicle's data port, via SMS through GSM networks to a GSM modem that is connected to PC or laptop. The Gps coordinates are corrected using a discrete Kalman filter. To secure the vehicles, the user of a group of users can turn off any vehicle of the fleet if any intruders try to run it by blocking the gas feeding line. This system is very safe and efficient to report emergency situations as crash reporting or engine failure.

*Keywords—GPS, GSM, SMS, Kalman filter.*

## I. INTRODUCTION

The various systems are used to lock the car and open the car such as remote sensing, mobile application such as android based, I phone based application used.[6] But this project uses the voice to lock the car and open along with this, the system can track the location of the car if the car is lost.[1] Now a day's various cost effective materials are used to protect using the human voice. This system will protect the car from unauthorized person to access using the human voice.In this system, the human voice is used as input to lock the car and same voice is also used for the unlocking. Because of that the unauthorized person will not get the access to the car. The main purpose is to protect the car form the unauthorized person. A secure lock system is seen as the ultimate in security systems. Voice lock is a secure lock mechanism in which the unlocking is made possible only on successful authentication of the voice of a registered user of the system.

## II. SYSTEM ANALYSIS

### A. Existing System

The integrated vehicle tracking and accident alarm system is a multi functional embedded system which provides emergency services for vehicle along with security. This embedded system requests for emergency services whenever the vehicle will met with an accident, and system avoids unnecessary emergency requests in case of safe condition of passengers at that situation. This system makes use of an inductive proximity sensor which senses the key during insertion so that system can request the user for unique password.[1][2][4] If the user fails to enter the unique password in three trials, the information of vehicle, location will be sent to user and police using GSM. This makes to track the vehicle, the fuel injector of car is deactivated so that user cannot start the car and burglar is locked inside the vehicle itself using interlocking system until the owner sends command to system from mobile. Owner can completely control his vehicle using his mobile through specified text messages.[6] Whenever the vehicle will met with the accident, the accident circuit makes the system to respond by stops the engine , blowing the accident alarm in vehicle. If everyone in vehicle is fine then user has to stop the emergency alarm using the switch within specified time. If nobody attends the switch within the span, a message is sent to police and *e*mergency service using GSM about information of vehicle, accident location using GPS.[2]

### B. Proposed System

Currently most of the public are having an own vehicle, theft tries to steal the car from 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 is used to track the place and locking engine motor. The place of the vehicle identified using GPS and GSM. [9] This system constantly watch a moving vehicle and report the status as and when demanded by the user. When the theft identified, the responsible person send SMS to the micro controller, then micro controller issue the control signals to stop the engine motor. Authorized person need to send the password to controller to restart the vehicle. This is more secured reliable and low cost. The method of vehicle tracking and locking system used to track the theft vehicle by using GPS and GSM technology.[10][11] This system puts into sleeping mode while the vehicle is handled by the owner or authorized person otherwise goes to active mode., the mode of operation is changed by in person or remotely. If

**Special Issue - 2017**

**International Journal of Engineering Research & Technology (IJERT)**
**ISSN: 2278-0181**
**ICIATE - 2017 Conference Proceedings**

any interruption occurred in any side of the door, then the IR sensor senses the signal and SMS sends to the micro controller. The controller issues the message about the place of the vehicle to the car owner or authorized person. When send SMS to the controller, the controller issues the control signals to the engine motor. The speed of the engine motor gradually decreases and come to the off pkace . After that all the doors locked. To open the door or restart engine, authorized person needs to enter the password. In this method ,the tracking of vehicle place easy and doors locked automatically, thereby thief cannot get away from the car.[2][3]
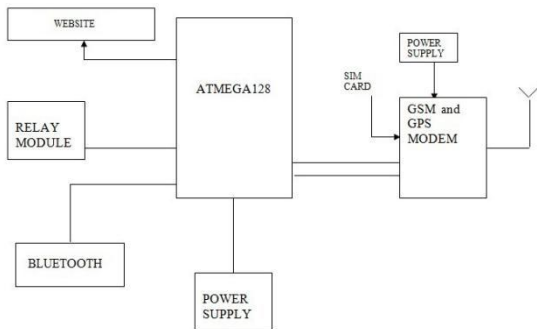


Fig. 1: System Block Diagram

### III. METHODOLOGY

*A. User Module:-*

- The user can open the website in his mobile or in the browser
- The users have to embed the device into the car.
- The user can give voice commands to open or close the door of the car.
- The user can also track the location of the car, if this car is stolen.
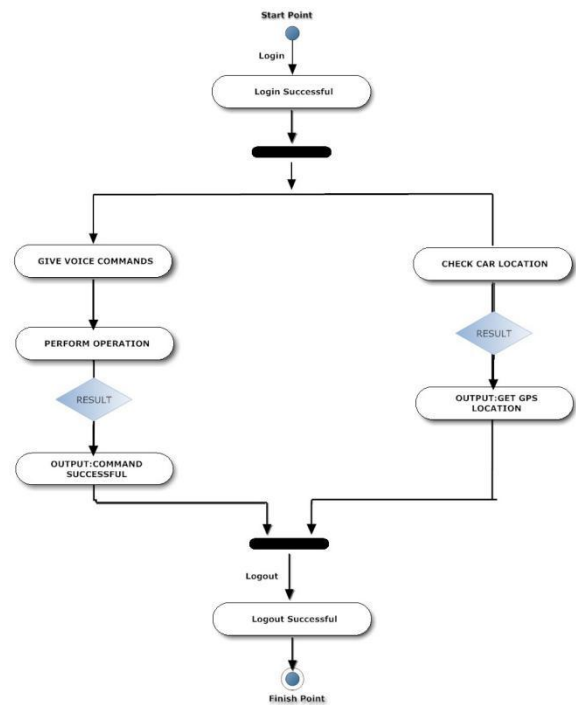- The user will get the GPS location of his car



Fig. 2: *Activity diagram*

### IV. IMPLEMENTATION

The system has two main units; the first is security unit which is embedded inside the vehicle. This unit consists of: a GSM modem, GPS receiver, control relay, current sensor and Microcontroller .The current sensor will send an analog signal to the microcontroller when the car is running. The microcontroller will send SMS directly to the owner to confirm that. NC control relay contacts are connected with to the hot line that powers the fuel pump and ECM. The microcontroller can send a signal to the relay to cut off the power, when receives SMS that contains code from owner mobile to stop it. The GPS Receiver retrieves the location information with the help of satellites in the form of latitude and longitude readings in real-time.[3]

The Microcontroller processes the GPS information and transmits it to the user every 10 minutes using GSM via SMS , when the user sends the code to the system via SMS . The Microcontroller also reads engine parameters from vehicle data port (OBD-II) and sends them to the second module via same SMS. The second module is a recipient GSM modem that is connected to a PC or a laptop. The modem receives the SMS that includes GPS coordinates and engine parameters.[5]
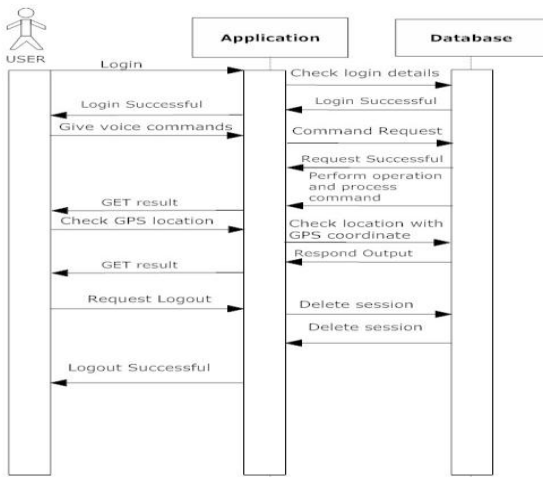
**Special Issue - 2017**

**International Journal of Engineering Research & Technology (IJERT)**
**ISSN: 2278-0181**
**ICIATE - 2017 Conference Proceedings**

Fig 3: *Sequence Diagram*

## V.    CONCLUSION

Tracking system is more secured than different frameworks. It has continuous ability, and its specific end goal is to fortify the relations among individuals, vehicle and street by assembling technologies and ready to structures a real time accurate, compelling exhaustive transformation framework. Updating this setup is simple which makes it more efficient.A smart anti-theft system is one of the essential systems that uniforms both GPS and GSM systems. It is fundamental because of the huge numbers of both GSM and GPS systems and the wide use of them by a great many individuals all through the world. This system  intended for clients in area development and transport business, provides real time information such as location, speed and expected  arrival time of vehicle in a concise and easy to read format. This framework might likewise valuable for correspondence process among the two focuses.

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