



iJRASET

International Journal For Research in
Applied Science and Engineering Technology



INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 6

Issue: II

Month of publication: February 2018

DOI:

www.ijraset.com

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A Smart Anti-Theft and Safety System for Vehicle

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Abstract: *Vehicle is the primary spot where security begins .In nowadays, car robberies are expanding. Henceforth we must need vehicles to furnish with the most recent pattern of advancements and measures to make it a safe from criminal. The security frame work has been improved in all fields in the general public. Car security has likewise accomplished numerous fast changes, yet the expenses of all the security redesigns are so high and it is not moderate for all the vehicle proprietors .so our aim is to provide a security system to vehicles in less cost.*

Index Terms: *Raspberry pi (R-pi), GPS, GSM.*

I. INTRODUCTION

Vehicle is the primary spot where security begins. In nowadays, car robberies are expanding. In India, vehicle is stolen at regular intervals a disturbing in sights. Henceforth we must need vehicles to furnish with the most recent pattern of advancements and measures to make it a safe from criminal. The security framework has been improved in all fields in the general public. Car security has likewise accomplished numerous fast changes, yet the expenses of all the security redesigns are so high and it is not moderate for all the vehicle proprietors

The working of the system starts from the sensor section Alcohol sensor, when any person get inside the car the sensor which is at steering detects whether the person is drunk or not. If the person is drunk the keypad won't respond and if not drunk then the keypad is enabled for entering password.

If an unauthorized person tries to access the vehicle, then, after three unsuccessful attempts a buzzer will turn on and a message will be sent to the authorized person and the alternate numbers that someone is trying to break into the car with location with the help of GSM and GPS modules. Also the camera mounted in the car will capture the picture of the person and store it in the memory. Also the user will get

The buzzer will be continuously on until the owner gives a confirmation that he has the situation under control.

II. LITERATURESURVEY

In [1], the hardware and software of the GPS and GSM network were developed. The proposed GPS/GSM based System has the two parts, first is a mobile unit and another is controlling station. The system processes, interfaces, connections, data transmission and reception of data among the mobile unit and control stations are working successfully. These results are compatible with GPS technologies.

In [2], a vehicle tracking system is an electronic device, installed in a vehicle to enable the owner or a third party to track the vehicle's place. This paper proposed to design a vehicle tracking system that works using GPS and GSM technology. This system built based on embedded system, used for tracking and positioning of any vehicle by using Global Positioning System (GPS) and Global system for mobile communication (GSM). This design will continuously watch a moving Vehicle and report the status of the Vehicle on demand.

In [3], Face Detection System used to detect the face of the driver, and compare with the predefined face. The car owner is sleeping during the night time and someone theft the car. Then Face Detection System obtains images by one tiny web camera, which is hidden easily in somewhere in the car. Face Detection System compared the obtained images with the stored images. If the images don't match, then the information sends to the owner through MMS. The owners get the images of the thief in mobile phone and trace the place through GPS. The place of the car and its speed displayed to the owner through SMS. The owner can recognize the thief images as well as the place of the car and can easily find out the hijackers image. This system applied in our day-to-day life.

In [4], this system provided vehicle cabin safety, security based on embedded system by modifying the existing modules. This method monitors the level of the toxic gases such as CO, LPG and alcohol within the vehicle provided alert information as alarm during the dangerous situations. The SMS sends to the authorized person through the GSM. In this method, the IR Sensor used to detect the static obstacle in front of the vehicle and the vehicle stopped if any obstacle detected. This is avoiding accidents due to collision of vehicles with any static obstacles.

In [5] The paper presented by El-Medany, W.; Al-Omary et al describes a real time tracking system that provides accurate localizations of the tracked vehicle with low cost. GM862 cellular quad band module is used for implementation. A monitoring server and a graphical user interface on a website is also developed using Microsoft SQL Server 2003 and ASP.net to view the proper location of a vehicle on a specific map. The paper also provides information regarding the vehicle status such as speed, mileage.

In [6] Hu Jian-Ming; Li Jie; Li Guang-Hui describes an automobile anti-theft system using GSM and GPS module. The system is developed using high speed mixed type single-chip C8051F120 and stolen automobile is detected by the use of vibration sensor. The system remains in contact with automobile owner through the GSM module, for the safety and reliability of automobile.

In [7] Le-Tien, T.; Vu Phung describes a system based on the Global Positioning System (GPS) and Global System for Mobile Communication (GSM). It describes the practical model for routing and tracking with mobile vehicle in a large area outdoor environment .The system includes the Compass sensor-YAS529 of Yamaha Company and Accelerator sensor-KXSC72050 of Koinix Company to acquire moving direction of a vehicle. The system will acquire positions of the vehicle via GPS receiver and then sends the data to supervised center by the SMS (Short Message Services) or GPRS (General Package Radio Service) service. The supervised center comprises of a development kit that supports GSM techniques-WMP100 of the Wavecom Company. Finally, the position of the mobile vehicle will be displayed on Google Map.

III. PROPOSEDSYSTEM

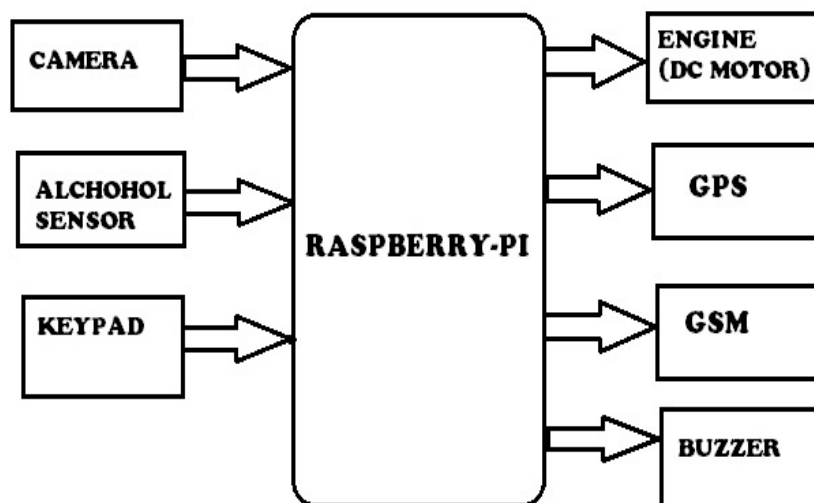


Figure1. The System Architecture

The proposed system divided in to eight main modules such as

A. Raspberry pi

In this proposed system we have used Raspberry Pi as the controller of system. R-pi is the small, inexpensive minicomputer. It is the core of the system.

B. GPS Module

GPS is used for location and tracking purpose in this system.

C. GSM Module

GSM is used for sending alerts and notifications to the owner of the vehicle.

D. Alcohol Sensor

Alcohol sensor is used to detect the alcohol quantity of the person driving the vehicle.

E. Camera

Camera is used to capture the images of the person trying to steal the vehicle.

F. Keypad

It is used to enter the authentication code used by the owner of the vehicle.

G. Motor

In this project, the dc motor will work as prototype of Car Engine.

V. CONCLUSION

Thus we have introduced car anti-theft system. This system is capable of protecting the car by alerting the car owner. Also it will capture the image and transmit it to a smart phone. With the help of this system we can take necessary action against theft with proof. We create this system with effective current technologies and software algorithm.

It provides secure and safe environment system for automobile users and also key points for the investigators can easily find out the hijackers image. When compared with the existing system the advantage of this paper is that we can prevent the vehicle theft by using face recognition. In the present method the camera captures owner's image only. We can predict the theft by using this system in our day to day life. This project will help to reduce the complexity and improve security, also much cheaper and 'smarter' than traditional ones. Because of the flexibility of embedded system, the embedded smart car security system is extendable for special purposes. The System offers a widely communication bandwidth with the car control system to change data and information, and new functional modules can be easily added to the system to upgrade and enhance it.

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