iJRASET
International Journal For Research in Applied Science and Engineering Technology



INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 11 **Issue:** XI **Month of publication:** November 2023

DOI: https://doi.org/10.22214/ijraset.2023.56665

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International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.538
Volume 11 Issue XI Nov 2023- Available at www.ijraset.com

Vehicle Security System Using IoT Application

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Abstract: ***The main purpose of the project is to utilize the wireless technology successfully for the car conditions by utilizing the IOT Technology if there should be an occurrence of robbery suggestion. The main extent of this project is to stop the motor of an automobile naturally. This should be possible at whatever point a man attempting to take the vehicle, around then sends a hinder to a programmable microcontroller of arduino family that stores proprietor's number upon an Intimation message out of the blue .When some individual tries to take the auto then microcontroller gets a prevent and the proprietor gets a SMS that his auto is being stolen then the proprietor login to the IOT based web server and control the vehicle like start buzzering, or can execute engine… etc.***

Keywords: Wireless, Vehicle, IOT, Security, GPS, Technology

I. INTRODUCTION

Over the most recent couple of decades, India has advanced at such a gigantic rate, to the point that numerous organizations have firmly settled themselves here. These organizations carry an enormous measure of workforce with them. Organizing transportation to such an enormous mass is an awkward undertaking including numerous complexities. . Vehicle following frameworks have conveyed this technology to the daily existence of the basic individual. Today GPS is utilized as a part of autos, ambulances, and police vehicles which are regular sights on the streets of created nations. All the current technology bolster following the vehicle area and status. The GPS/IoT based framework is a standout and unique amongst the mostimperative frameworks, which coordinate the two GPS technology and upcoming IoT or Internet of Things phrasing. With the use of GPS Technology the vehicle can be easily tracked non stop andwhich also helps the concerned authorities to know about the vehicle if it gets stolen or meets with an accident.

GPS is one of the innovations that are utilized as a part of countless today. One of the applications is following your vehicle and keeping general checking on them. This following framework can help us illuminate the area and course went by a vehicle, and this data can be seen from some other remote area. It additionally incorporates the web application that gives us the correct area of the objective. This framework empowers us to track the objective in any climate conditions. Our proposed system is designed to track and monitor vehicles that are used by certain party for particular purposes, also to stop the vehicle if stolen and to track it online for retrieval. This system is an integration of several modern communication technologies. To get the latitude and longitude data, there are various web based geolocation services.

II. HISTORY & BACKGROUND

In today's world of comfort and luxury, various high priced costly vehicles are available. Many of these vehicles have been launched with inbuilt security systems. However, even though a huge amount of capital is being invested in areas of vehicle security, the cases of vehicle theft is still rising. [1,2]

This situation gives rise to explorefor further security mechanism to avoid vehicle thefts. We have decided to devote our project in areas of vehicle safety and security tostop the vehicle theft. The Vehicle Tracking System allows the userto monitor their vehicle and their routes and arrival.

There exists another problem. Recent advancement in the automobile industry has opted many people to use their own vehicle for traveling. This has increased effect on car ownership. But to park all these cars in the major metro cities is quite tedious and difficult task. After wrong parking, problems like towing occurs and hence, there is no solution as of now. Thus, the project also deals with this problem of parking and subsequent towing. To tackle all the problems specified above, the project have features like, Key less unlocking of door of the car and ignition control through both Keypad as well as the wearing of the seat belt. The project also deals with intruder problems from Window of car and can trace the location of the car after being towed.

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III. DESIGN ISSUES

For ignition to start or for the door to get unlocked, user needs to enter the password through keypad, if password is correct then only car door gets open and the user is given only 3 chances to enter the password, if password is wrong all time then we need to press the reset button to reset the system. After that, if the user wears the Seat belt and the password is correct only then the user can operate the ignition or engine of the car. If we park our car near an unauthorized area and if it gets towed, then a limit switch will get pressed automatically. This sends a command to controller which in turn sends a command to dashboard (dashboard side mobile) throughbluetooth module. The dashboard will then send information to user through SMS with GPS location and the user is alerted with the same with continuous beep sound. [10]. If someone is trying to steal valuable things through the window or any obstacle comes in between the window, it is being sensed by an IR sensor then the sensor sends command to controller and then controller send command to dashboard (dashboard side mobile) through bluetooth module then dashboard side mobile send information to user through SMS with GPS location and the user is gettingclosed.

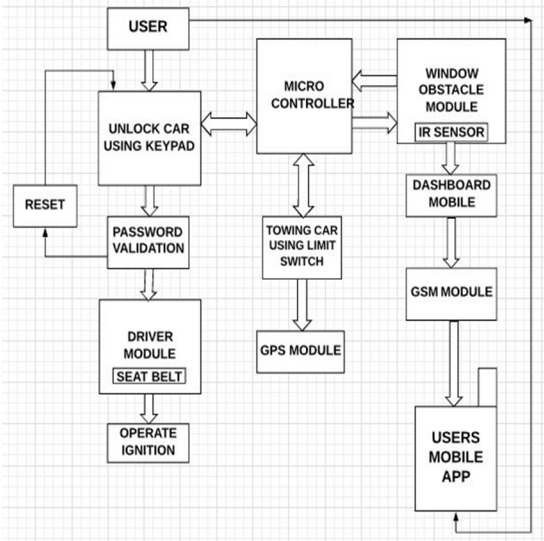


Fig: 1 Block Diagram Of Proposed System

A. *Sensors Used*

1) *IR Sensor:* IR sensor at the window of car is responsible for sensing theft through window, which will give signal to microcontroller, then microcontroller will send signal to dashboard mobile which will send message to user's mobile. [11]
2) *Limit Switch:* When the car gets towed the limit switch at the bottom of the car gets pushed which sends signal to microcontroller from which a signal is send to dashboard mobile then through gprs module present in its location is sent via message by gsm. [11]
3) *Bluetooth Module:* Used for connection between Microcontroller and dashboard mobile. [4]
4) *Users Mobile:* Always have an alert message with continuous beep sound. Also have the location of the car whenever towing is done. [5]

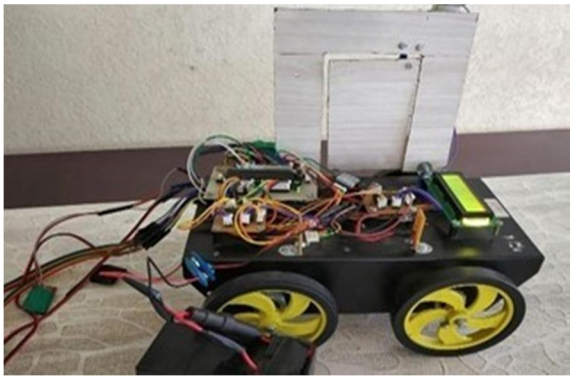


Fig. 2 Car Prototype

For ignition to start, the user needs to enter the password



Fig: 3 Display Enter password for unlocking car

IV. RESULT AND ANALYSIS

In this project, we have implemented a prototype which represents a Car. The screen displays success for the correct password. The system displays seat belt error on the screen if the user is not wearing seatbelt. If the user wears the seatbelt and the password is correct, then only the user can access the car.



Fig: 4 Access the car after correct password Input

If intrusion is detected, then through IR sensor a command is send to the controller and then controller send command to Dashboard (dashboard side mobile) through Bluetooth module then dashboard side mobile send information to user through SMS along with GPS location. At the time of towing, when the limit switch gets pressed a command is send to the controller and then controller send command to Dashboard (dashboard side mobile) through Bluetooth module. Then dashboard side mobile will send information to user through SMS and with GPS location.

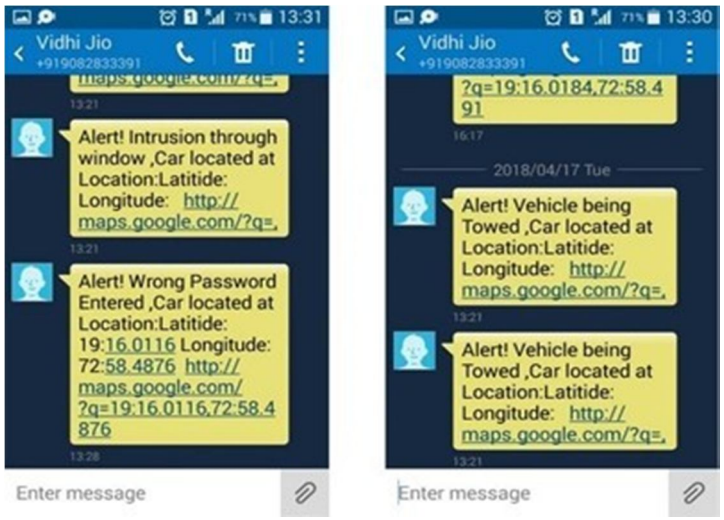


Fig: 5 Alert Message on user's mobile for window intrusion and wrong password input and towing along with location.

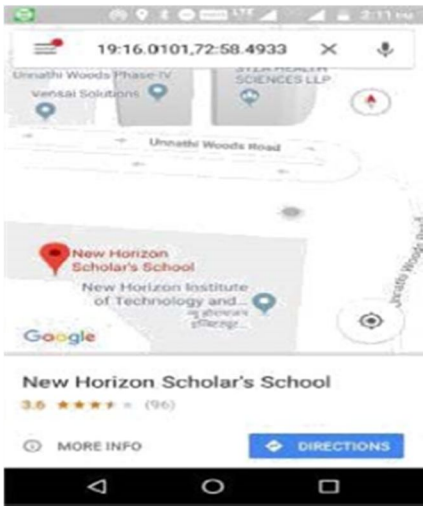


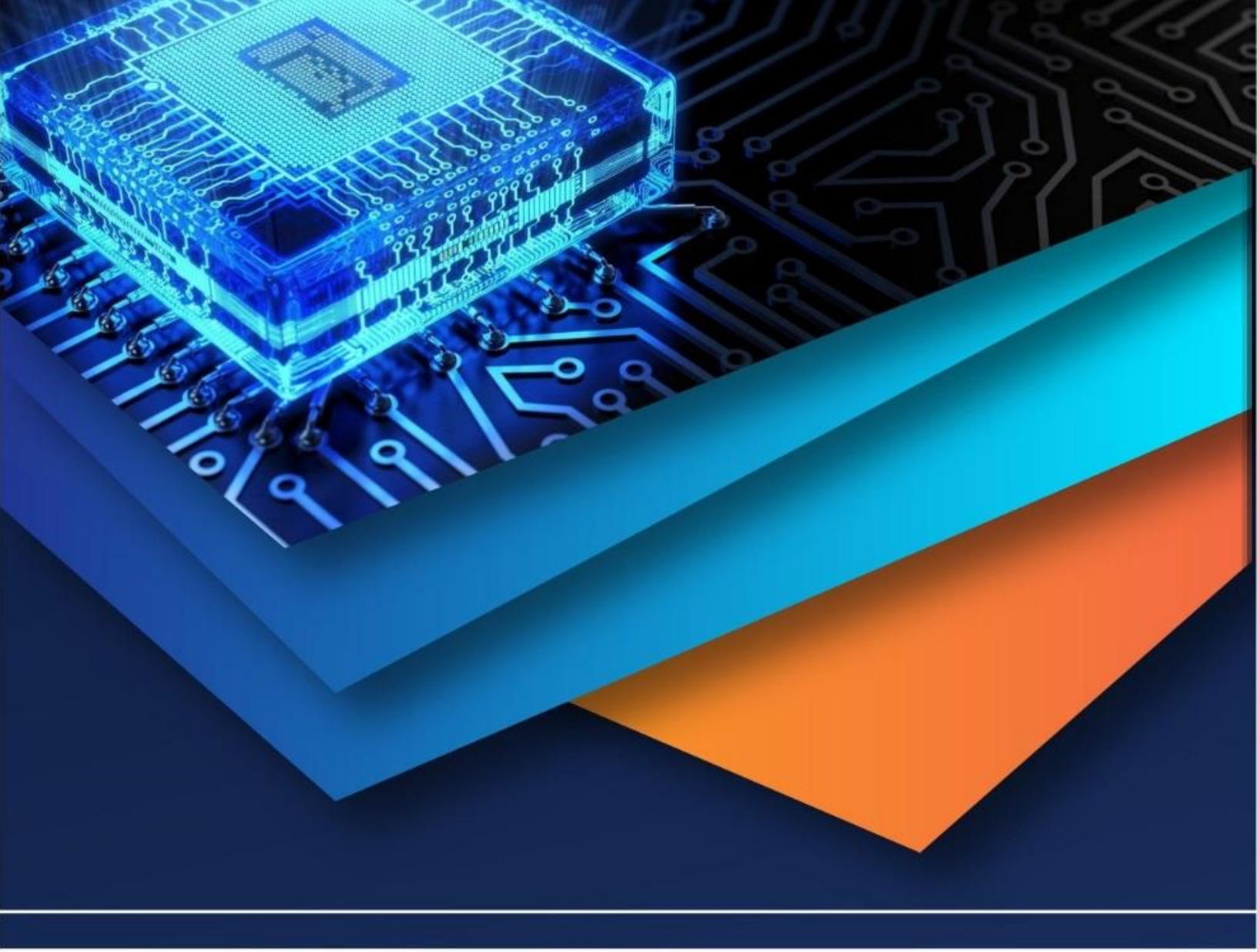
Fig: 6 Location on User's mobile on Google maps.

V. CONCLUSION

The ongoing research in the field of IoT and its implementation infull or partial manner will improve the quality of life. Thus, the proposed project "IoT Based Advanced Vehicle System" would take the security level a step forward and try to cover many of the loopholes which are in existing technology. The verification shows that the IOT based advanced vehicle System is realistic and can control the theft automatically. The response time delay is also less. This IOT based advance vehicle system enables user safety by seat belt compulsion, key less locking /unlocking system to operate the car. In addition to the above, it gives security from towing of car and theft through the car window. The system is ideal for cars, further it can be used for other vehicles too by using these components and modules used in this project. IOT based advance vehicle system offers utmost efficiency, convenience, safety & reliability. It is an ideal solution for car users

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