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Vehicle Surveillance System using ESP32

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Abstract: ***The current project is the integration of design and realization of vehicle surveillance system using GSM, GPS and ESP32 modules. The project deals with the integration of these three modules and an arduino uno. This amalgamation gives rises to the vehicle surveillance system. A vehicle surveillance system is coordinated by GPS and it is controlled by the operator by giving the commands through GSM which acts as receiver and transmitter of the data. The project is divided into two modules of implementation i.e software and hardware. The software part consists of developing a code for the arduino which unites all the modules of the system. The hardware part consists of interfacing all the modules that are used in the system with the arduino.***

Keywords: Vehicle surveillance system, GPS, GSM, ESP32, Arduino uno.

I. INTRODUCTION

The major goal of the vehicle surveillance system is about to provide proper surveillance system to all the automobiles. This refers to vehicle security systems that have been upgraded. The latest technologies, such as GPS, are extremely beneficial nowadays; this surveillance system allows the operator to view and locate one's vehicle, as well as learn about its where about. This innovative technique, commonly known as Vehicle Surveillance Systems, has revolutionised vehicle security. The hardware is mounted on the vehicle which is invisible in the line of sight and that it cannot be seen by anyone inside or outside the vehicle. As a result, it's employed as a hidden unit that provides location information to the surveillance unit continuously or whenever the system is interrupted. When the theft takes place to the authorized person's vehicle is, the tracking system's location information can be accessed to locate the vehicle and reported to the authorities for the appropriate course of action. Some Vehicle Surveillance Systems can detect and inform the owner of illicit vehicle movements. This offers it an advantage over other technology that serves the same objective.

Upon noticing any forced entry or any other interruptions the monitoring unit sends the message which contains the exact coordinates of the vehicle's location. In addition to this the owner of the car can also give other commands which include turning ON/OFF the vehicle and etc.

II. LITERTURE SURVEY

As countless automobiles have been robbed and are continuously being stolen in this modern day, vehicle tracking has become vital. It is frequently difficult for the owners of these automobiles to locate and recover their automobiles. However, with the development of car monitoring systems, locating these automobiles has become much easier. It is not enough to simply recover the stolen vehicle; it is also necessary to ensure that the thief's identification is captured by a camera so that he can be apprehended and prosecuted. Many automobile thieves will be deterred by this action. The following are some of the vehicle surveillance systems that have been designed:

1) GPS–GSM-based tracking system employs the global positioning system to detect the exact location of any person, or other asset to which it's been linked, and then transmits that information to a remote user via a GSM modem. It offers a tele monitoring technology for intercity transit vehicles including taxis and buses. This system consists of a single-board embedded system with GPS and GSM modems, as well as an ARM processor mounted in the car. The location of an object can be reported through SMS message while it is moving. This system can be used for major traffic observation. The location (in terms of latitude and longitude) of items carrying the system may be simply obtained as a result of this research. A stolen car might also be immobilised remotely by sending an SMS to the GSM module's SIM number. However, there are certain limits. There is no method to identify the thief so that he can be apprehended after stealing the vehicle.

2) Using a GSM modem and Google Maps, a remote vehicle tracking and driver health monitoring system was created. Short Message Service (SMS) coordinates are sent to the control centres' GSM modem, which refreshes the main database. The data is then accessed via the internet, and the vehicle's location is presented using the Google Maps application.

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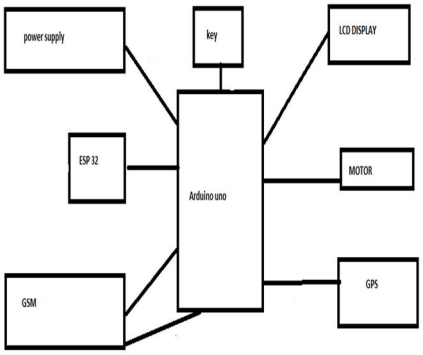
3) Vehicle tracking data based on cloud computing has been developed. The device essentially gave information such as the driver's fuel level and drinking status. This was accomplished by combining GPS, GSM, and sensors. All of the aforementioned systems were linked together, and the received data was sent to a server in a cloud computing. Sensors are used to keep track of the vehicles' and drivers' important parameters. The fuel level is monitored using a fuel monitor sensor. That is, where, when, as well as how much gas was put in to the tank, as well as the amount of fuel left in the tank.

4) It was created a 'Real Time Vehicle Locking and Tracking System employing GSM and GPS Technology.' An embedded system based on GSM technology was used in the development of the system. In a car, the system is installed. When the vehicle is taken, a text message is sent to the GSM number as "data." The microcontroller receives this message from GSM. The microcontroller checks whether the message received came from the user or not. At around the same instance, the GPS receiver uses satellite signals from space to compute its location on the earth and communicates this information to the microcontroller in the form of coordinates. Following the acquisitions of data, the microcontroller communicates it to the owner of the vehicle through GSM. When the position is determined, the owner can send the command 'lock' to disable the vehicle's engine.

III. METHODOLOGY

A. Block Diagram

The vehicle surveillance system is depicted in the following block diagram. The system's general view is shown in the block diagram. Arduino Uno, LCD display, GPS, GSM, Power supply, and key detector are the blocks that are connected here.



B. Working

The GPS receiver and GSM modem are integrated with a microcontroller in this project. The vehicle is connected to the entire system. The GSM Modem will get the longitude and latitude information matching to the vehicle's position from the GPS system. Now when there is a key that is detected then the GSM module which is integrated in our system immediately sends an alert to the owner regarding the key detection. The owner can communicate with the surveillance system with their mobile by sending a SMS. Because the vehicle contains a GSM device with a sim card, the SMS message would go through the GSM service provider before reaching the vehicle. The SMS will be received by this GSM modem, which will then deliver it to the vehicle's microcontroller.
This SMS will be received by the microcontroller, and the command will be compared. In addition to this the owner will also be able to access the picture of the perpetrator with the help of the ESP 32 cam wifi module which is integrated in the vehicle surveillance system.

C. Applications

This project can help for a multitude of purposes:

1) Vehicle tracking
2) Fleet administration
3) Anti-theft
4) Location Based Services enabled devices

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IV. RESULTS

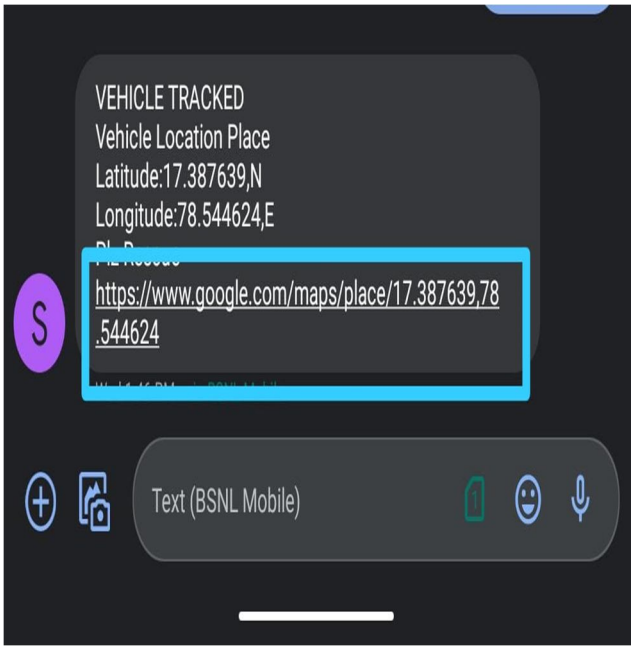

Fig I: SMS alert

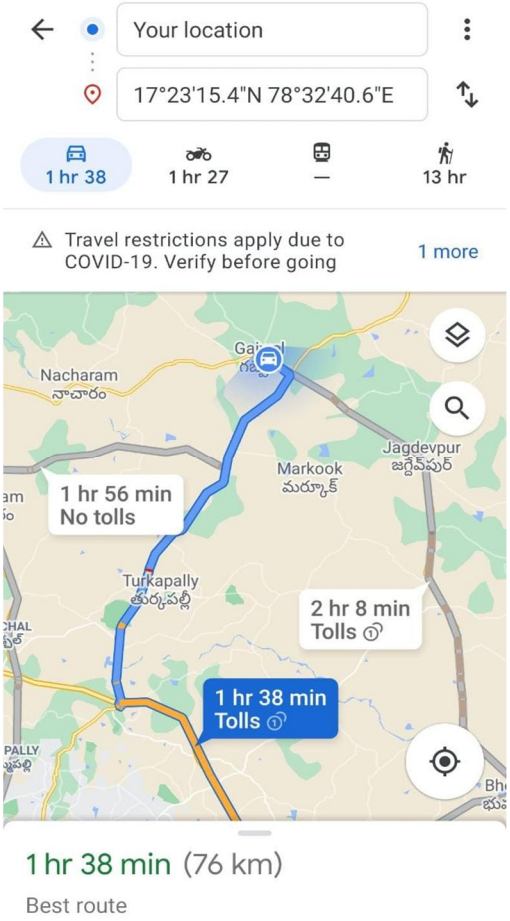

Fig II: Google maps

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V. CONCLUSION & FUTURE SCOPE

In today's world, where auto theft is on the rise, the anti-theft control system is a game-changer. GSM is now used for the bulk of communication and its applications. The use of GSM in an anti-theft control system ensures the efficiency and security that the system requires. The GSM also assures that the system's efficiency is not limited to local use, but may be used across a vast area. With the proliferation of cell phones, it will be easy to turn off the car from afar. Unless the software is hacked or disabled, this can inhibit theft. And such systems have the potential to replace the automobile alarms that are often used today.

Only the SMS functionality is accessible right now. Developments could be implemented to integrate the Call Feature for simplicity of use. A microphone can also be connected to the GMS module such that a voice call with the operator could be established during stolen activities.

This surveillance system could be enhanced in the future to serve as an integrated data security solution for automotive communication systems. It would assure the security of any data shared both in and out of vehicle.

REFERENCES

[1] Kunal Maurya , Mandeep Singh, Neelu Jain, "Real Time Vehicle Tracking System using GSM and GPS Technology- An Anti-theft Tracking System", International Journal of Electronics and Computer Science Engineering, ISSN 2277-1956/V1N3-1103-1107 .

[2] Abid k. and Ravi M, "GPS – GSM Based Tracking System"International Journal of Engineering Trends and Technology,Volume3, Issue 2- 2012

[3] Chen, H., Chiang, Y. Chang, F. H. Wang, Toward Real-Time Precise Point Positioning: Differential GPS Based on IGS Ultra Rapid Product, SICE Annual Conference, The Grand Hotel, Taipei, Taiwan August 18-21, (2010).

[4] Pravada P. W. and Dahad S. O, "Real Time Vehicle Locking and Tracking System using GSM and GPS Technology-An Anti-theft System" International Journal of Technology And Engineering System(IJTES): Vol.2.No.3, Jan –March 2011

[5] Asaad M. J. Al-Hindawi, Ibraheem Talib, "Experimentally Evaluation of GPS/GSM Based System Design", Journal of Electronic Systems, Volume 2 Number, 2 June, 2012.

[6] Modi N. D., "Vehicle tracking system with GPS GSM Interface and Self-Created Map" International Journal of Application or Innovation in Engineering & Management (IJAIEM) Volume 3, Issue 4, April 2014

[7] M. Mcdonald, H. Keller, J. Klijnhout and V. Mauro, "Intelligent Transport Systems in Europe: Opportunity for Future Research" World Scientific Publishing Company, ISBN 981270082X, 2006.

[8] E. D. Kalpan, Understanding GPS: Principles and Applications, Artech house Publishers, ISBN 0890067937, February 1996.

[9] D.Narendar Singh, K.Tejaswi, "Real Time Vehicle Theft Identity and Control System Based on ARM 9"International Journal of Latest Trends in Engineering and Technology (IJLTET),Vol. 2 ,Issue 1, January 2013

[10] R. Ramani, S. Valarmathy, Dr. N. Suthanthira Vanitha, S. Selvaraju, M. Thruppathi, R. Thangam, "Vehicle Tracking and Locking System Based on GSM and GPS", I.J. Intelligent Systems and Applications, 2013, 09, 86-93 © MECS.

[11] Zechun Huang, Dingfa Huang, Zhu Xu & Zhigen Xu, ―GPS Vehicle Positioning Monitoring System Integrated with CORS and Mobile GIS‖, ELSEVIER - Procedia Environmental Sciences 10(2011)2498–2504

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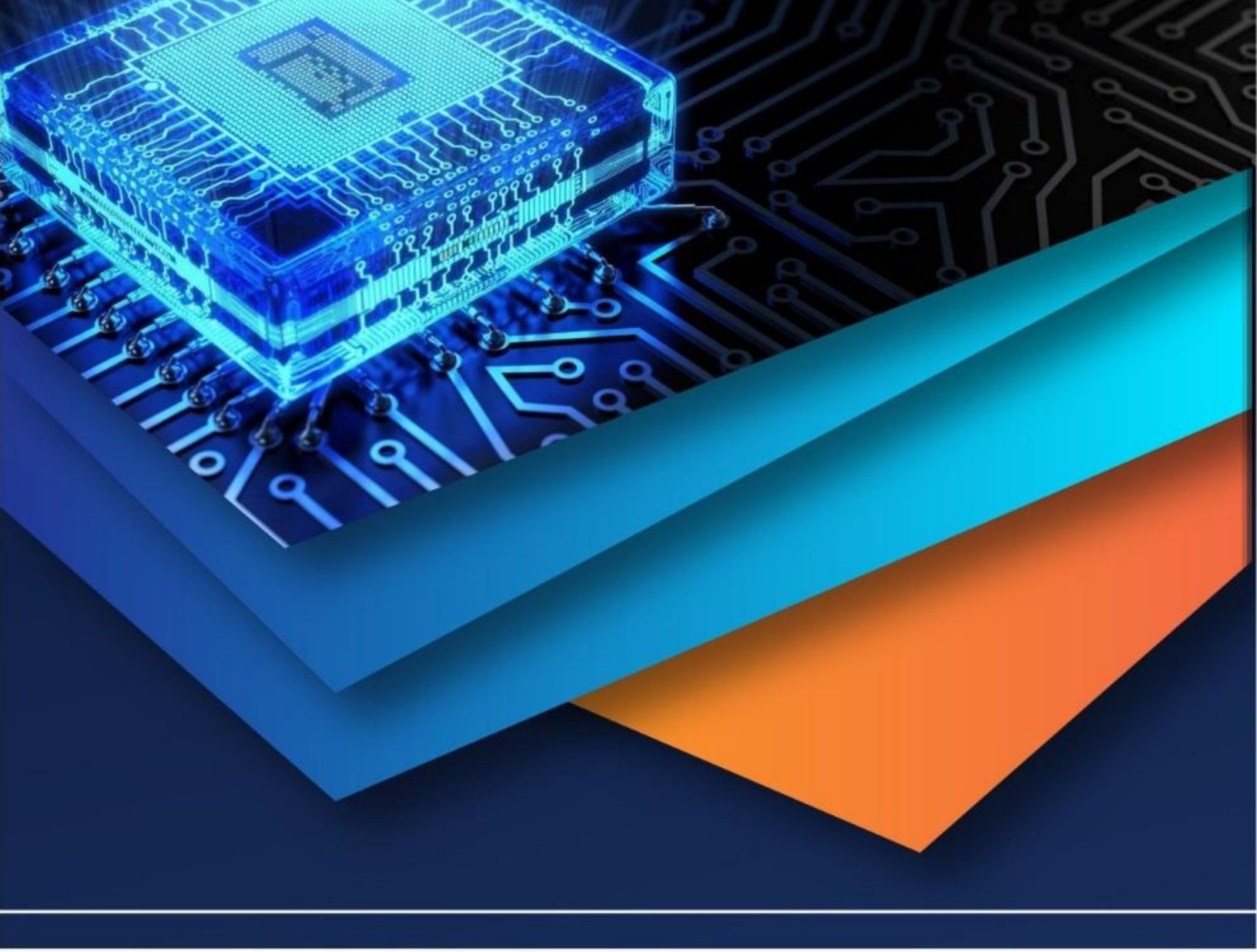

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