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Stolen Vehicle System for Smart City

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Abstract: *This challenge is about the plan and implementation of car monitoring machine using GPS & GSM technology. The proposed system includes integration between a GPS receiver, Arduino and a GSM module. This combination of technological know-how will produce a monitoring system. A monitoring device is an integration of two systems which is coordinated via GPS receiver controller and control by way of user the use of command interface through the GSM module as a transmitter and receiver of data. This challenge can be divided into two essential parts which are hardware and software. The hardware improvement blanketed the GPS and Arduino wiring connection, and its integration with the GSM module.*

I. INTRODUCTION

A. Overview

The “Vehicle Tracking System using GPS and GSM Technology” project is designed and strengthened to accommodate the needs of today’s automobile fleet employer to hold track on their fleets. It is a very beneficial and versatile device, and in fact it is in a position to be used with the aid of everybody with the want to maintain track on their precious goods and not just through the automobile fleets company. The preferred output from the device will be the data such as position, speed, and time obtained from the GPS receiver. This chapter will be masking the ordinary history of this project, its concept, objectives, scope and the hassle statement. A automobile tracking gadget consists of an digital machine set up on an automobile so that it should be track via its proprietor or a third-party for its position. Most of today’s car monitoring machine makes use of Global Positioning System (GPS) to get an accurate reading of the vehicle position. Communication elements such as cellular (GSM) and satellite TV for pc transmitter will be blended to transmit the vehicle’s position to far off user. Vehicle’s data can be seen through the use of software On a computer.

B. Central Purposes Of Tracking System Structures

In today’s world the wireless device like Wi-Fi emerge as most frequent in home networking. Use of wireless applied sciences gives countless benefit that ought to now not be done using a wired community only.

- 1) Reduced establishment costs: First and premier, institution charges are essentially reduced due to the fact no cabling is important. Wired arrangements require cabling, where material and moreover the professional laying of links (e.g. into dividers) is costly.
- 2) System adaptability and simple augmentation: Deploying a far off machine is especially really useful when, due to the fact of new or changed prerequisites, enlargement of the system is essential. Rather than wired establishments, in which cabling growth is dreary. This makes far flung enterprises a fundamental speculation.
- 3) Integration of mobile phones: With remote systems, associate cell phone phones, for example, PDAs and Smart phones with the computerization framework winds up possible all over the region and whenever, as a gadget’s right physical location is now not any extra pivotal for an association (as long as the machine is in attain of the system).

II. RELATED WORK

A. Mrs. K. P. Kamble (Lecturer) Department of Electronics and Telecommunication Engineering, YCCE.

The base of automobile monitoring device lies in transport industry. We want some type of device to decide so be aware of where the vehicle at present time and how lengthy it can travel. In this project microcontroller is used for interfacing with a range of hardware peripherals the present day sketch is an embedded application so microcontroller is interfacing with the GSM contemporary is beneficial for identification of car. The regulated power supply is to supply voltage or contemporary to a circuit operation with positive electricity grant limits regulated power supply commonly offers embedded circuit and the output form the regulated electricity provide is unidirectional and it is frequently dc.

Regulator IC is consist of three pins IC which is used as voltage of 5v. AC adapters are normally used with electrical system the required voltage and mains energy for supply.

B. Mr. N. Bala Sundara Ganapathy (Assistant Professor), S. Akash, R. Alex Prabhu, T. Kirubakaran, S. Shyam Kumar.

Now a day burglary instances are elevated to massive amount so it is integral to grant tremendous safety for vehicle structure housebreaking so for more secure framework utilization of GSM and GPS innovation is mandatory. The goal of actual time tracking and active notification to stop structure theft. By using Google maps we can found the vicinity of current position of car with the aid of the use of vehicle repossessing is viable we will carry the message in such a structure that will associated buzzer and electricity furnish of engine in vehicle consumer can without problems deactivate the engine of the automobile form his cellular telephone and can be available to retrieve the automobile.

C. Peter.O. Ohiero, Julius.U. Ukang, Okpogo, Ota Ota.

Here the microcontroller used is PIC16F72. The 8061 is an 8-bit controller with a number of enter and output port features. It requires lesser hardware for its features it has only 16 bit pointer register. The foremost downside of 8051 core is does not have A to D convertor the system is designed for automobile theft and tacking gadget that offers records on demand of the new location of vehicle. The Proteus software was once used for both simulation and the PCB design. The arduino compiler was used for program and compiles the microcontroller. The machine normally works through receiving the message shape a mobile cell phone idea message command we can tune the vehicle and command is used to send SMS. The message is ship to register SIM card variety in the GSM modem. The area sends in the structure of latitude and longitude position.

III. FRAMEWORK ANALYSIS

A. Issue Definition

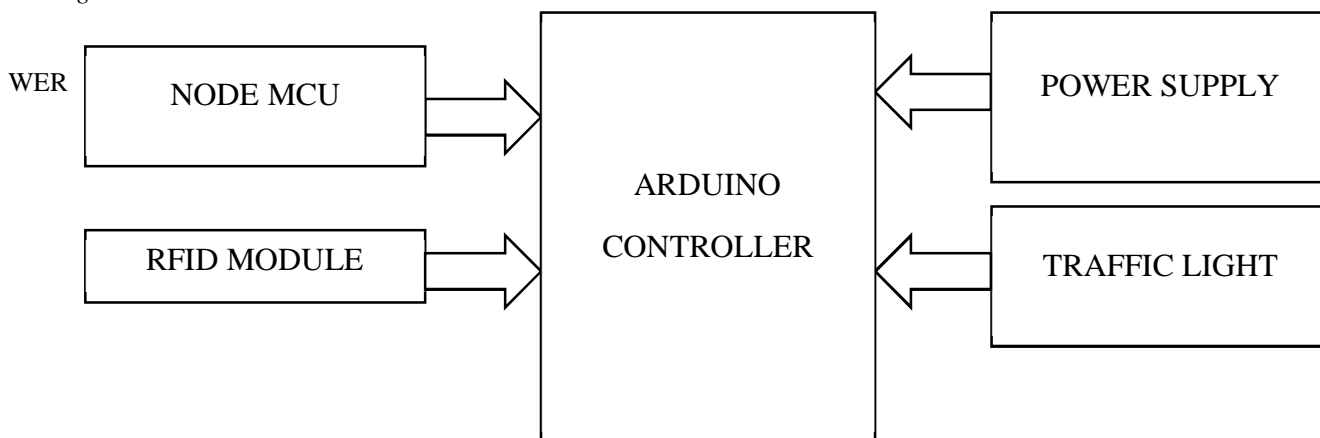
tracking device (also ITS, trouble ticket system, help ticket, request administration or incident ticket system) is a computer software program package deal that manages and continues lists of issues. Issue tracking structures are commonly used in collaborative settings—especially in giant or disbursed collaborations—but can also be employed via humans as part of a time management or private productiveness regime. These systems often embody aid allocation, time accounting, priority management, and oversight workflow in addition to enforcing a centralized issue registry. In the institutional setting, difficulty tracking structures are commonly used in an organization's client aid call centre to create, update, and resolve reported consumer issues, or even troubles suggested by using that organization's different employees. A aid ticket must consist of indispensable records for the account concerned and the problem encountered. An issue monitoring machine often additionally consists of a expertise base containing information on each customer, resolutions to common problems, and other such data.

B. Proposed System Feature

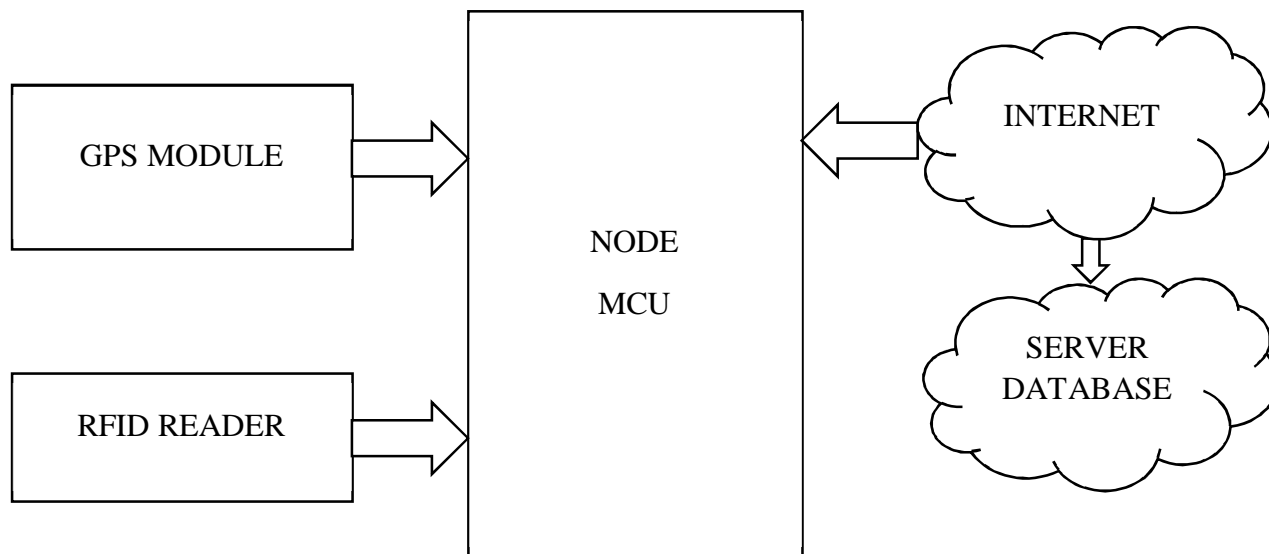
The proposed framework is a conveyed tracking system framework, contains of Server manage with laboured with Wi-Fi module to which the module is Embedded, goes about as web server. The web browser of any neighbourhood PC in a comparable LAN utilizing server IP, or remotely from any PC or transportable handheld gadget related with the net with fitting net browser thru server real IP (web IP). Wi-Fi innovation is chosen to be the gadget basis that interfaces server and control. Wi-Fi is superior framework safety (by utilizing secure Wi-Fi association), and to expand framework portability and adaptability.

IV. SYSTEM DESIGN AND IMPLEMENTATION

A. Signal Mounted Section



B. Vehicle Mounted Section



In this mission stolen automobile is detected and tracked the usage of the GPS modules. The automobile is fitted with the RFID tag for clean glide of emergency motors using RFID reader. In this assignment to song the vehicle place GPS module and RFID transmitter is used.

We additionally have an choice of updating the area dynamically with the assist of a GPS via web servers. Here GPS module connected with vehicle. Whenever the vehicle is moving to music the area with the help of GPS. The feature of GPS to locate out the latitude and longitude value that price we can send thru internet server after opening map to enter this two value we can locate out genuine area of vehicle

This device is very helpful in constructing a smart city. The city is outfitted with the developed machine which will by no means have any issue related to stolen vehicle. Moreover it will make the metropolis greater impervious in context of detection of stolen vehicle. In this task stolen car is detected and tracked using the GPS modules. The car is geared up with the RFID tag for clean flow of emergency cars the usage of RFID reader.

An application is developed in order to hold music of vehicle region along with the consumer details. Each user has its special login Id and password to login into the software and to maintain a music of each and each user, server is maintained. The server consists of the name, special RFID tag number.

C. Software Design

- 1) *Front End Design:* HTML is a layout that described a laptop how to display a internet page. The documents themselves are plain text documents with specific "tags" or codes that a internet browser uses to interpret and show facts on your laptop screen. HTML stands for Hyper Text markup Language; an HTML file is a textual content file containing small markup tags. The markup tags inform the Web browser how to display the page. An HTML files should have an html or html file extension.
- 2) *Cloud Storage:* Disbursed computing is the act of using faraway servers on the internet to supervise, shop and manner facts in place of utilizing a computer. Distributed computing is a trendy time period that is better isolated into 3 classifications: infrastructure-as-a-provider, platform-a-service, and software-as-a-carrier. Iaas (or software figuring) takes after a conventional utilities show, furnishing servers and capacity on request with the shopper paying in like manner. Paas takes into consideration the improvement of utilizations inside a provider's system, much like google's app engine. Saas empowers customers to utilize an application on request with the aid of a program. An average case of distributed computing is net server, where you may get for your positioned away information from any pc with web get to. Here we're making use of web server for the capacity of the information.

D. Implementation Setup

Here Tx pin of GPS module is without delay related to digital pin quantity 10 of Arduino. By using Software Serial Library here, we have allowed serial conversation on pin 10 and 11, and made them Rx and Tx respectively and left the Rx pin of GPS Module open. By default Pin zero and 1 of Arduino are used for serial verbal exchange but by means of the usage of Software Serial library, we can permit serial verbal exchange on different digital pins of the Arduino. 12 Volt adaptor is used to electricity the GPS Module.

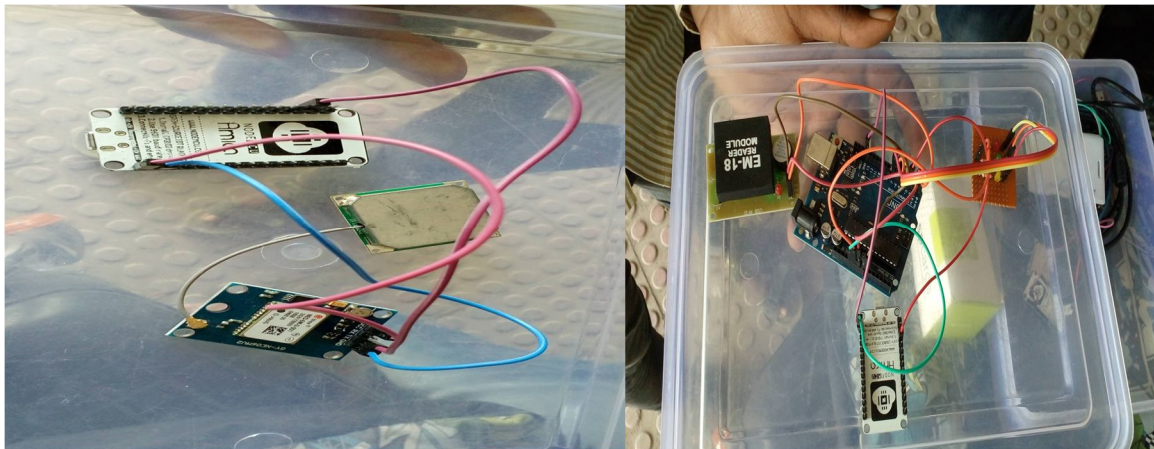


Figure 2:- Experimental setup on PCB

Wi-Fi module ESP8266's Vcc and GND pins are immediately related to 3.3V and GND of Arduino and CH_PD is additionally related with 3.3V. Tx and Rx pins of ESP8266 are at once related to pin 2 and 3 of Arduino. Software Serial Library is also used here to permit serial conversation on pin 2 and three of Arduino. We have already covered the Interfacing of ESP8266 Wi-Fi module to Arduino in detail, additionally please go via "How to Send Data from Arduino to Webpage the use of WiFi" earlier than doing this project.

V. RESULTS

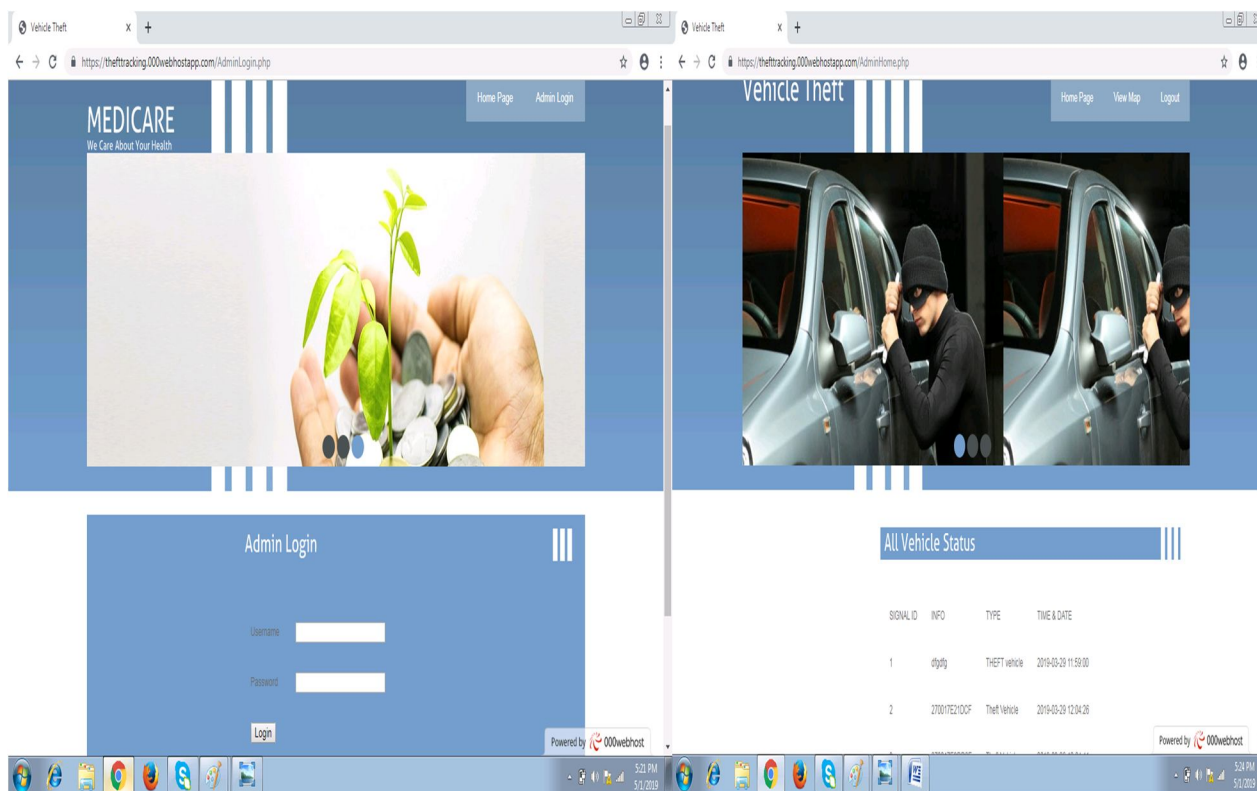


Figure 4 web server page

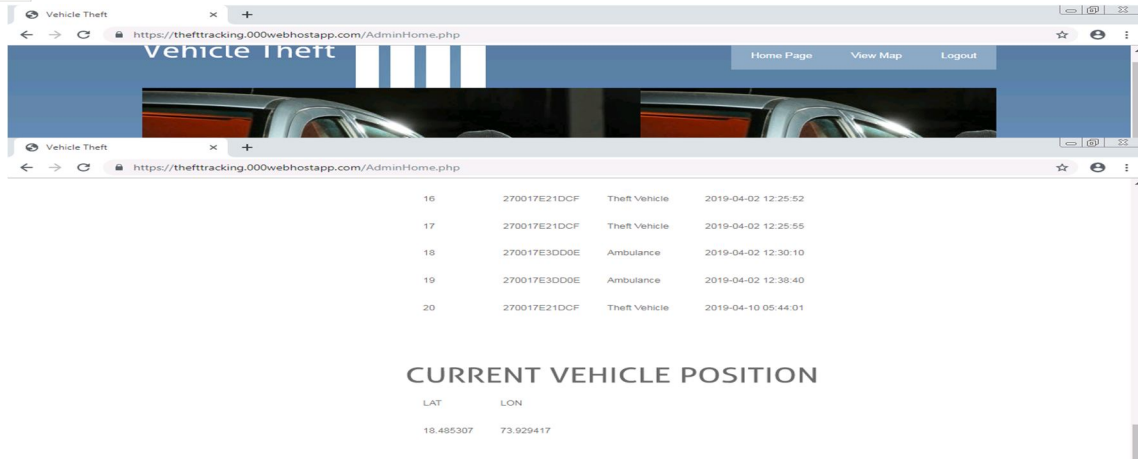


Figure 5 Data Base Of The Sensore Data Stored In The Cloud

After the effective association with the server, the information of sensor are sent to the web server for checking of the framework. The figure 4 demonstrates the web server page which will enable us to screen and control the framework. By entering the allotted IP address in the internet browser this web server page will show up. The web server gives the data about vehicle positioning on a signal.

If theft vehicle has been detected on a signal the signal will be red, or if any ambulance is come under signal range it will be green. And current positioning of vehicle can be track with help of google map. All the required information is put away in the cloud (Gmail). The put away information can be examined at whenever and anyplace. The figure 5 demonstrates the current location of vehicle on a signal and put away at various time interims. And furthermore it demonstrates the condition of the movement identifier alongside the time. It additionally gives data about time of movement recognized and how often too. This data is put away in the cloud which can be checked by the client whenever far from her vehicle

VI. COMPARISON WITH THE RELATED SYSTEM:-

| Parameter | Stolen vehicle for smart city | Smart vehicle with GSM alert system | Anti-Theft Protection of Vehicle by GSM and GPS with Fingerprint Verification | Vehicle Tracking System Using GPS-GSM Technology |
|------------------------------|---|--|---|---|
| Using of Arduino | Yes | No | YES | NO |
| Communication Type | Serial communication | Serial communication | Serial communication | Serial communication |
| Controlling with the help of | Web browser | sensor | Finger print sensor | Mobile phone |
| Security | Highest | medium | high | Low |
| Complexity | Low | medium | high | Low |
| Cost | Medium | low | high | Low |
| Special function | It directly track vehicle with current positioning through mobile or pc | Smart vehicle system uses alert which send location through sms. | Anti-theft protection of vehicle by GSM and GPS with biometric technologies | GPS-GSM Technology alert which send location through sms. |

VII. COMPARISON RESULT WITH OUR SYSTEM

As we compare the above table we get existing systems having more Complexity, high cost. All systems have the same communication type which is serial communication. And some systems are controlled using mobile and pc. Using mobile and pc, limited controlling ability. We use web link to provide increasing in controllability. as we see the security aspect in the first system there is no security. Whereas in the third system uses the biometric system gives security to the vehicle but no security on controlling device. To overcome this problem we use web link server, whereas only an authorized person can control the vehicle positioning. And our system is less complex with Low cost as compared to the other vehicle tracking system.

VIII. CONCLUSION AND FUTURE WORK

A. Conclusion

- 1) The program will successfully be implemented using the GPS and GPRS to track the vehicles in real time.
- 2) On the other hand, if stolen vehicle is detected it will also be tracked in real time
- 3) Also the green corridor will be created using RFID allowing vehicles to pass quickly or to make fast transit as the patients health is critical

B. Future work

- 1) With the help of VLSI TECHNOLOGY we can integrate the whole circuit on single chip.
- 2) RFID Tag can be embedded into vehicle body for better protection.
- 3) We can create high security system with compact design of frame work.

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