

ANTI THEFT VEHICLE TRACKING SYSTEM USING INTERNET OF THINGS (IOS)

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ABSTRACT:-

Nowadays security of a vehicle is up most important to everyone. Everyday hundreds of vehicles are being stolen. To provide that an efficient vehicle tracking system is designed and implemented for tracking the movement of any equipped vehicle from any location at any time. An Anti-theft vehicle system is developed using IOT which is both userfriendly and cost effective with the help of the Microcontroller. It receives the location of the vehicle with the help of GPS module in the form of string i.e., the latitude and longitude values of the exact location of the vehicle. The Google Maps API is used to display the vehicle on the map in the Smart-phone application. Thus, users will be able to continuously monitor a moving vehicle using the Smart-phone application and determine the estimated distance and time for the vehicle to arrive at a given destination.

KEYWORDS:-ESP8266, GPS, Arduino IDE, cloud

INTRODUCTION:-

Nowadays, the number of vehicles is rapidly increasing in a lot of developing countries. Then, a Vehicle Anti-theft Tracking (VAT) system that can be installed into a vehicle with a low cost at any time, is strongly demanded, since a conventional VAT system is very expensive and is usually installed into a luxury car when it is produced. On the one hand, the Internet of Things (IoT) has come out as a popular technology changing the concept of “connecting people” to “connecting things”. The IoT provides a network of sensors, actuators, machines, and home appliances. They are embedded with computing devices and software, which enable these things to be connected with each other and exchange data over the Internet. A variety of low-cost devices and cloud platforms for the IoT have become available. In this paper, we propose a very lowcost personal use VAT.

LITERATURE SURVEY:-

1. The system developed effectively provides an application of connected devices or Internet of things in Transportation. Modules like GPS help us to track the location of vehicles using the GPS antenna in the vehicle. Since, use of this open source technologies makes the system cost effective and easy to understand. Mobile network providers provided the security standards and therefore security is very good.

2. Handling of data is done by GPS device: Vehicle tracking is reflecting scenario, System reflecting the tracking scenario of a vehicle by using SPSS. The system using the IoT cloud platform. This system allows people in developing countries to be easily installed into their vehicles at any time. This system has the following features: (1) the vehicle theft is detected using an Arduino-connected GPS (Global Positioning System) module, (2) the alarm message is sent to the mobile phone of the vehicle owner by the SMS (Short Message Service) on GSM (Global System for Mobile Communications), (3) the conditions of GPS/GSM modules are always monitored where the alarm is sent to the owner if they are not live, and (4) the location data of the vehicle is periodically stored in the IoT cloud platform called Thing Speak. We implement this system and confirm the correctness of the designed functions through trial applications. position of vehicle in the form of latitude and longitude not only analyzed through an analysis report table but also tracked by line graph with respect to time. The movement of vehicles in the form of speed is not only analyzed

through an analysis report table but also tracked by a line graph with respect to time. Various inputs regarding efficiency in tracking tasks have been identified during the data analysis.

3. Advance technologies like GPS/GSM/GPRS and android application are possible. In this work, the in vehicle device is composed of a microcontroller and GPS module to acquire the vehicle's location information and transmit it to a server through GSM/GPRS network

PROBLEM STATEMENT:-

In today's comfort world various vehicles are available, some of them expensive, as the number of urban vehicles grows rapidly and similarly the security issues are also increasing. For this purpose, vehicle security is provided using an IoT. Develop a system that offers security to the vehicle using Internet of Things (IoT). The system must be able to do user authentication for access control and monitor the vehicle for any suspicious activity. It must keep the vehicle secured by notifying the user via sms in case of any unauthorized access, theft, intrusion, and towing.

PROPOSED SYSTEM:-

In this project, I made an Internet of Things (IoT) based GPS tracker that will follow the location of the gadget continuously. In this venture we can utilize security and transportation administration. The tracking is accomplished by receiving the geographic directions of the vehicle from the GPS module and uploading it to a database in the distant user over WiFi using the microcontroller.

HARDWARE DESCRIPTION :-

GPS module:

One of the global positioning system (GPS) gadgets utilizes information from satellites to find a particular point on the Earth in an interaction named trilateration. In the process, a GPS receiver estimates the distances to satellites utilizing radio signs to trilaterate. What's more, trilateration is like triangulation, which estimates points, portrayed in this outline . GPS modules contain minute processors and receiving wires that straightforwardly get information sent by satellites through devoted RF frequencies. From that point, it'll get a timestamp from each noticeable satellite, alongside different bits of information. In the event that the module's receiving wire can spot at least 4 satellites, it's ready to precisely compute its position and time.

MICROCONTROLLER:

NodeMCU is an open source firmware for which open source prototyping board plans are accessible. The name "NodeMCU" joins "node" and "MCU" (miniature controller unit). The expression "NodeMCU"

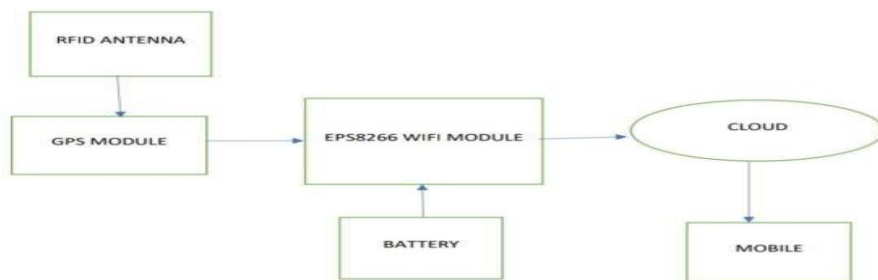


Fig:(a) Block Diagram



Fig:(b) ESP8266 MODULE

SOFTWARE DESCRIPTION:-

The details of the adopted software are described as follows.

Arduino IDE:

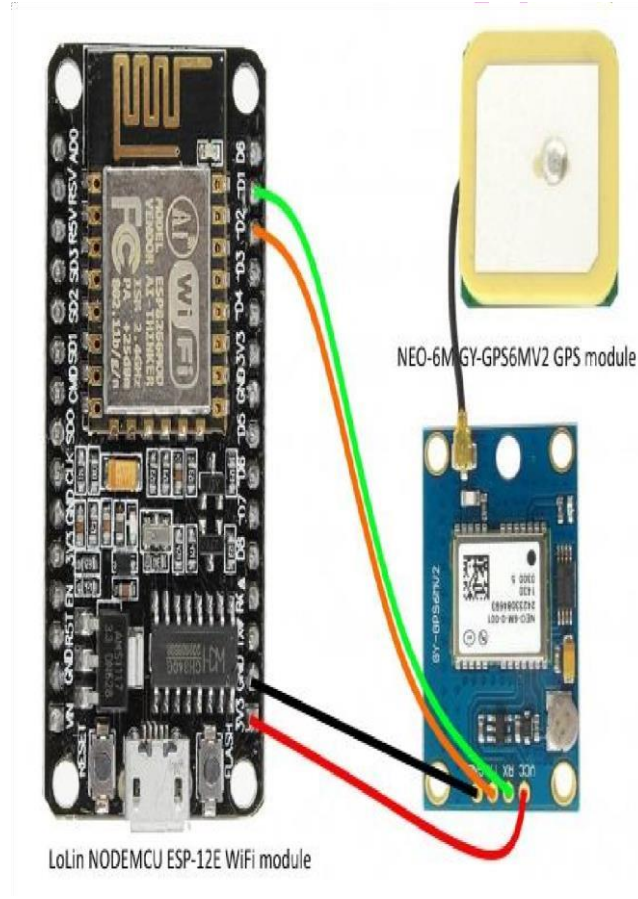
For the communication between the microcontroller and the modules and for sending and receiving vehicle location information between the microcontroller and the server, the microcontroller and the modules are programmed by the Arduino IDE software. The Arduino integrated development environment is a crossplatform application for Windows, Mac OS, and Linux that is written in the programming language Java.

METHODOLOGY:

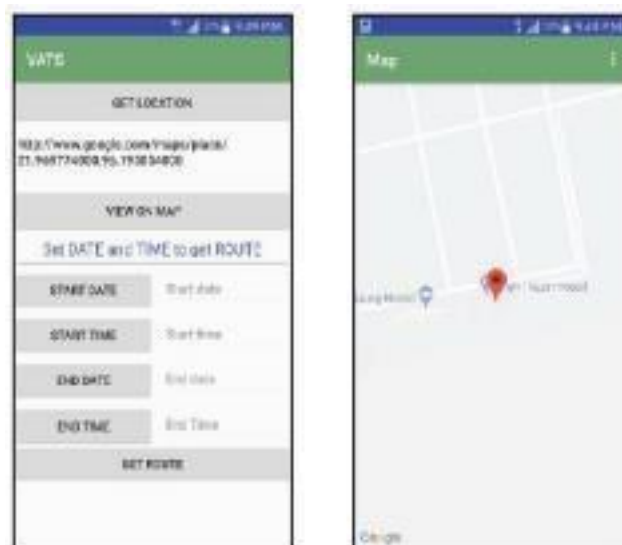
The connections between the NodeMCU ESP8266 and the NEO 6M module is straightforward. The VCC pin of the GPS module is connected to 3.3v pin of the node MCU as it cannot take the power supply above 3.3v, and the GND pin of the GPS module is connected to the GND pin present in the node MCU power pins of the breadboard as demonstrated in the fig. given below. The RX and TX pin of the NEO 6M is associated with the D1 and D2 pins of the node MCU. The Node MCU is given the power supply by utilizing USB. The GPS receiver gets a signal from each GPS satellite. The satellites transmit the exact time the signals are sent. By subtracting the time the signal was transmitted from the time it was received, the GPS can tell how far it is from each satellite. Ublox Neo 6M is a serial GPS module which provides location details through serial communication. It has four pins. GPS module sends the Real time tracking position data in NMEA format.

GPS module takes some time to capture location details once it is powered on. GPS technology is used to track the location and that data is transmitted to the user using GSM. Along with the tracking system anti-theft system is also developed to provide security. It is mostly NodeMCU starts a webserver and waits for a management, transportation system, military applicable in fleet

Then, NodeMCU sends location details to the connected smartphone.



OUTPUT:



CONCLUSION:

The most essential thing in today's world is providing security to the public and private vehicles. So, vehicle tracking system is proposed to locate the exact position of the vehicle when it is lost or hidden somewhere. applications, schools.

FUTURESCOPE:

Further this system can be enhanced into the advanced system which uses IoT concept to operate the vehicle remotely by anyone from anywhere in the world. It can be arranged in such a way that it can connect a call to the owner or it can send the information to the multiple persons.

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