



VEHICLE THEFT DETECTION AND TRACKING NOTIFICATION WITH REMOTE ENGINE LOCKING SYSTEM USING IOT

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Abstract: *An IoT based vehicle theft detection and remote engine locking system is GPS technology that helps the users identify the vehicle in theft mode and enables the controlling mechanism technique. At present day scenario, there is a rise in the number of vehicle thefts exponentially. Criminals are becoming smarter day by day and have reached the stage of applications present against the existing vehicle safety system. Vehicle theft has become a major issue which should be traced and prevented. The proposed system overcomes most of the limitations and the cost effectiveness and also reducing complications by making use of few high-priced products like ignition key. In proposed method we have the extension for controlling mechanisms which remotely locks the vehicle engine and prevents the theft. In proposed technique, user start/stop the vehicle either by using the android application or by the ignition keypad-based security unlocking system, tracks exact location (latitude, longitude) of the vehicle using the application anywhere any time. Android application is very helpful for locking the vehicle engine in case of theft and upon rash driving of vehicles. In this way vehicles are provided with better controlling mechanism and thus reducing the crimes.*

Keywords: IOT,BLYNK APP

I. INTRODUCTION

In recent years vehicle theft has become a significant issue which should be traced and detected. The safety and security of the vehicle is essential. Even there are many existing mechanisms this have some limitations and high cost. So, an efficient security mechanism is needed. This project detects vehicle theft. Arduino is the main component used for the DC motor user interface and GPS and GSM. With the help of the ESP 8266 Wi-Fi module, the vehicle's location is detected using the Global Positioning System (GPS) and the Global Mobile Communications System (GSM). GPS is a space-based navigation system used to track the vehicle and it gives the location of the stolen devices in all weather conditions.

It provides the latitude and longitude co-ordinates of the device using GPS antenna. GSM is a specialized type of modem it accepts a SIM card, and operates like a mobile phone. It is used to provide information to the user and alert him with a message having latitude and longitude of the vehicle. This total system is operated with a switch which is made on, when we park the vehicles out.

Now if the vehicle theft happened, dc motor starts, the above procedure continues and the information is posted using internet of things. This vehicle theft prevention and tracking system is used in client's vehicle as a theft prevention and rescue device.

The automobile manufacturers are try to improve the security features of their products by introducing advanced technologies to avoid the thefts particularly in the case of cars. Despite the various technologies that have been introduced in recent years to deter car thefts and tracking it, It was reported that as many as cars were stolen yearly in the world. According to the National Crime Information Centre (NCIC), in 2006, 1,192,809 motor vehicles were reported stolen, the losses were 7.9\$ billion. Several security and tracking systems are designed to aid corporations with large number of vehicles and several usage purposes.

A fleet management system can minimize the cost and effort of employees to complete road assignments within a minimal time. Besides, assignments can be scheduled in planed based on, current vehicles location. Therefore, central fleet management is essential to all large enterprises to meet the varying requirements of customers and to improve the productivity. However, these technologies still have some security vulnerabilities, that is, these technologies cannot prevent the vehicle from being stolen, are not helpful in recovering the vehicle, and cannot let users know the status of the vehicle. They cannot allow users to communicate with the vehicle online, even if the user determines that their vehicle has been stolen. In wireless data transmission.

It is a common feature with all mobile network service providers. Utilization of WIFI technology has become popular because it is low cost,

convenient and accessible way of transferring and receiving data with high reliability.

1.1 PROPOSED SYSTEM:

We are introducing an advanced technology to tackle vehicle theft. In this system we are going to use a BLYNK app to control the ignition of the vehicle and also to track the location the vehicle. We also implemented a 4-pin keypad unlock system to start the ignition. When the pin entered is wrong a notification through BLYNK app.

II. COMPONENTS REQUIRED

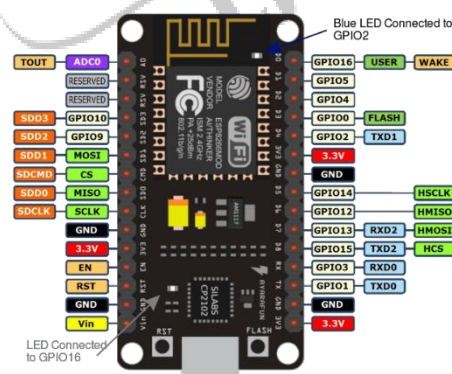
HARDWARE USED

1. Power Supply Circuit, 2. NodeMCU ESP8266 Micro controller Module
2. GPS module, 3. Relay Module
3. Motor, 4.Red Led, 5.Green Led
4. Buzzer, 5.Push Buttons

SOFTWARE USED

1. Arduino IDE Software, 2. Blynk APP

2.1 MICROCONTROLLER



2.1 NODEMCU ESP8266 MICROCONTROLLER

ESP8266 is a low-cost MCU with built-in Wi-Fi. It can be paired with another host microcontroller (such as Arduino) to provide Wi-Fi network functions for the basic IoT development platform. In addition, ESP8266 can be used as a standalone MCU, including a 32-bit 80MHz processor, 16 GPIO pins (enable 4 PWM), and built-in analog-to-

digital converter, SPI and I2C interfaces, etc. ...

The working voltage of the MCU is 2.5V-3.6V, and the average working current is 80 mA.

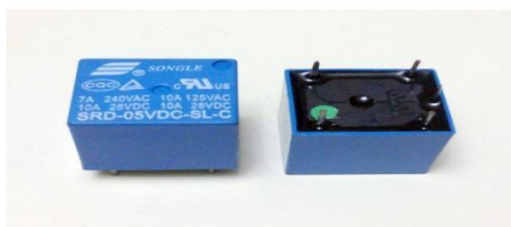
2.2 PIEZO BUZZER



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The buzzer or beeper is a voice signalling device that can be mechanical, electromechanical or piezoelectric. Typical buzzers and beepers applications include confirmation of user inputs, such as alarms, timers and mouse clicks or pulsations. The piezoelectric element can be operated by a vibrating electronics or another source of audio signal driven by a piezoelectric audio amplifier. The sound is commonly used to indicate that the button has been pressed is click, ring or beep.

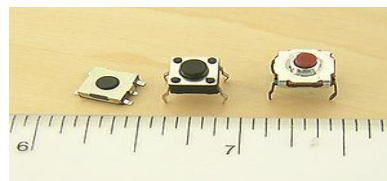
2.3 RELAY



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A Relay is an electromechanical switch, which perform ON and OFF activities without any human connection. General portrayal of twofold contact hand-off is appeared in fig. Transfers are utilized where it is important to control a circuit by a low-power signal (with complete electrical confinement among control and controlled circuits), or where a few circuits should be constrained by one signal.

2.4 PUSH BUTTONS



2.4 PUSH BUTTONS

A push-button (also spelled pushbutton) or simply button is a simple switch mechanism for controlling some aspect of a machine or an interaction. Catches are commonly made out of hard material, normally plastic or metal. The surface is typically level or formed to oblige the human finger or hand, in order to be handily discouraged or pushed. Catches are regularly one-sided switches, however even numerous un-one-sided catches (because of their actual nature) require a spring to get back to their un-pushed state. Various individuals utilize various terms for the "pushing" of the catch, like press, push down, crush, and punch.

2.5 DC MOTOR



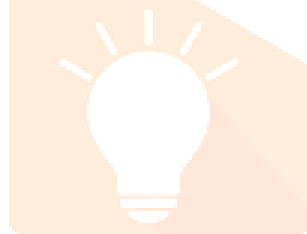
2.5 DC MOTOR

A DC motor is an electric motor that sudden spikes in demand for direct flow (DC) power. In any electric engine, activity depends on straightforward electromagnetism. A current-conveying conductor creates an attractive field; when this is then positioned in an outer attractive field, it will encounter a power corresponding to the current in the conductor, and to the strength of the outside attractive field. As you are very much aware of

from playing with magnets as a child, inverse (North and South) polarities draw in, while like polarities (North and North, South and South) repulse. The inner arrangement of a DC engine is intended to bridle the attractive connection between a current-conveying conductor and an outer attractive field to create rotational movement.

2.6 GPS (GLOBAL POSITIONING SYSTEM)

The Global Positioning System (GPS) is a space-based global route satellite system in the United States. It continues to provide reliable positioning, navigation and timing services for users around the world in any weather, day and night, anywhere on or near the earth.

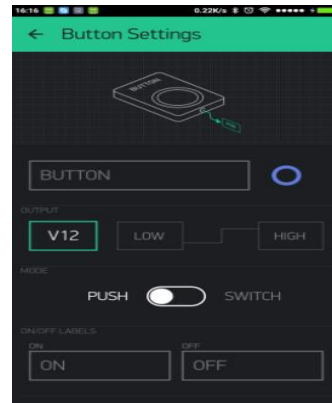
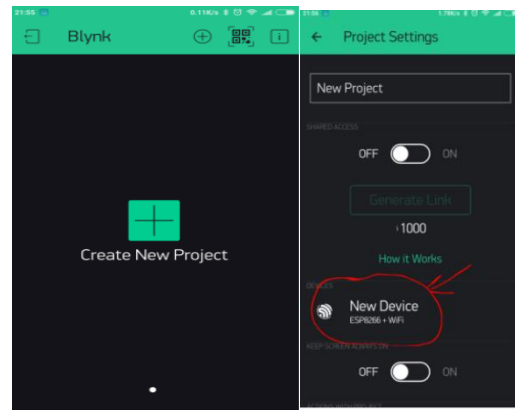


2.6 GPS

GPS consists of three parts: satellites orbiting the earth between 24 and 32, four control and monitoring stations on the ground, and a user-owned GPS receiver. GPS satellites transmit signals from space and GPS receivers use these signals to give a three-dimensional position (latitude, longitude, and altitude) plus time.

2.7 BLYNK APP

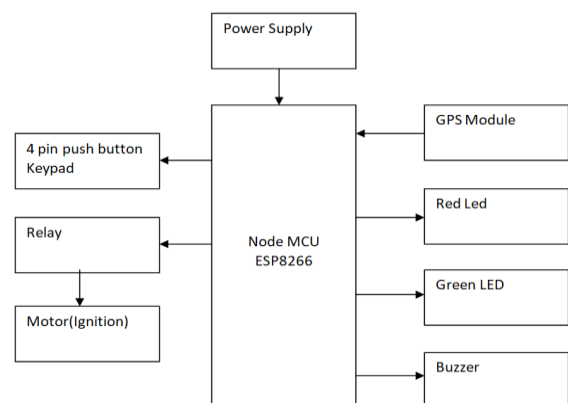
Blynk was intended for the Internet of Things. It can handle hardware distantly, it can show sensor data, and it can store data, visualize it and do numerous other cool things.



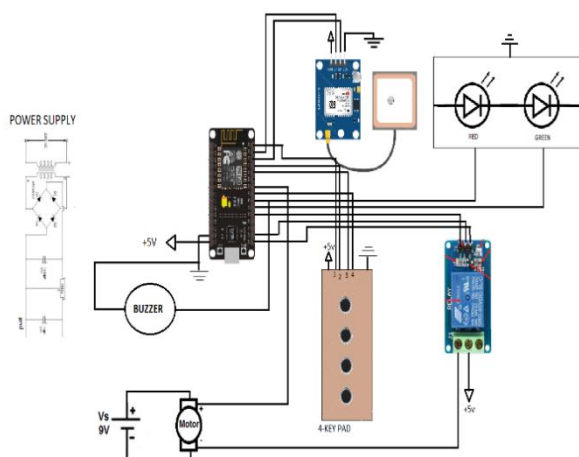
2.7 BLYNK APP SETTINGS

III. BLOCK DIAGRAM

We are introducing the enhanced vehicle theft detection and remote engine locking system. To successfully do this we have an esp8266 microcontroller, two LEDs, a 4-pin keypad, a relay, a DC motor, a buzzer and a GPS.



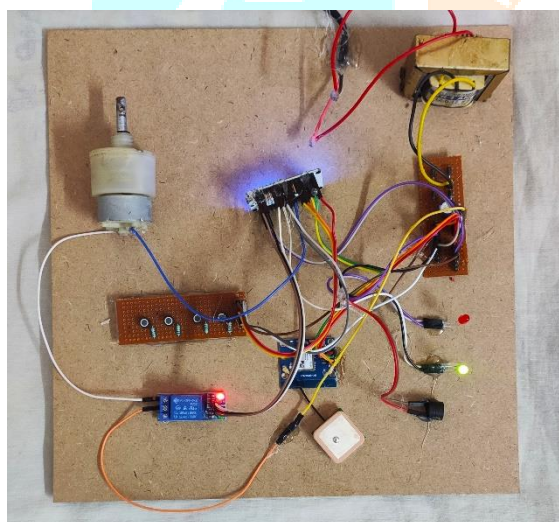
IV. CIRCUIT DIAGRAM



4.1 CIRCUIT DIAGRAM

V. RESULT ANALYSIS

The vehicle detection and remote engine locking system is working successfully.



5.1 VEHICLE THEFT DETECTION AND REMOTE ENGINE LOCKING SYSTEM

ADVANTAGES

1. Easy to use for rural areas.
2. It reduces the time delay.
3. Low power consumption.
4. Flexible and reliable.
5. This application is simple and easy to implement.
6. Track the live location.

CONCLUSION

An IoT based vehicle theft detection and remote engine locking system is GPS technology that helps the users identify the vehicle in theft mode and enables the controlling mechanism technique and, in this way vehicles are provided with better controlling mechanism and thus reducing the crimes.

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