Visvesvaraya Technological University

Belagavi

A Mini Project Report

on

Vehicle Theft Intimation Using NodeMCU and GPS Module

Submitted by

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In partial fulfillment for the award of the degree of

BACHELOR OF ENGINEERING

IN

ELECTRONICS & COMMUNICATION

NEW HORIZON
COLLEGE OF ENGINEERING
New Horizon Knowledge Park, Ring Road, Marathalli
Autonomous College Permanently Affiliated to VTU, Approved by AICTE & UGC
Accredited by NAAC with 'A' Grade, Accredited by NBA

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CERTIFICATE

Certified that the Mini project entitled "Vehicle Theft Intimation Using NodeMCU and GPS Module" is carried out by Mr. M Suchith bearing USN: 1NH18EC063, Ms. Nivedita Salimath bearing USN: 1NH18EC080, Ms. Ramya Priya Y bearing USN: 1NH18EC095 and Ms. Tanmaya H bearing USN: 1NH18EC112, bonafide students of NHCE, Bengaluru in partial fulfilment for the award of Bachelor of Engineering in Electronics and Communication of the Visvesvaraya Technological University, Belagavi during the year 2020-21. It is certified that all corrections and suggestions indicated for Internal Assessment have been incorporated in the report deposited in the department library. The mini project report has been approved as it satisfies the academic requirements in respect of the mini project work prescribed for the said degree.

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Dr. Aravinda K	Dr. Sanjeev Sharma
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External Viva

Name of the Examiners	Signature with Date
1. _____	1. _____
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ACKNOWLEDGEMENT

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ABSTRACT

Vehicle Theft Intimation Using NodeMCU and GPS Module

The aim of this project is to use wireless technology to alert the owner of the vehicle about any unauthorized entry. The owner of the vehicle is notified by sending an auto-generated message to the owner. An additional advantage of this project is that the owner can trigger the NodeMCU to turn off the engine.

Nowadays with the increasing crime rate, security system for vehicles is also becoming very essential. In this proposed system if someone tries to forcefully turn on the car without key, the NodeMCU gets an interrupt through a switch mechanism connected to the system and commands the NodeMCU to send an alert message to the owner using IFTTT (If This Than That) android message applet. The owner receives the message that his car is stolen along with the GPS location of the car. The owner can then trigger the NodeMCU to 'stop the engine' and enter the GPS location received on Google maps to track the exact location of the vehicle. When the NodeMCU receives the message, the output of it activates a mechanism that disables the ignition of the vehicle thereby stopping the vehicle. This project uses a DC Motor to indicate vehicle's motor ON/OFF condition. Therefore, owner of the vehicle from anywhere can turn off the ignition of the vehicle and save his vehicle from theft. Operating voltage of the project is 5V. This project can be powered using power bank or batteries.

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CHAPTER 1

INTRODUCTION

Vehicle Theft Intimation Using NodeMCU and GPS Module

Nowadays with the increasing crime rate, security system for vehicles is also becoming very essential. In most of the cases the vehicle stolen is not traceable by the owner of the vehicle. So, the need of the hour is a better anti-theft system which is implemented in this project using NodeMCU and GPS.

This project makes use of wireless technology to alert the owner of the vehicle about any unauthorized entry to the vehicle. This is carried out by sending an auto-generated message to the owner. In this project NodeMCU is interfaced with GPS module and IFTTT web server for getting location co-ordinates and sending alert message. In this proposed system if someone tries to forcefully turn on the car without the car key, the system gets activated and the NodeMCU receives an interrupt and sends the message to the owner using IFTTT (If This Than That) Android message applet. Since GPS technology is used to find the exact location of the vehicle, the message is attached with latitude and longitude coordinates of the place which is calculated by the GPS. The NodeMCU reads the value and sends the data to the predefined contact number via SMS using IFTTT applets like android SMS. GPS gets the data from the satellites and obtains the geographical position of the vehicle. NodeMCU decodes the NMEA format data to GPS co-ordinates using libraries. An additional advantage of this project is that the owner can trigger the NodeMCU to turn off the engine. Therefore, owner of the vehicle from anywhere can turn off the ignition of the vehicle and save his vehicle from theft.

CHAPTER 2
LITERATURE REVIEW

Title of the paper	Author & Year of Publication	Outcome	Limitation
Theft Detection and Engine Lock System using Arduino.	K Praveen, G Ravikumar, R Vignesh, M Premakumar and N Revathi April-2021	Describes about anti-theft detection system and engine lock system using Arduino, GPS and GSM module.	It doesn't describe the working and circuit connection in detail.
Google Assistant controlled Home Automation.	Manish Prakash Gupta, 2018	Provides details on how to use NodeMCU and connect to IFTTT servers for doing certain tasks.	Creation of IFTTT applets is not described in detail.
Vehicle Monitoring and Tracking System using GPS and GSM Technologies	B. Hari Kumar, Syeda Fathima Tehseen, S.Thanveer, Guntha Vamshi Krishna, Syed Mohisin Akram April-2016	Vehicle security using GSM, GPS and AT89S52 microcontroller and monitoring the status of the engine of the vehicle using thermistor for continuous monitoring of the temperature.	Description about immediate turning off of the engine after sending the message is not mentioned.

Table 2.1: Literature Survey

CHAPTER 03

EXISTING SYSTEM AND PROBLEM STATEMENT

Existing Systems:

- **Vehicle Theft Control System:** The main objective of this system is to send an auto-generated SMS to the owner of the vehicle about any unauthorized entry. From that SMS owner can find out the exact location of the stolen vehicle by thefts and inform to the concerned authority.
- **Vehicle Theft Alert & Engine Lock System Using PIC microcontroller:** This system detects if the vehicle is in theft mode and if the status is in theft mode, this system sends SMS to the owner. After which the owner is supposed to send back the message. This message gives command to the vehicle to lock the engine.
- **Vehicle Theft Identification and Intimation Using GSM & IOT:** In this the vehicle is identified, controlled, and connected updates with Internet in a simple way. By utilization of AT commands of GSM module, a message will be sent to the owner that the vehicle is recognized. Action can be taken by sending a reply to GSM module to stop motor of vehicle.

Problem Statement:

To Alert the Owner of vehicle regarding an Unauthorized entry into the vehicle and help in remote locking of vehicle by an App and getting exact location Coordinates on SMS.

Objectives:

- To design a system which detects an unauthorized entry into the vehicle.
- GPS Coordinates data along with alert message is sent to Owner through NodeMCU and IFTTT server.
- To Provide Owner, an access to control stopping of vehicle remotely during such situation and provide the location of vehicle.

CHAPTER 04

PROPOSED METHODOLOGY

- The main purpose of project is to implement a system which will detect the unauthorised entry to car and will send the SMS and the location to the registered number.
- The main two components are GPS module, and NodeMCU esp8266.
- NodeMCU is a WIFI module that connects to the internet using the Wi-Fi Network provided. GPS module is a device that receives data from the satellites and obtains the geographical position of the device.
- Here the live coordinates received by the GPS receiver module is sent to a mobile phone via SMS using the IFTTT applets like Webhook and Android SMS.
- The GPS Coordinates received from the GPS module is sent to the IFTTT server Webhook using NodeMCU and the IFTTT server will send the Alert message and GPS coordinates to the Mobile Number provided.
- After owner gets an alert message, he has the option of locking the Engine using Blynk App.

CHAPTER 05

PROJECT DESCRIPTION

Vehicle Theft Intimation Using NodeMCU and GPS Module

In this project we are using the concept of IoT (Internet of things) for implementing safety of vehicle from being theft, this project will alert the owner of the vehicle about any unauthorized entry to the vehicle. This anti-theft system will send an auto-generated message to the owner using IFTTT applets and owner can even stop his vehicle and get exact GPS coordinates by triggering the NodeMCU using Blynk app or Google assistant.

We have built the device using mainly three hardware components that is, NodeMCU esp8266, NPN transistor BC 548 and Neo-6m GPS module.

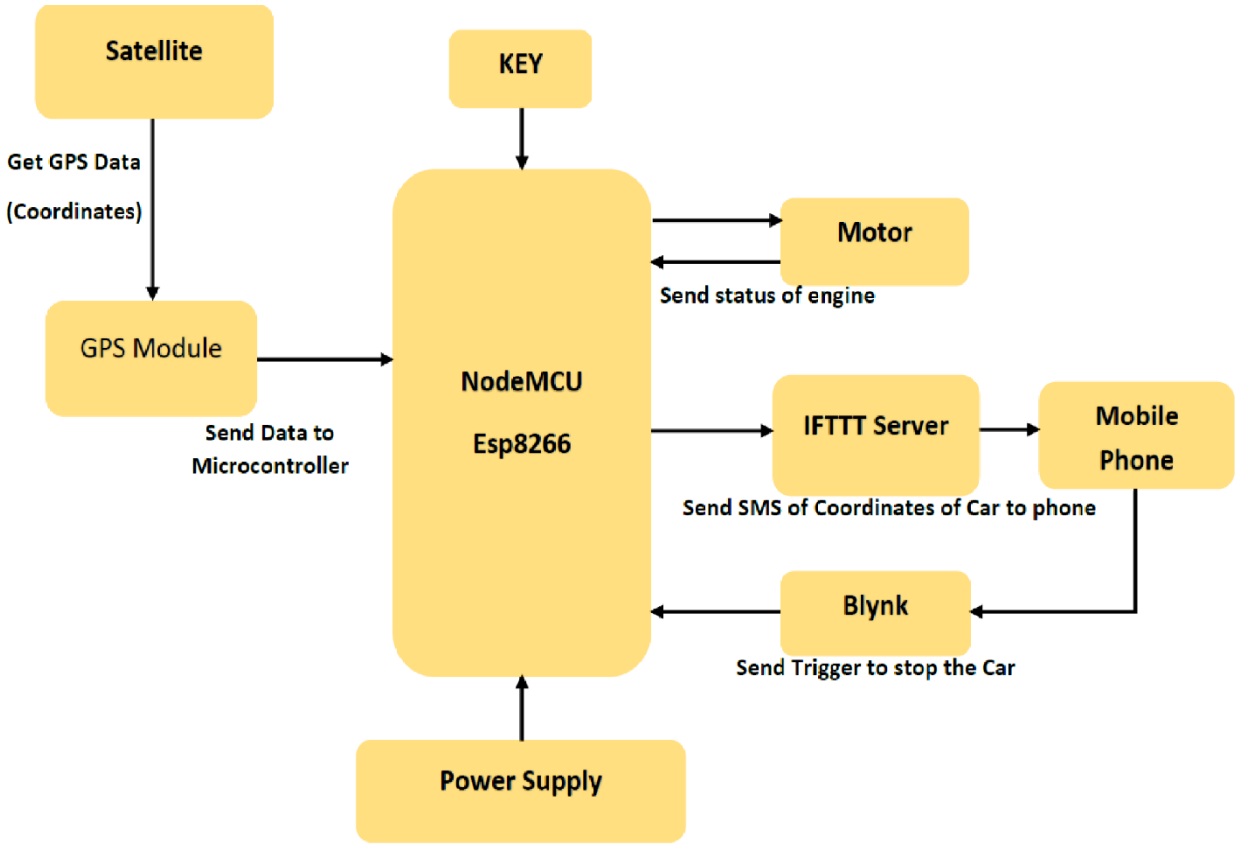


Fig 5.1: Block diagram

The above block diagram explains the working of the device in brief manner. The block diagram has some important block that is Nodemcu, GPS module, motor, Blynk, IFTTT server.

The steps followed in the project are as follows:

- Check the status of Key of the vehicle.
- Collect the location details of the device from GPS module.
- Connect to given WIFI and establish a connection with IFTTT server.
- Send the GPS details with alert message to the concerned person.

The circuit diagram of the project is given below.

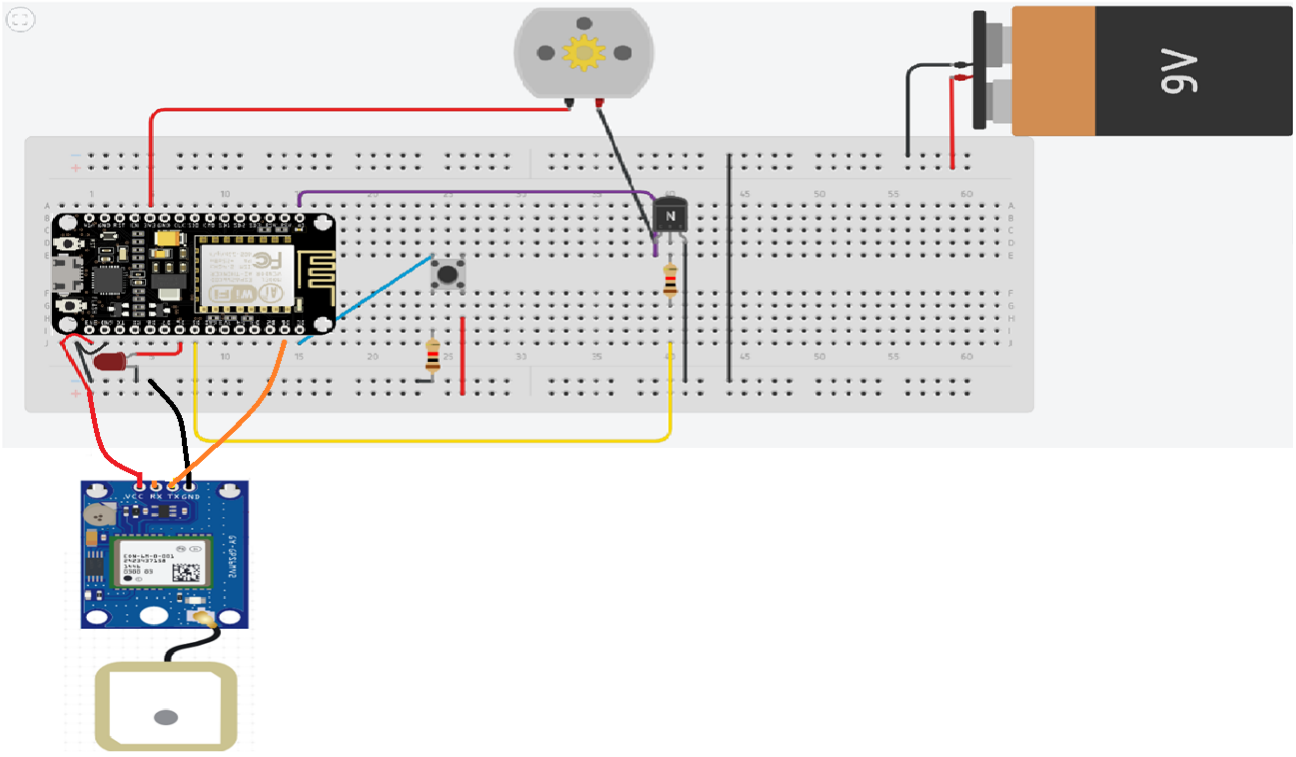


Fig 5.2: Circuit diagram

The components used in the circuit are,

- NodeMCU esp8266
- NEO-6M GPS module
- Push Button (Key status)
- BC 548 transistor
- Led
- Resister
- Motor
- Power Source

5.1 NodeMCU esp8266:

NodeMCU is an open source IoT platform, based on Lua firmware which runs on ESP8266 WIFI SoC module from Espressif System and based on ESP-12 module hardware. It was developed to replace AT commands with Lau scripting to make it easier for the developers. The NodeMCU is a Low cost WIFI chip with full TCP/IP stack and complete microcontroller features to help the developers to use is in IoT applications.

Developed by Shanghai-based Chinese manufacturer, Espressif.

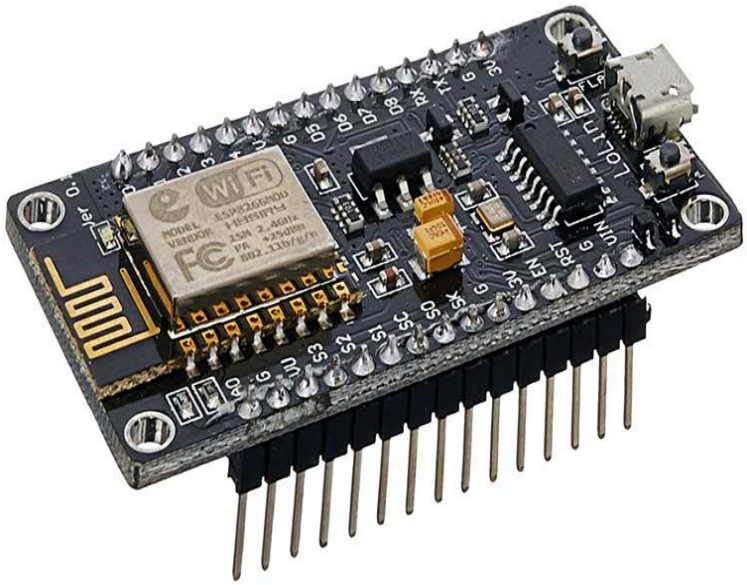


Fig 5.3: NodeMCU esp8266

Features of NodeMCU esp8266:

- Interactive.
- Low Cost.
- WIFI enabled.
- USB-TTL included.
- Smart.
- Programmable.
- Open-source.
- Plug N play.

Specifications of NodeMCU esp8266:

- **Type :** Single-board microcontroller
- **Developer :** ESP8266 Opensource Community
- **Operating system :** XTOS
- **CPU :** ESP8266
- **Digital I/O Pins (DIO) :** 16
- **Analog Input Pins (ADC) :** 1
- **Flash Memory :** 4 MB
- **SRAM :** 64 KB
- **Clock Speed :** 80 MHz
- **Power by :** USB
- **Power Voltage :** 3v, 5v
- **Code :** Arduino Cpp
- **IDE Used :** Arduino IDE

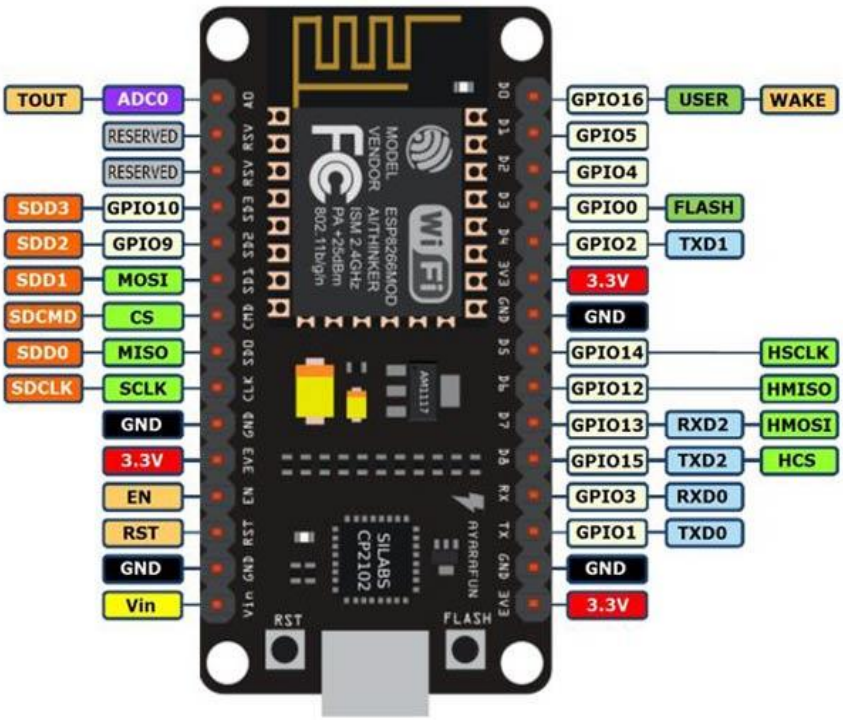


Fig 5.4: Pin Diagram of NodeMCU esp8266

Application of NodeMCU:

- Creating prototypes of IoT devices.
- Low power consumption projects.
- Projects which need multiple I/O interface with the WIFI.

Advantages:

- Low cost
- Small size microcontroller
- Low energy consumption
- Built-in WIFI support
- Programmable using Arduino IDE.

Disadvantages:

- Need to learn Lau scripting.
- Pinout of NodeMCU is confusing compared to Arduino.

5.2 NEO-6M GPS module:

The NEO-6M GPS module is one of the popular GPS receiver module with a detachable ceramic antenna, which can provide strong satellite search capability. The device is capable of sensing locations and track up to 22 satellites and track the location anywhere in the world. It has a on board signal indicator, with which we can monitor network status of the module. It has a button cell which help in saving the data when the main power is shut down accidentally.

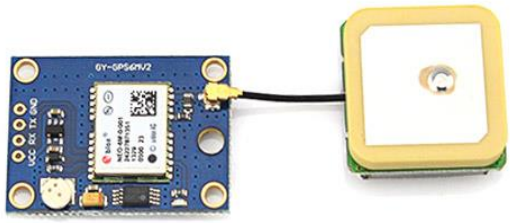


Fig 5.5: NEO-6M GPS module

This module communicates with the satellites and give the data in NEMA formats which we can decode into useful location Co-ordinates longitude and longitude, date and time. The core has GPS receiver module, that is NEO-6M GPS module chip from u-box. It tracks 22 satellites on 50 channels and have sensitive level which is -161 dBm.

NEMA format:

NEMA stands for National Marine Electronics Association. It was way before when GPS was not even invented. It was formed in 1957 by a group of electronic dealers to communicate with the manufacturers. Now the NEMA format is used by all the GPS manufacturers, it is much like ASCII in the computer digital world.

Features of NEO-6M GPS module:

- Interface : UART
- Operating voltage : 2.7v-3.6v DC voltage
- Baud rate : 4800-230400 bps (default 9600)
- Built-in EEPROM
- External antenna
- Operating Current : 67 mA

Pinout of NEO-6M GPS module:

- VCC : Input voltage pin which is used to power on the board.
- GND : it the ground pin to complete the circuit.
- TX, RX : used for UART communication with the microcontroller.

Fig 5.6: Pinout of NEO-6M GPS module

Application of NEO-6M GPS module:

- Location based application
- Navigation – moving from one position to another
- Maps
- Time – we get precise timing of the world.
- Tracking of people or moment of things.

Advantage of NEO-6M GPS module:

- Low cost
- In-built button cell
- Low energy consumption
- Has EEPROM
- Easy to program

Disadvantage of NEO-6M GPS module:

- Cold start of 40s
- Some time it has difficult in connecting to GPS.

5.3 Push button/Key Status:

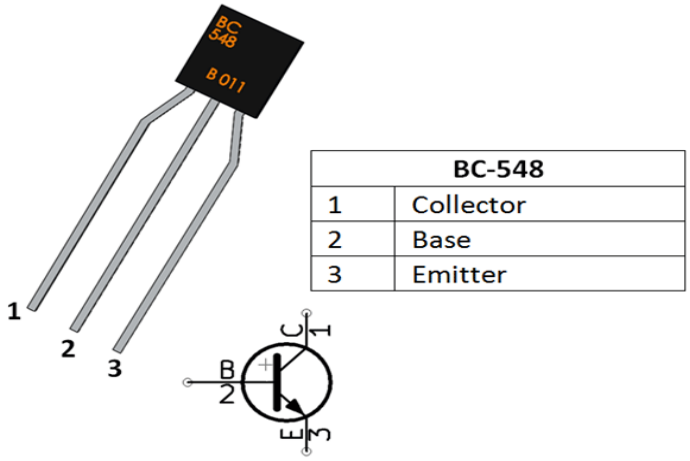
A push button is a component which can be used as a switch to control an action in a machine or some type of process. It is made of plastic with metal connectors. We used it with a 10k resistor to act as a pulldown switch. We use this to demonstrate the working of vehicle key.

Fig 5.7: Push button

5.4 NPN Transistor BC 548:

It is a general purpose NPN bipolar junction transistor which can be used for amplifying ad switching purposes in electrical circuits. Based on the voltage applied at the base terminal of the transistor switching operation is performed.

- When Vin < 0.7V it acts as open switch.
- When Vin > 0.7V it acts as closed switch.



BC-548	
1	Collector
2	Base
3	Emitter

Fig 5.8: BC 548 Transistor

5.5 LED:

A Light-emitting diode (LED) is a light source which is a semiconductor that emits light when current flows through it. Electron holes in the semiconductor recombines with electrons to release energy in the form of photons.

Fig 5.9: LED

5.6 Resistor:

Resistors are the electronic components who have a specific, constant electrical resistance. The resistor's resistance will limit the flow of the electrons in the circuit. It is a passive component that is the only consume power but can't generate the power. They are commonly used with the active components like op-amps, microcontrollers, and other integrated circuits. Commonly they are used to limit current, divide voltages.

The resistance of the resistor is measured in **ohms**. The symbol of the resistance is given by a Greek letter **omega: Ω**.

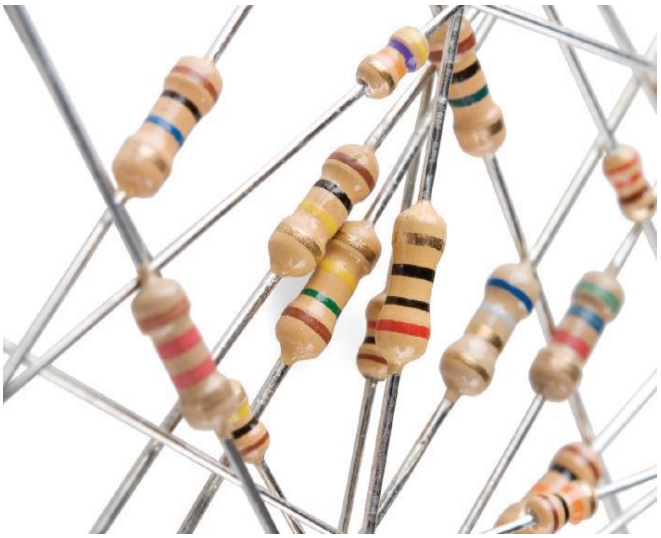


Fig 5.10: Resistor

5.7 DC Motor:

A Dc motor converts the electrical energy into mechanical energy. It operates through the interaction between magnetic field of motor and electrical current in the winding to generate force in the form of torque applied on the motors shaft.

We are using Dc motor to demonstrate it as Car's Engine.

5.8 Power Source:

Any battery or power bank can be used to power the system, operating voltage of the system is 5V, we are using a power bank with output voltage of 5V.

Software Specification:

The main two Software used to build the project are:

- Arduino Software IDE
- IFTTT
- Blynk

5.9 Arduino Software (IDE):

The Arduino IDE (Integrated Development Environment) is a Board development application that is written in function of C or C++

It is used to write, compile and upload programs to Arduino board and other third-party microcontrollers which support the Arduino software.

Developers: Arduino Software

Software used: Arduino 1.8.13

Fig 5.11: Arduino Software IDE

Advantages of Arduino IDE:

- Open Source
- Portable
- User friendly programming language
- Can program third party microcontrollers as well.

5.10 IFTTT (If This Than That):

It is a free we-based service, where we can create chain of simple conditional statements, called Applets. An applet is triggered by changes which occur within other web-services such as Facebook, Gmail, Pinterest, etc.

We have used IFTTT to create an applet which has Webhook and Android Message in chain for building our project.

Fig 5.12: IFTTT (If This Than That)

Advantages of IFTTT:

- Simplifies automation
- Saves time
- Wide-ranging support
- Free of cost
- Ready-made applets

Disadvantages of IFTTT:

- Limited triggers and actions
- They wont work as expected
- No multi-level support

5.11 Blynk App:

Blynk is a platform with IOS and Android apps to control Ardiono, Raspberry Pi, NodeMCU etc. It is a digital dashboard where we can build a graphical interface to the project.

We are using to interface with NodeMCU to control the working of motor.

5.12 Programming of NodeMCU:

- Install the latest Arduino IDE at the Arduino website, install any version from 1.8 level or later.
- Open Arduino IDE and open preferences window.
- Post https://arduino.esp8266.com/stable/package_esp8266com_index.json into Additional Board Manager URLs field.

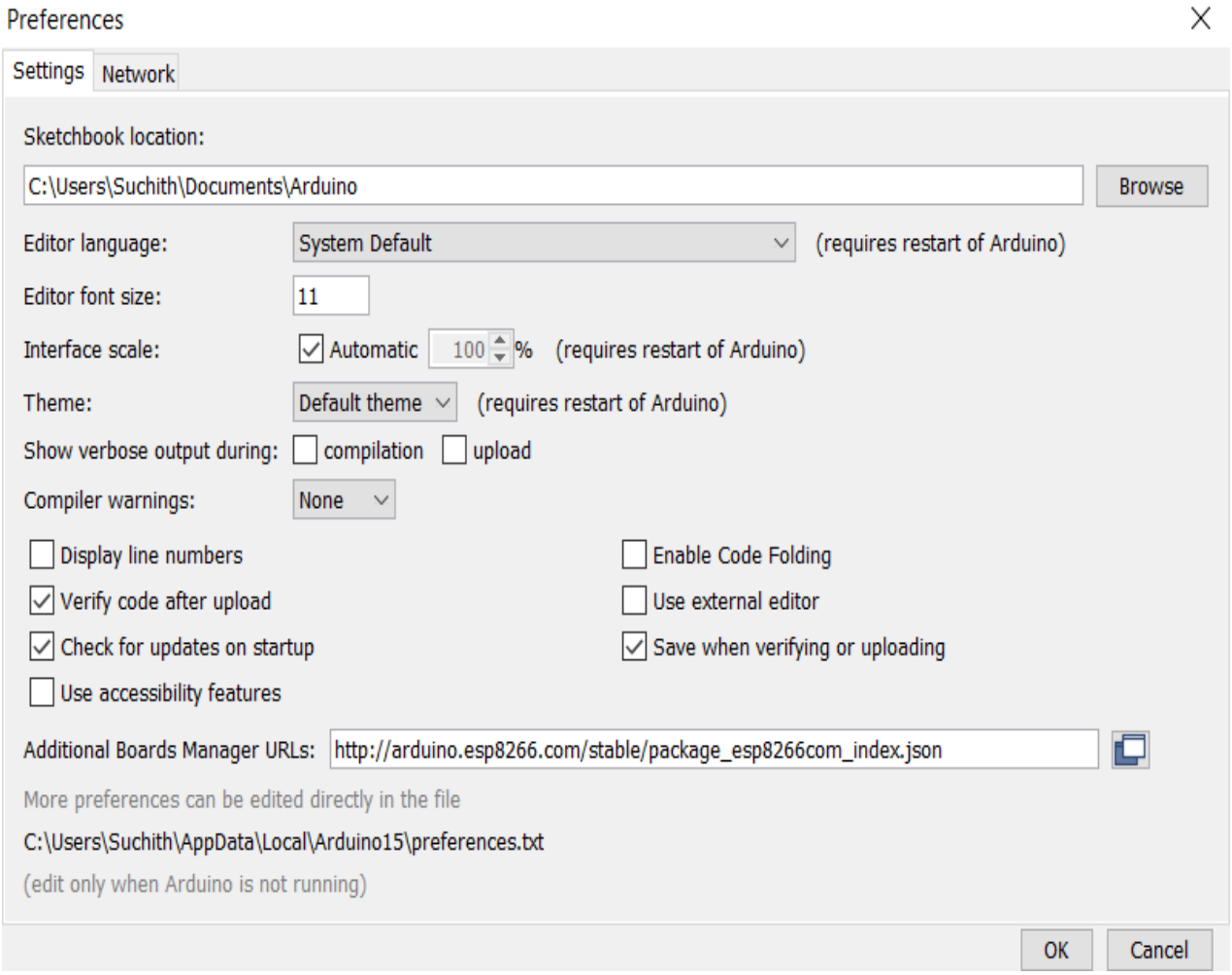


Fig 5.13: Addition of URLs

After Completion:

- Connect the NodeMCU to the PC with the USB port, install the drivers if needed.
- Check which port number is assigned to the board.
- Open Board Manager from tools> esp8266 Modules platform.
- Select Generic ESP8266 module.
- Upload using Serial, 80Mhz CPU frequency, Flash Size 4M, upload speed of 115200
- Upload the code into the NodeMCU after compilation.

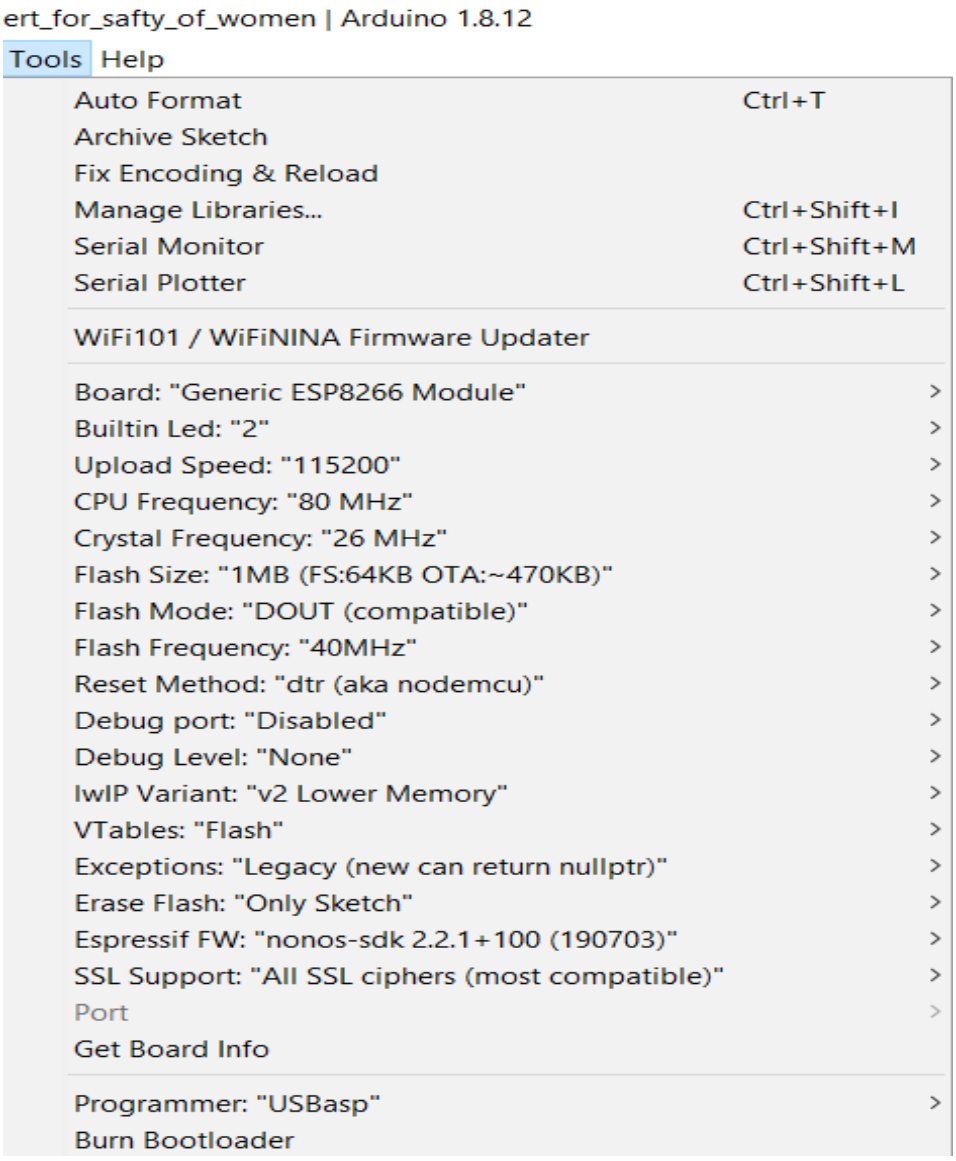


Fig 5.14: Selection of Board Specs

5.13 Creation of IFTTT applet in IFTTT website:

Here, IFTTT is used to use Webhook and Android SMS service in chain. So, the GPS coordinates are sent to concerned person using NodeMCU. Here Webhook is triggered from NodeMCU to activate Android SMS to send the SMS to the concerned person.

First step is creating account in IFTTT.

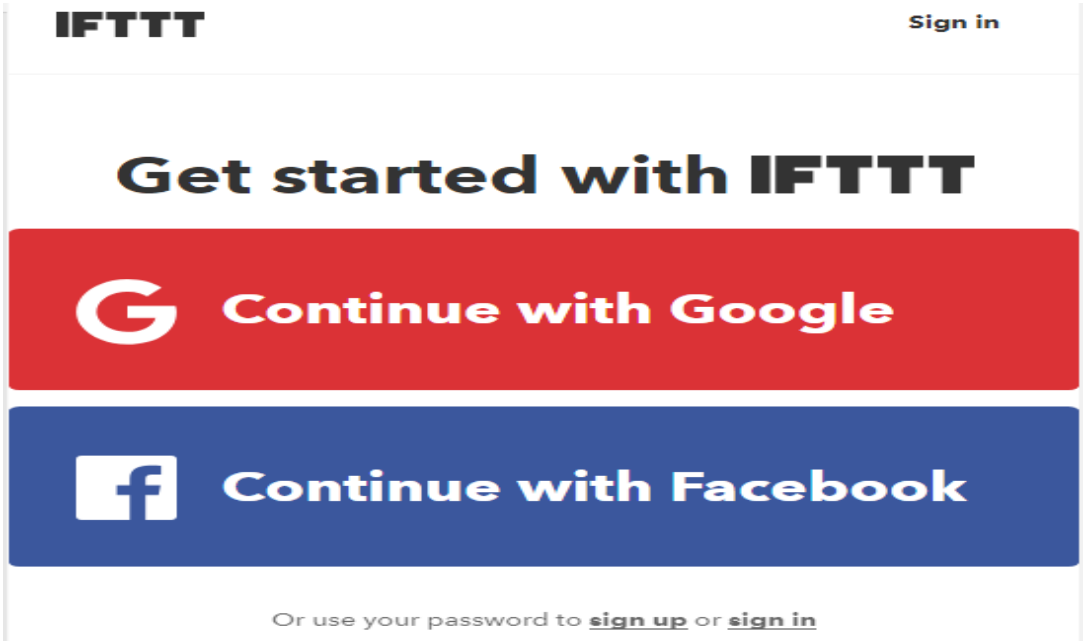


Fig 5.15: Creating account on IFTTT.

Sign in to IFTTT using IFTTT account.

After Sign in, click on My Applets and then select New Applet shown below.

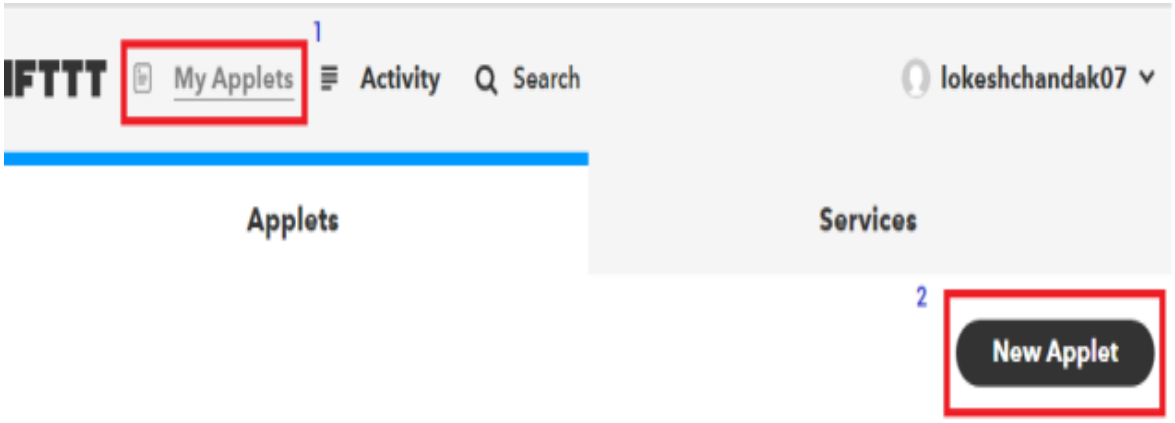


Fig 5.16: Applet creation in IFTTT website

Now click on **This** as shown below

Fig 5.17: Click on This and select Webhooks

Now Select Webhooks and Add trigger

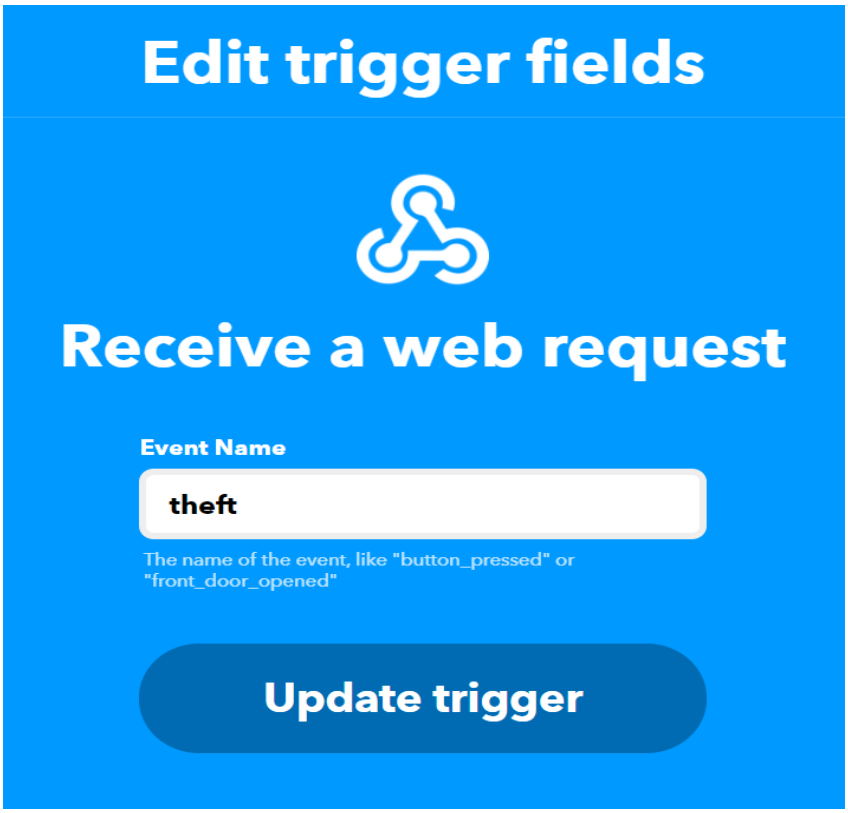


Fig 5.18: Creation of trigger

Now click on **That** and add the action which is here Android SMS

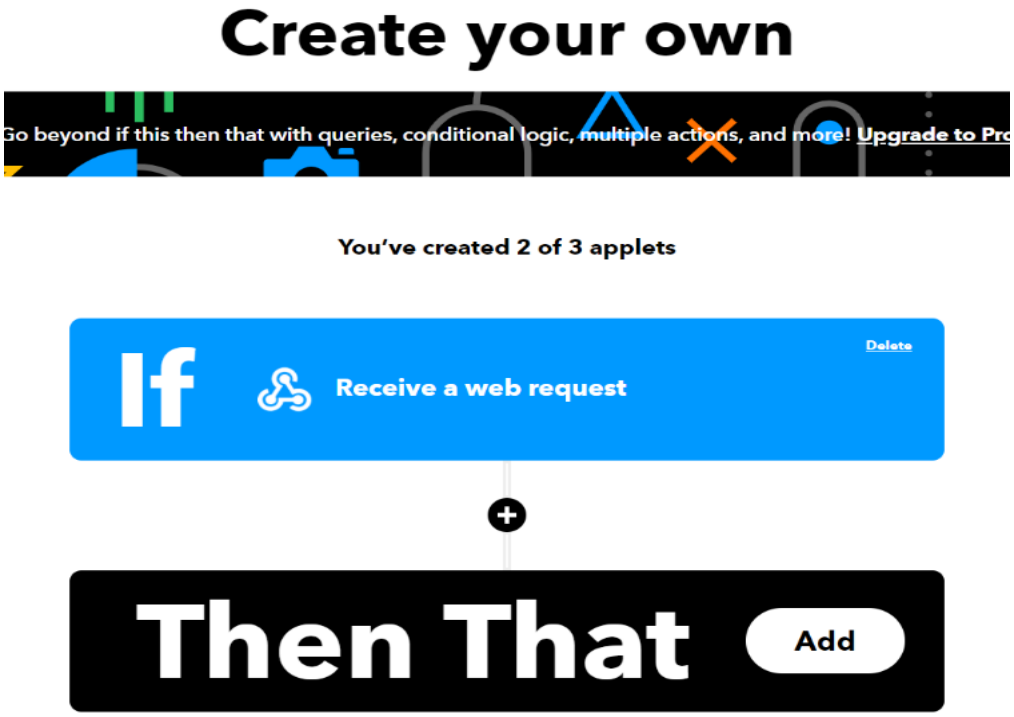


Fig 5.19: Creating THEN THAT statement

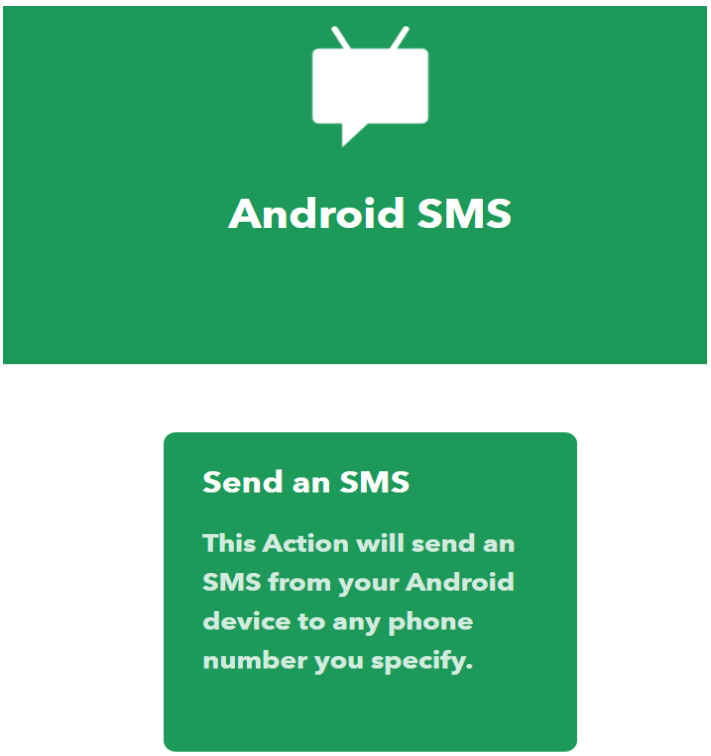


Fig 5.20: Select Send an SMS

Fig 5.21: Click on create action

Fill the corresponding details of the alert message and create the action and complete the configuration in IFTTT website.

Now check for the Webhook documentation and make a note of user KEY

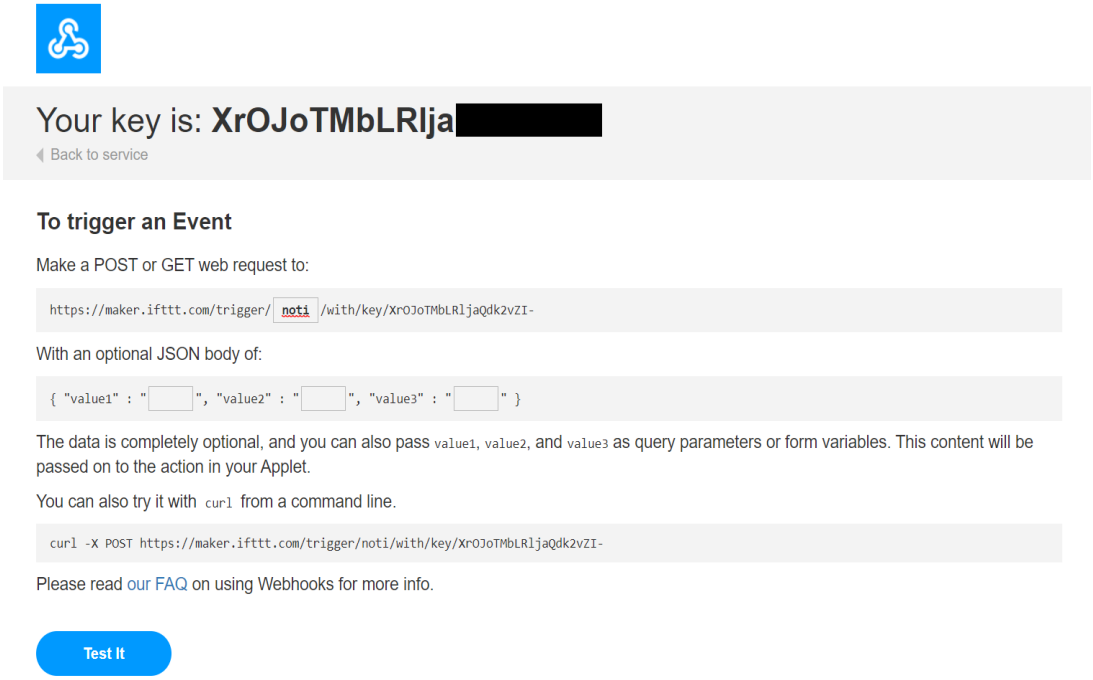


Fig 5.22: User KEY

5.14 Flowchart of the project:

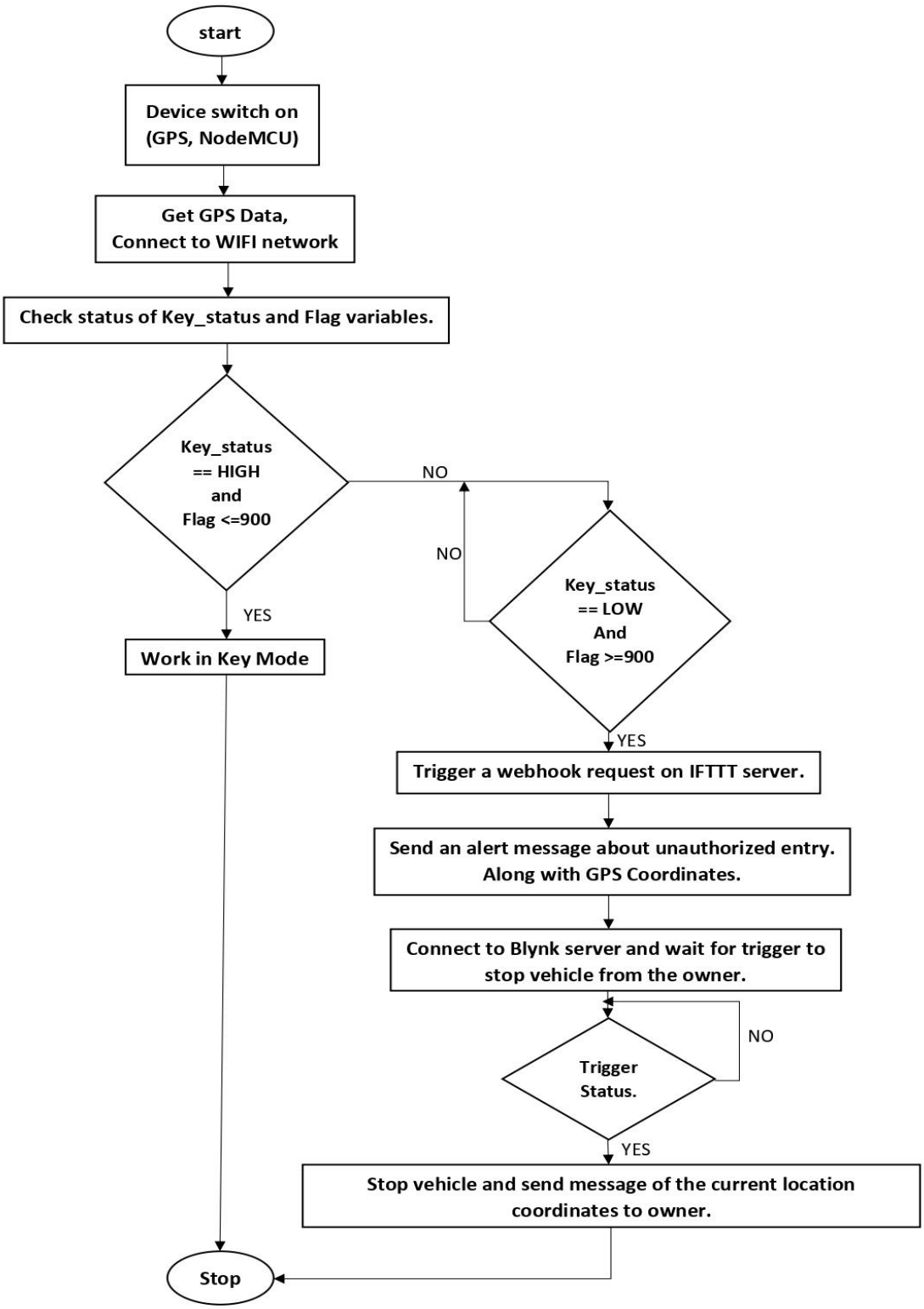


Fig 5.23: Flowchart of the project

Algorithm used in the project:

Step 1: Switch on the system GPS and NodeMCU.

Step 2: Get the GPS Coordinates and connect to the WIFI network.

Step 3: Check the status of Key_status and Flage variables.

Step 4: if ((Key_status == HIGH) && (Flag <=900)) then start the vehicle and check the status of Key_status variable, Stop the vehicle if the Key_status == HIGH again.

Step 5: If ((Key_status == LOW) && (Flag >=900))

- Connect to IFTTT server and make Webhook request on IFTTT server which will send an alert message along with GPS Coordinates to the Owner.
- New connect to Blynk server and wait for trigger from the Owner.
- If trigger is received, than stop the vehicle and again connect to IFTTT server to make Webhook request which will send the exact location of vehicle to the Owner.

5.15 Working:

- When the device is turned on using power source, NodeMCU will get connected to the given WIFI Network and GPS module starts receiving data in the NMEA format. This NMEA string is decoded into GPS latitude and longitude Coordinates using certain libraries.
- When Vehicle is turned ON normally using Key, the motor is either turned ON or OFF based on the status of Key.
- When an Unauthorised entry to the car is detected, NodeMCU will start connecting to IFTTT server and make a Webhook request, along with the GPS Coordinates. This Webhook request will trigger the android message applet to send an alert message to the owner of the Vehicle along with GPS Coordinates.
- Now if the owner wants to stop the vehicle, he can use google assistance to give voice command or use app to trigger NodeMCU which will in turn break the circuit and vehicle stops. This will again initiate the Webhook request and owner can now get the exact location of his vehicle to his phone via SMS.

CHAPTER 06

RESULT AND DISCUSSION

The project was successfully completed before the due date. The main purpose of this project is to provide a low cost, easy to use tracking and anti-theft engine-lock system. When someone tries to forcefully turn on the car, the NodeMCU gets an interrupt which send an alert message to the owner stating.

“Someone tried to On the Vehicle without Key…

At the Location Coordinates: Longitude, Latitude”

Then the owner can remotely stop vehicle by using Blynk App and again get location of vehicle via SMS. Device and service cost has been reduced by using free, simple, cheap, and robust tools for both hardware and software requirements, making the solution cheap and affordable by individuals as well as large corporations.

The project is working as per our Objectives.

Hardware Setup of the Project:

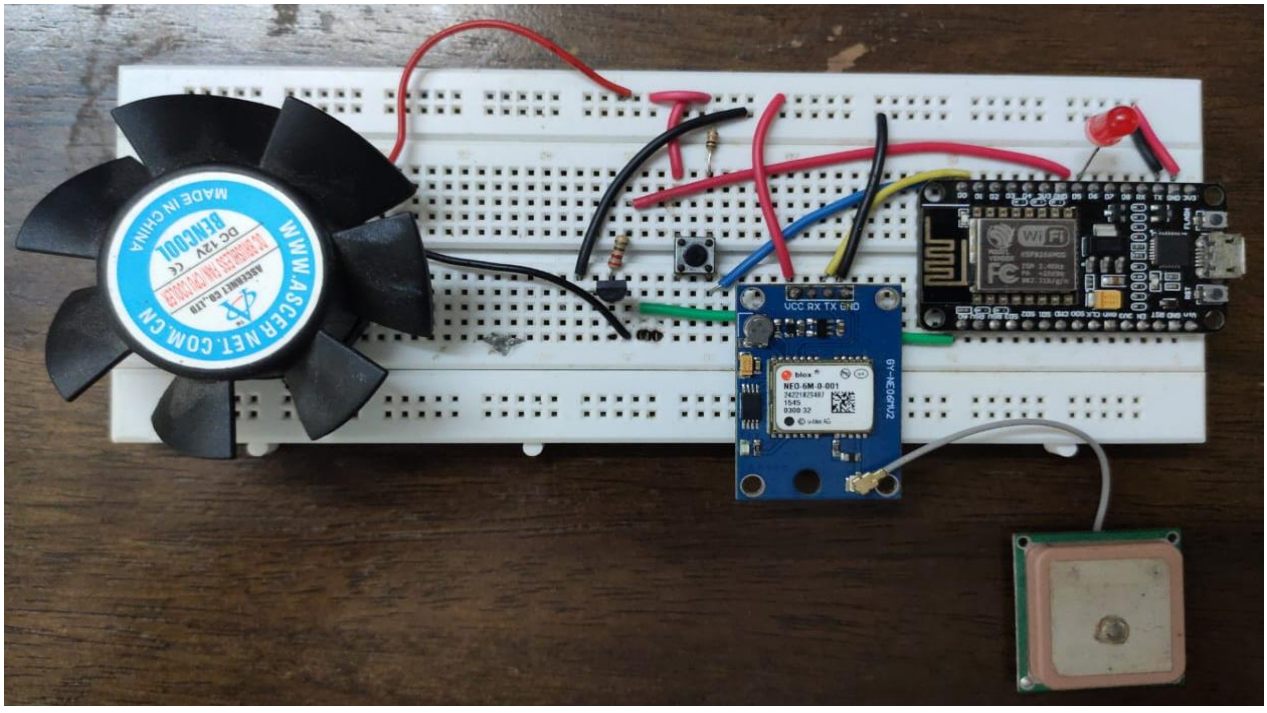


Fig 6.1: Hardware Setup of the project

The following are the screenshot of the outputs of the project:

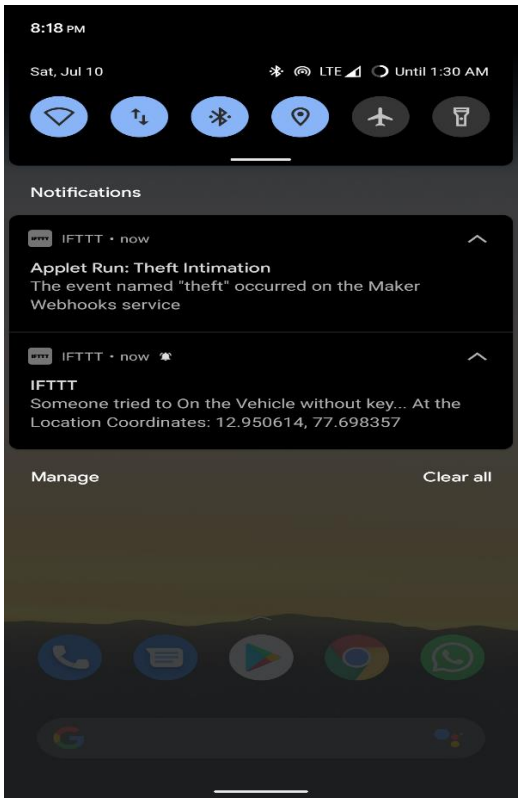


Fig 6.2: Notification sent by IFTTT server to IFTTT application in the phone.

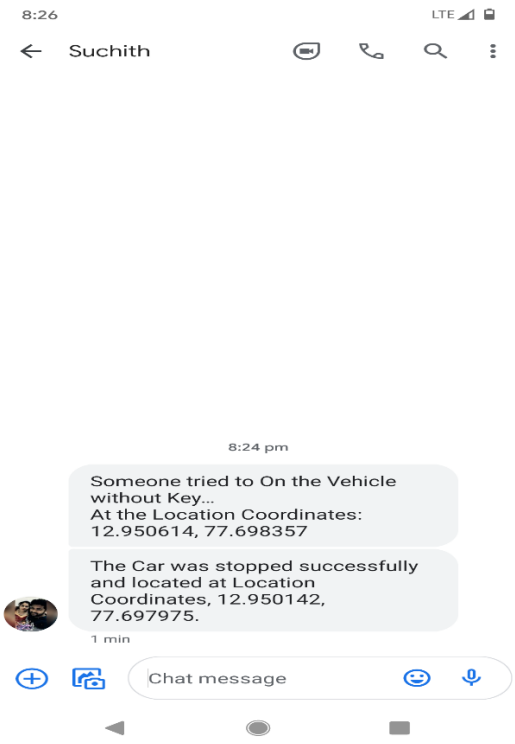


Fig 6.3: Alert message with GPS Coordinates sent to owner.

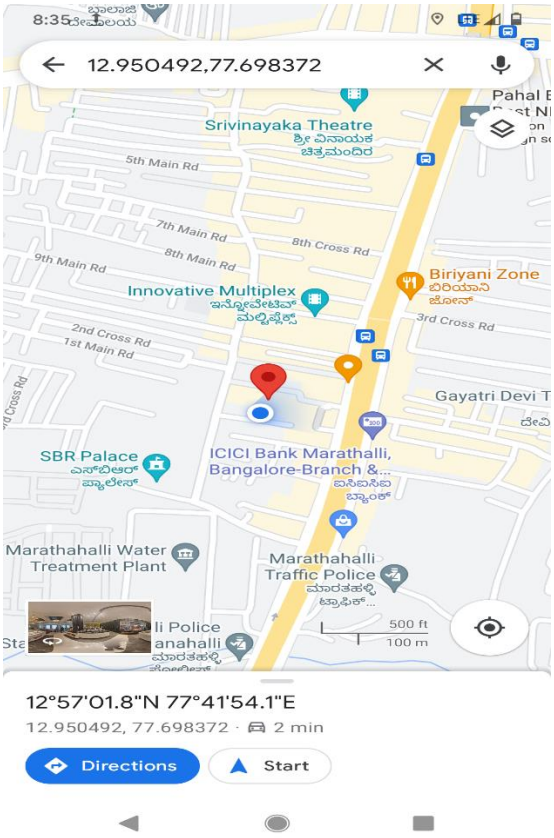


Fig 6.4: User tracking location of vehicle.

CHAPTER 07

ADVANTAGES AND APPLICATIONS

Advantages of the project :

- Theft can be stooped while happening itself.
- Crime rate in automotive environment can be reduced.
- Owner can send back the SMS which will disable the ignition of the vehicle.
- Used in security application.
- It is affordable for everyone.
- The control will be in Owners Hand.
- Since it is using IoT platform we can update the contact very frequently need not change the actual code of the project.

Applications of the Project :

- This is very low cost and reliable system for tack your vehicle through your mobile phone.
- This system can be easily installed at all types of private or public vehicles such as busses, cars and even at motor bikes.
- This system can easily track your vehicle from any remote areas.
- By using system, the vehicles owner can save his vehicles from theft.

CHAPTER 08

CONCLUSION AND FUTURE SCOPE

Conclusion:

The whole idea of the project is to reduce the vehicle theft crimes, with the help of this system which is made up of NodeMCU interfaced with GPS. With the help of proposed method, we can restrict the major crime of vehicle theft which is increasing rapidly. At a very low cost we can restrict this crime as proposed by this project. The implementation of this system allows safety and security to the vehicles. A simple, cost efficient, anti-theft security system has been successfully designed.

This system helps in tracking exact position of target (vehicle stole by thief) as well as in locking the vehicle through App in perspective of remote control. This will help to restrict many crimes and will provide safety of vehicle so that everyone who owns a vehicle can be free minded about their vehicle and are not afraid of losing their vehicle. It will also help the police to locate lost vehicles and will ease their work. It will keep safe many public transport vehicles such as buses, ATM money transfer, Military vehicles etc. which will be a great plus point to the society.

Future Scope:

For the better functionality of the product new versions of the device can be introduced by adapting new technologies. The present system is working efficiently, but we can still increase the functionality of the device by using various other modules without affecting the present system, since it is using IoT platform we can update the contact very frequently and easily need not change the actual code of the project.

The system can be used to quickly respond to the unexpected accidents which occur on highways or busy roads in cities. This can be done by arranging these systems in various ambulances which cover the entire city so that the nearest ambulance could be contacted for help. It can be extended for alcohol detection. The system will detect the driving person whether the person is drunk or not, if the person is taken alcohol, the vehicle will not start.

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APPENDIX

Project Code:

Vehicle Theft Intimation Using NodeMCU and GPS Module

```
#include <SoftwareSerial.h>
#include <TinyGPS.h>
#include <ESP8266WiFi.h>
#include <WiFiClientSecure.h>
#define BLYNK_PRINT Serial
#include <BlynkSimpleEsp8266.h>
TinyGPS gps;
SoftwareSerial sgps(5,4);
WiFiClient client;
String MakerIFTTT_Key ;
String MakerIFTTT_Event;
char *append_str(char *here, String s) {  int i=0; while (*here++ = s[i]){i++;};return here-1;}
char *append_ul(char *here, unsigned long u) { char buf[20]; return append_str(here, ultoa(u, buf, 10));}
char post_rqst[256];char *p;char *content_length_here;char *json_start;int compi;
const char* ssid = "Suchith Shetty";
const char* password = "suchithm";
const char* host = "maker.ifttt.com";
const int httpsPort = 443;
char PIN[14];
char auth[] = "3N5fTU5G_rU4pnn8DMOemodYOs3dTkBO";
char ssida[] = "Suchith Shetty";
char pass[] = "suchithm";
int base = 14;
int key = 16;
int key_status = 0;
```

```
int flag;
int led = 12;
int counter;
int led_status;
void setup()
{
 Serial.begin(9600);
 pinMode(key, INPUT);
 pinMode(base, OUTPUT);
 pinMode(led, OUTPUT);
 pinMode(A0, INPUT);
 digitalWrite(base,LOW);
 sgps.begin(9600);
 randomSeed( analogRead(A0) ); //randomize random seed value
 Serial.println();
 Serial.print("Connecting to ");
 Serial.println(ssid);
 WiFi.begin(ssid, password);
 while (WiFi.status() != WL_CONNECTED)
  {
    delay(500);
    Serial.print(".");
  }
 Serial.println("");
 Serial.println("WiFi connected");
 Serial.println("IP address: ");
 Serial.println(WiFi.localIP());
 Blynk.begin(auth, ssida, pass);
}
void loop()
{
```

```
while (sgps.available())
 {
  int c = sgps.read();
  if (gps.encode(c))
   {
    float slat,slon;
    gps.f_get_position(&slat, &slon);
    Serial.print("Latitude :");
    Serial.println(slat, 6);
    Serial.print("Longitude:");
    Serial.println(slon, 6);
    digitalWrite(base,LOW);
    key_status = digitalRead(key);
    flag = analogRead(A0);
    delay(2000);
    if ( (key_status == HIGH)  && (flag <=900)  )
     {
      do
       {
        digitalWrite(led,HIGH);
        digitalWrite(base,HIGH);
        delay(2000);
        Serial.println("this is key mode on");
        key_status = digitalRead(key);
       }
       while (key_status == LOW);
      digitalWrite(base,LOW);
      digitalWrite(led,LOW);
      delay(3000);
     }
    else if (  (key_status == LOW)  &&  (flag >=900)  )
```

```
{
  led_status = digitalRead(led);
  if (led_status == LOW)
    {
      if (client.connect("maker.ifttt.com",80))
        {
        MakerIFTTT_Key ="ELFzOCT38pbSYOoZG80q9";
        MakerIFTTT_Event ="theft";
        p = post_rqst;
        p = append_str(p, "POST /trigger/");
        p = append_str(p, MakerIFTTT_Event);
        p = append_str(p, "/with/key/");
        p = append_str(p, MakerIFTTT_Key);
        p = append_str(p, " HTTP/1.1\r\n");
        p = append_str(p, "Host: maker.ifttt.com\r\n");
        p = append_str(p, "Content-Type: application/json\r\n");
        p = append_str(p, "Content-Length: ");
        content_length_here = p;
        p = append_str(p, "NN\r\n");
        p = append_str(p, "\r\n");
        json_start = p;
        p = append_str(p, "{\"value1\":\"");
        p = append_str(p, String(slat,6));
        p = append_str(p, "\",\"value2\":\"");
        p = append_str(p, String(slon,6));
        p = append_str(p, "\",\"value3\":\"");
        p = append_str(p, "");
        p = append_str(p, "\"}");
        compi= strlen(json_start);
        content_length_here[0] = '0' + (compi/10);
        content_length_here[1] = '0' + (compi%10);
```

```
  client.print(post_rqst);
  delay(5000);
  }
 do
  {
   Serial.println("non keymode");
   digitalWrite(base,HIGH);
   key_status = digitalRead(key);
   flag = analogRead(A0);
   delay(1000);
   do
    {
      Blynk.run();
      base = digitalRead(14);
    }
    while (base == HIGH);
  if (client.connect("maker.ifttt.com",80))
    {
      MakerIFTTT_Key ="ELFzOCT38pbSYOoZG80q9";
      MakerIFTTT_Event ="lock";
      p = post_rqst;
      p = append_str(p, "POST /trigger/");
      p = append_str(p, MakerIFTTT_Event);
      p = append_str(p, "/with/key/");
      p = append_str(p, MakerIFTTT_Key);
      p = append_str(p, " HTTP/1.1\r\n");
      p = append_str(p, "Host: maker.ifttt.com\r\n");
      p = append_str(p, "Content-Type: application/json\r\n");
      p = append_str(p, "Content-Length: ");
      content_length_here = p;
      p = append_str(p, "NN\r\n");
```

```
                p = append_str(p, "\r\n");
                json_start = p;
                p = append_str(p, "{\"value1\":\"");
                p = append_str(p, String(slat,6));
                p = append_str(p, "\",\"value2\":\"");
                p = append_str(p, String(slon,6));
                p = append_str(p, "\",\"value3\":\"");
                p = append_str(p, "");
                p = append_str(p, "\"}");
                compi= strlen(json_start);
                content_length_here[0] = '0' + (compi/10);
                content_length_here[1] = '0' + (compi%10);
                client.print(post_rqst);
                delay(5000);
              }
             break;
             Blynk.begin(auth, ssida, pass);
            }
            while ((key_status == LOW));
           digitalWrite(led,HIGH);
         }
       }
     }
  }
}
```