Exp. No.: 8

Date:

Build an app using NodeMCU for GPS Tracker Blynk App in IoT Platform.

AIM:

To build an app using NodeMCU for GPS Tracker Blynk App in IoT Platform.

PROCEDURE:

Major Components:

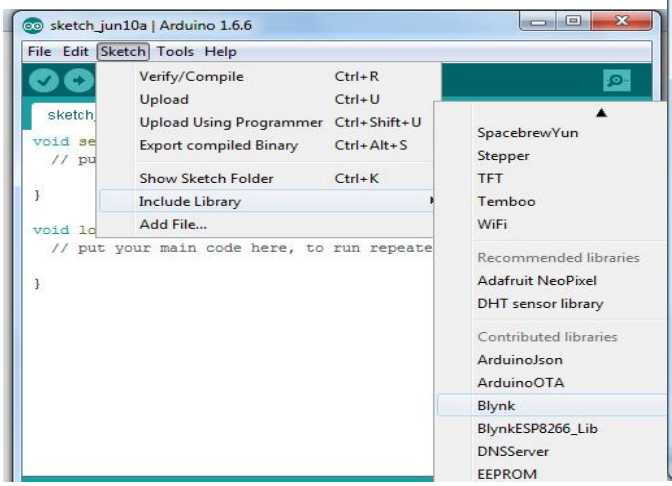
1. **Blynk App** - allows to you create amazing interfaces for your projects using various widgets we provide.
2. **Blynk Server** - responsible for all the communications between the smartphone and hardware. You can use our Blynk Cloud or run your private Blynk server locally. It's open-source, could easily handle thousands of devices and can even be launched on a Raspberry Pi.
3. **Blynk Libraries** - for all the popular hardware platforms - enable communication with the server and process all the incoming and outcoming commands.

Requirements:

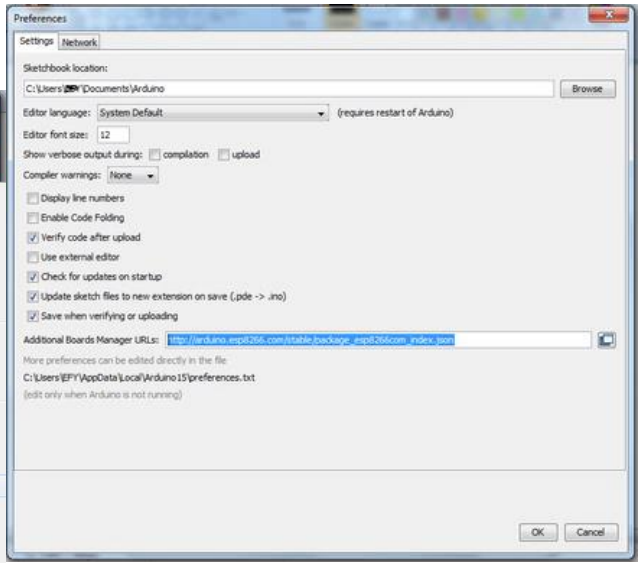
1. Node MCU Esp8266 I2E development board
2. Smart Phone with Blynk App installed
3. GPS Module
4. OLED Display Board
5. Jumper Wires and Bread Board

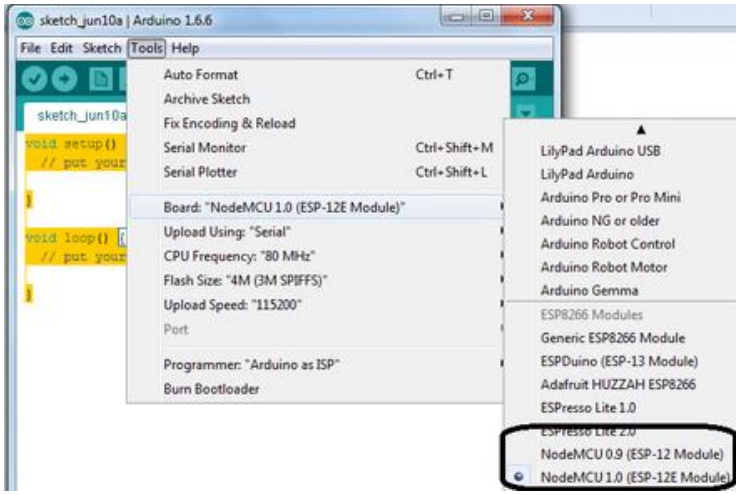
Setting Up the Blynk App with NodeMCU :

1.



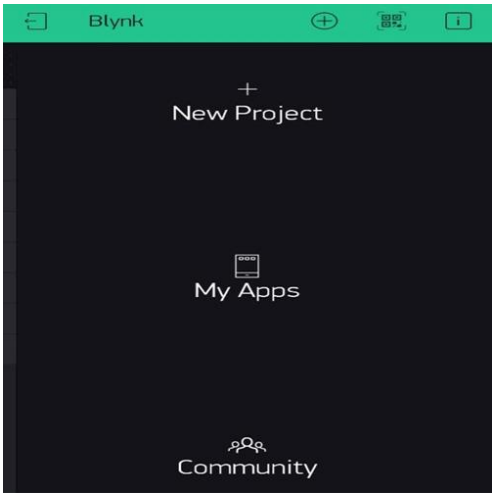
2.



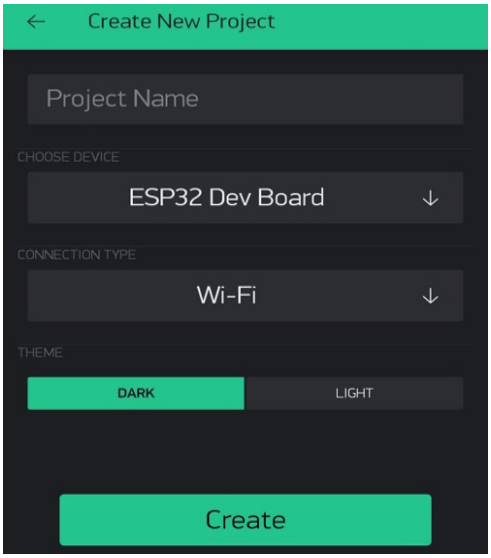


Configuring Blynk App for ESP32 GPS Tracker:

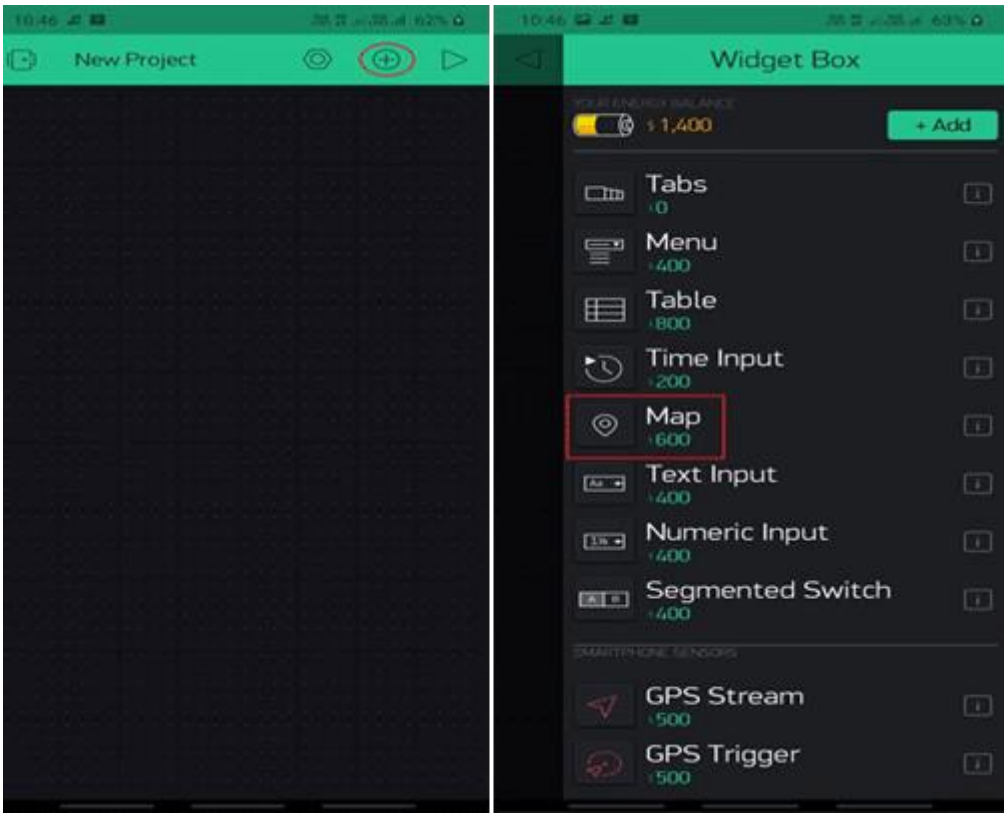
1. Now click on '*New Project'* to start a new project.



2. Create a new project



3. Now in the next window, click on the “+” sign to add a widget. Inside the Widget box, select the ‘Map’ widget



4. After this, click on the MAP widget and select virtual pin ‘V0’ as INPUT.

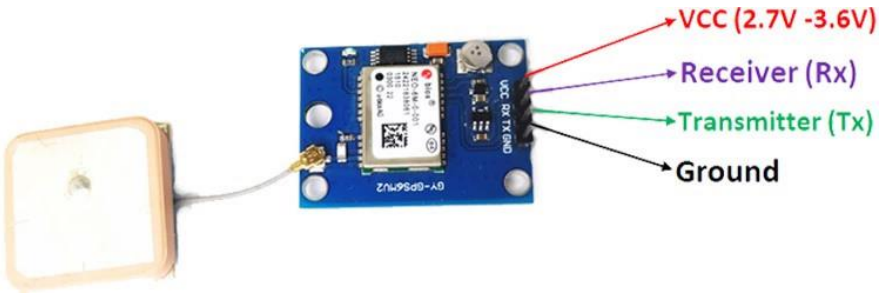
PROGRAM CODE:

ARDUINO CODE:

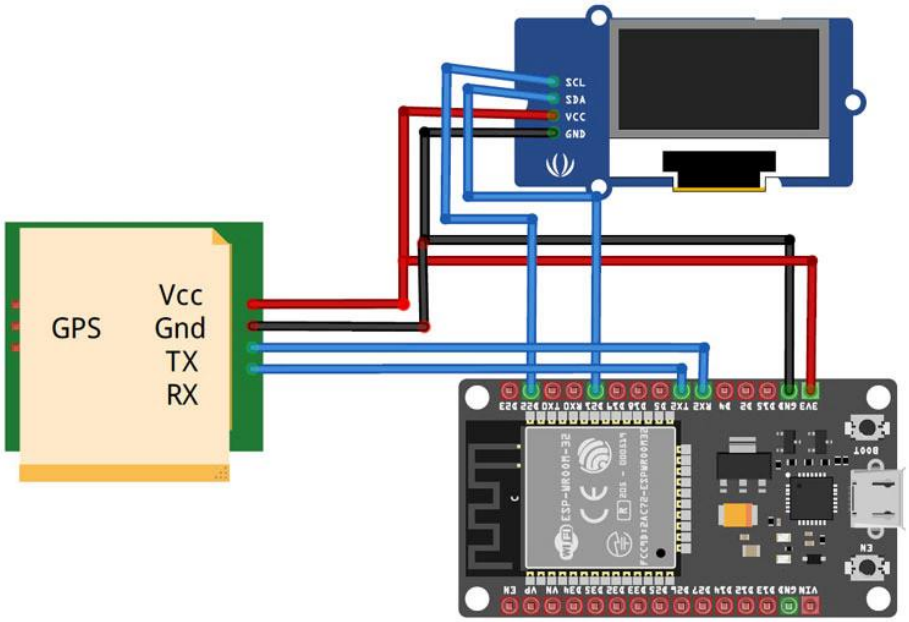
```
#include <TinyGPS++.h>
  #include <HardwareSerial.h>
  #include <WiFi.h>
  #include <Wire.h>               // Only needed for Arduino 1.6.5 and earlier
  #include<SH1106.h>
  #include <BlynkSimpleEsp32.h>
  float latitude , longitude;


  String  lat_str , lng_str;
  const char *ssid =  "Galaxy-M20";     // Enter your WiFi Name
  const char *pass =  "ac312129"; // Enter your WiFi Password


  char auth[] = "loPrSaL0eQFY9clcQ518R1SmYsRVC0eV";
  WidgetMap myMap(V0);
  SH1106 display(0x3c, 21, 22);
  WiFiClient client;
  TinyGPSPlus gps;
  HardwareSerial SerialGPS(1);

  void setup(){
                  Serial.begin(115200);
          Serial.println("Connecting to ");
          Serial.println(ssid);
          WiFi.begin(ssid, pass);

          while (WiFi.status() != WL_CONNECTED){
                  delay(500);
                  Serial.print(".");              // print ... till not connected
          }
          Serial.println("");
          Serial.println("WiFi connected");
          display.init();
          display.flipScreenVertically();
          display.setFont(ArialMT_Plain_10);
           SerialGPS.begin(9600, SERIAL_8N1, 16, 17);
          Blynk.begin(auth, ssid, pass);
          Blynk.virtualWrite(V0, "clr");
      }

  void loop(){
          while (SerialGPS.available() > 0) {
          if (gps.encode(SerialGPS.read())){
                   if (gps.location.isValid()){
```

```
                        latitude = gps.location.lat();
                        lat_str = String(latitude , 6);
                        longitude = gps.location.lng();
                         lng_str = String(longitude , 6);
                        Serial.print("Latitude = ");
                        Serial.println(lat_str);
                        Serial.print("Longitude = ");
                        Serial.println(lng_str);
                        display.clear();
                        display.setTextAlignment(TEXT_ALIGN_LEFT);
                        display.setFont(ArialMT_Plain_16);
                        display.drawString(0, 23, "Lat:");
                         display.drawString(45, 23, lat_str);
                        display.drawString(0, 38, "Lng:");
                        display.drawString(45, 38, lng_str);
                        Blynk.virtualWrite(V0, 1, latitude, longitude, "Location");
                        display.display();


                    }
                    delay(1000);
                    Serial.println();
            }
     }
     Blynk.run();
}
```

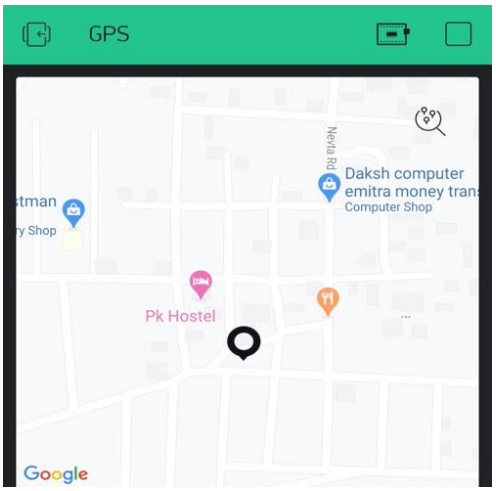
Circuit Diagram :



Neo 6M GPS Module



OUTPUT:



RESULT:

An app using NodeMCU for GPS Tracking in Blynk App on IoT Platform has been developed and excuted successfully