IoT Based Safety Gadget for Child Safety Monitoring & Notification

Sprint-4

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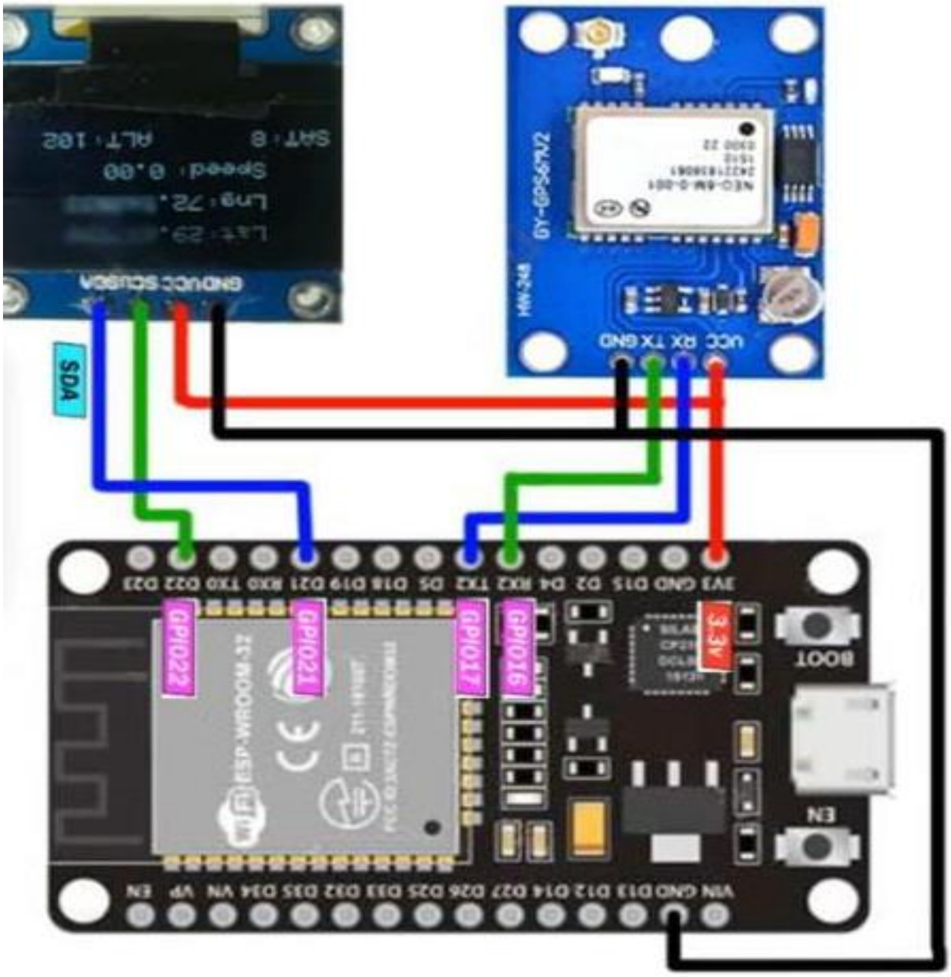
Arduino Code and Block Diagram

```
#include <WiFi.h>
#include <WiFiClient.h>
#include <PubSubClient.h>
#include <ArduinoJson.h>
#include<TinyGPS++.h>
#define RXD2 16
#define TXD2 17
HardwareSerial neogps(1);

TinyGPSPlus gps;
char arr[100];

const char* ssid = "GRACECOE-EEE";
const char* password = "Admin@Grace";

#define ID "q6wu16"
#define DEVICE_TYPE "GPS"
#define DEVICE_ID "Tracker"
#define TOKEN "childtracker1"

char server[] = ID ".messaging.internetofthings.ibmcloud.com";
char publish_Topic1[] = "iot-2/evt/Data1/fmt/json";
char publish_Topic2[] = "iot-2/evt/Data2/fmt/json";
char authMethod[] = "use-token-auth";
char token[] = TOKEN;
char clientId[] = "d:" ID ":" DEVICE_TYPE ":" DEVICE_ID;

WiFiClient wifiClient;
PubSubClient client(server, 1883, NULL, wifiClient);

void setup() {
    Serial.begin(115200);
    Serial.println();
    wifi_init();
}

long previous_message = 0;
void loop() {
    client.loop();
    String payload = getLocationPayload();
    if(payload=="{}"){
      return;
    }

    Serial.print("Sending payload: ");
    Serial.println(payload);
    if (client.publish(publish_Topic1, arr)) {
        Serial.println("Published successfully");
    } else {
        Serial.println("Failed");
    }
    delay(2000);
```

```
}
void wifi_init(){
  WiFi.begin(ssid, password);
  neogps.begin(9600,SERIAL_8N1,RXD2,TXD2);
  while (WiFi.status() != WL_CONNECTED) {
   delay(500);
   Serial.print(".");
  }
  Serial.println("");
  Serial.println(WiFi.localIP());

  if (!client.connected()) {
    Serial.print("Reconnecting client to ");
    Serial.println(server);
    while (!client.connect(clientId, authMethod, token)) {
      Serial.print(".");
      delay(500);
    }
    Serial.println("Connected TO IBM IoT cloud!");
  }
}
String getLocationPayload(){
  boolean newData = false;
  for(unsigned long start = millis();millis()-start<1000;){
   while(neogps.available()){
    if(gps.encode(neogps.read())){
     newData = true;
    }
   }
  }
  String payload;
```

```
    if(newData == true){
      newData = false;
      payload = locationPayloadGenerator();
    }
    else{
      Serial.println("No data");
      payload ="{}";
    }
    return payload;
}
String locationPayloadGenerator(){
  String payload = "{}";
  if(gps.location.isValid()){
    float lat = gps.location.lat();
    float lon = gps.location.lng();
    payload = "{\"latitude\" : "+String(lat)+",\"longitude\" : "+String(lon)+"}";
    create_json(lat,lon);
  }
  return payload;
}
void create_json(float lat,float lon){
  StaticJsonDocument<100> doc;
  JsonObject root = doc.to<JsonObject>();
  root["lat"] = lat;
  root["lon"] = lon;
  serializeJsonPretty(doc,arr);
}
```

Block Diagram


SDA
GPIO22
GPIO21
GPIO17
GPIO16
3.3v
GND VCC SCL SDA
GND TX RX VCC
D23 D22 TX0 RX0 D21 D19 D18 D5 TX2 RX2 D4 D2 D15 GND 3V3
EN VP VN D34 D35 D32 D33 D25 D26 D27 D14 D12 D13 GND VIN
BOOT
EN
ESP-WROOM-32
GY-GPS6MV2
NEO-6M-0-001
SAT: 8
ALT: 102
Speed: 0.00
Lng: 72.
Lat: 29.