Python Script:

PROJECT TITLE :
IoT Based Safety Gadget for Child Safety Monitoring and Notification

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Program:

```
#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 = "Redmi";
const char* password = "krish@08";

#define ID "17cmwk"
#define DEVICE_TYPE "Tracker"
#define DEVICE_ID "gps1"
#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["name"]="Child";
  root["latitude"] = lat;
  root["longitude"] = lon;
  serializeJsonPretty(doc,arr);
}
```

Output: