```
#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);
}
```