

ASSIGNMENT-4

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PROJECT NAME	IoT based Safety Gadget for Child Safety Monitoring and Notification

Coding:

```
#include <WiFi.h>
#include <PubSubClient.h>
WiFiClient wifiClient;
String data3;
#define ORG "qe3gb4"
#define DEVICE_TYPE "51128-80"
#define DEVICE_ID "Vinothini-device"
#define TOKEN "P?7NR3H!J36GewHg!O"
#define speed 0.034
#define led 14
char server[] = ORG ".messaging.internetofthings.ibmcloud.com";
char publishTopic[] = "iot-2/evt/Data/fmt/json";
char topic[] = "iot-2/cmd/led/fmt/String";
char authMethod[] = "use-token-auth";
char token[] = TOKEN;
char clientId[] = "d:" ORG ":" DEVICE_TYPE ":" DEVICE_ID;
PubSubClient client(server, 1883, wifiClient);
```

```
const int trigpin=5;
const int echopin=18;
String command;
String data="";
```

```
long duration;
float dist;
```

```
void setup()
{
  Serial.begin(115200);
  pinMode(led, OUTPUT);
  pinMode(trigpin, OUTPUT);
  pinMode(echopin, INPUT);
  wifiConnect();
  mqttConnect();
}
```

```
void loop() {
  bool isNearby = dist < 100;
  digitalWrite(led, isNearby);
```

```
  publishData();
  delay(500);
```

```

    if (!client.loop()) {
        mqttConnect();
    }
}

void wifiConnect() {
    Serial.print("Connecting to "); Serial.print("Wifi");
    WiFi.begin("Wokwi-GUEST", "", 6);
    while (WiFi.status() != WL_CONNECTED) {
        delay(500);
        Serial.print(".");
    }
    Serial.print("WiFi connected, IP address: "); Serial.println(WiFi.localIP());
}

void mqttConnect() {
    if (!client.connected()) {
        Serial.print("Reconnecting MQTT client to "); Serial.println(server);
        while (!client.connect(clientId, authMethod, token)) {
            Serial.print(".");
            delay(500);
        }
        initManagedDevice();
        Serial.println();
    }
}

void initManagedDevice() {
    if (client.subscribe(topic)) {
        // Serial.println(client.subscribe(topic));
        Serial.println("IBM subscribe to cmd OK");
    } else {
        Serial.println("subscribe to cmd FAILED");
    }
}

void publishData()
{
    digitalWrite(trigpin, LOW);
    digitalWrite(trigpin, HIGH);
    delayMicroseconds(10);
    digitalWrite(trigpin, LOW);
    duration=pulseIn(echopin, HIGH);
    dist=duration*speed/2;
    if(dist<100){
        String payload = "{\"Alert Distance\":\"";
        payload += dist;
        payload += "\"}";

        Serial.print("\n");
        Serial.print("Sending payload: ");
        Serial.println(payload);
        if (client.publish(publishTopic, (char*) payload.c_str())) {
            Serial.println("Publish OK");
        }
    }

    if(dist>100){

```

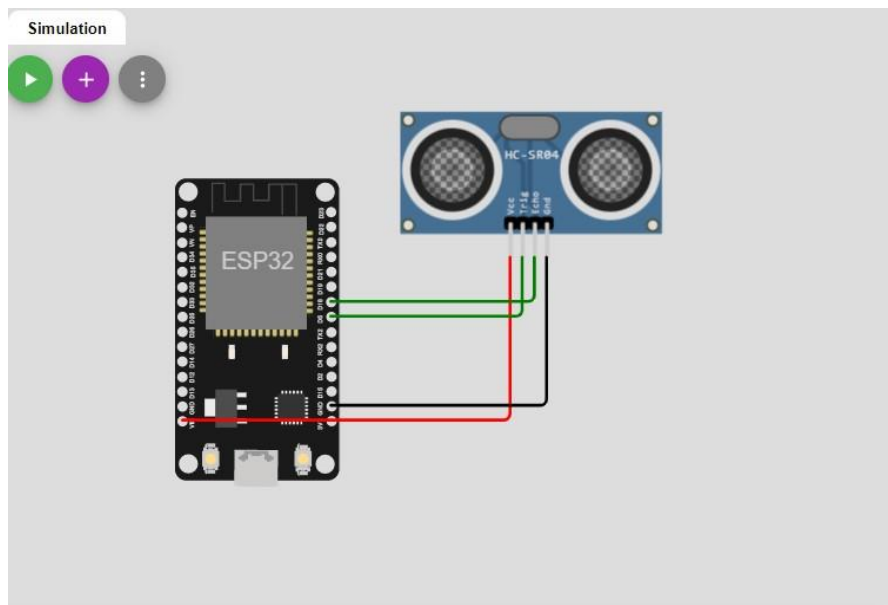
```
String payload = "{\"Distance\".:\"";
payload += dist;
payload += "\"}";

Serial.print("\n");
Serial.print("Sending payload: ");
Serial.println(payload);
if(client.publish(publishTopic, (char*) payload.c_str())) {
    Serial.println("Publish OK");
}else {
    Serial.println("Publish FAILED");
}

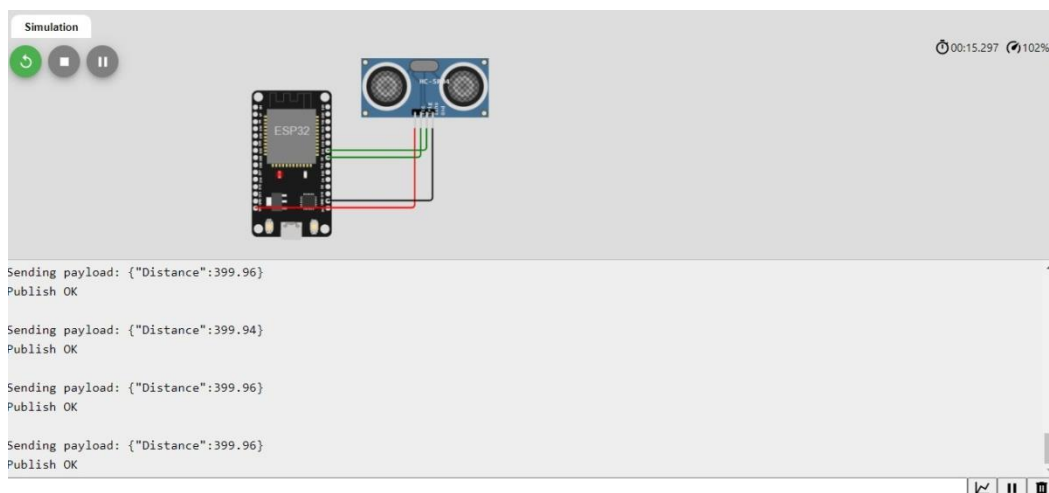
}

}
```

CONNECTIONS:



OUTPUT:



Browse

Action

Device Types

Interfaces

Add Device

Device ID	Status	Device Type	Class ID	Date Added
Vinothini-device	Connected	51128-80	Device	Oct 31, 2022 2:23 PM

Identity

Device Information

Recent Events

State

Logs

The recent events listed show the live stream of data that is coming and going from this device.

Event	Value	Format	Last Received
Data	{"Distance":399.96}	json	a few seconds ago
Data	{"Distance":399.94}	json	a few seconds ago
Data	{"Distance":399.96}	json	a few seconds ago
Data	{"Distance":399.96}	json	a few seconds ago

WOKWI LINK:

<https://wokwi.com/projects/347386405965529682>