

ASSIGNMENT-IV

| | |
|---------------------|------------------|
| Assignment Date | 01 November 2022 |
| Student Name | SAI VISHNU L |
| Student Roll Number | 953619106058 |

CODE:

```
#include <WiFi.h>
#include <PubSubClient.h>
WiFiClient wifiClient;
String data3;
#define ORG "uwfajw"
#define DEVICE_TYPE "12345"
#define DEVICE_ID "saivishnu-device"
#define TOKEN "O@(-6lz8lFx5BotLG)"
#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 += "\"}";

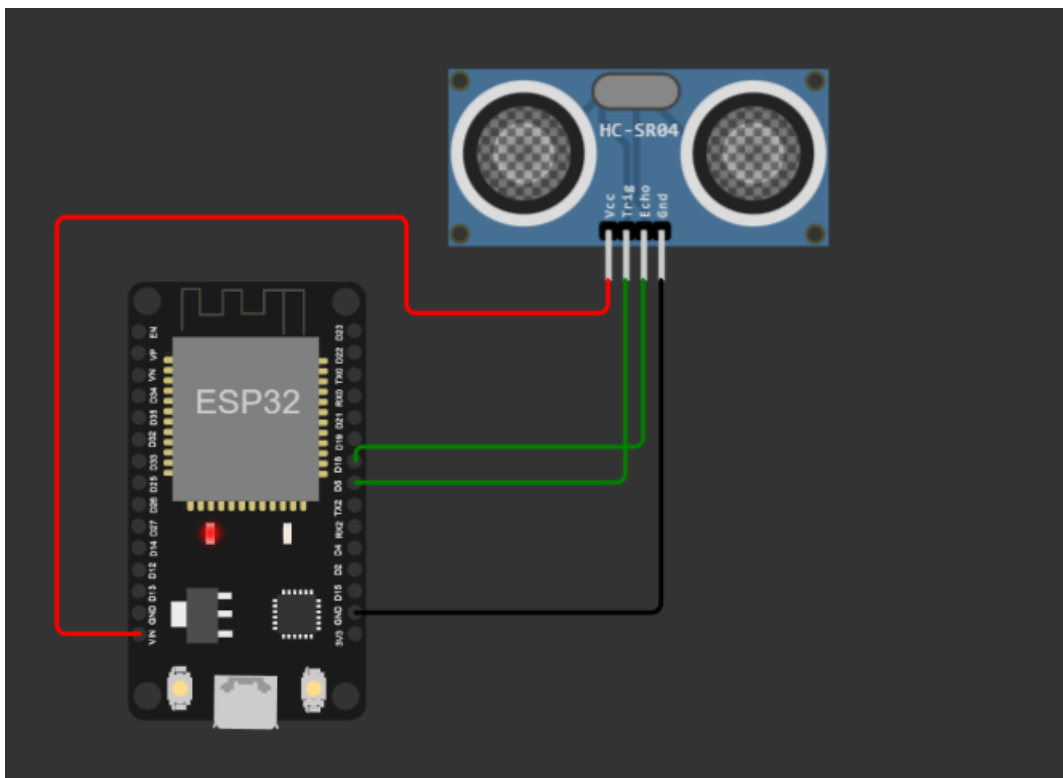
    Serial.print("\n");
    Serial.print("Sending payload: ");
    Serial.println(payload);
    if(client.publish(publishTopic, (char*) payload.c_str())) {
        Serial.println("Publish OK");
    }else {
        Serial.println("Publish FAILED");
    }
}

}

}

```

CONNECTION:



OUTPUT:

Docs

Simulation

01:51.394 93%

```
Sending payload: {"Distance":399.96}
Publish OK

Sending payload: {"Distance":399.96}
Publish OK

Sending payload: {"Distance":399.96}
```

