

Karpagam College of Engineering

(Electronics and Communication Engineering)

TEAM ID : PNT2022TMID12796

PROJECT TITLE : Industry-Specific Intelligent Fire Management System

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Assignment 4:

Write code and connections in wokwi for the ultrasonic sensor

```
#include <WiFi.h>
#include <PubSubClient.h>

WiFiClient wifiClient;

String data3;

#define ORG "86ykjn"
#define DEVICE_TYPE "assignment4"
#define DEVICE_ID "12345"
#define TOKEN "6DGHyn)mYb)gRuXJvt"
#define speed 0.034
#define led 14

char server[] = ORG ".messaging.internetofthings.ibmcloud.com";
char publishTopic[] = "iot-2/evt/event2/fmt/json";
char topic[] = "iot-2/cmd/home/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("Wi-Fi 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!! 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");

}

}

```

```

}

```

WOKWI

SAVE SHARE

Docs

sketch.ino diagram.json libraries.txt Library Manager

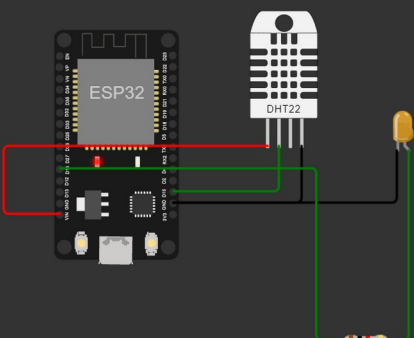
Simulation

00:18.328 16%

```

1 #include <WiFi.h>
2 #include <PubSubClient.h>
3 WiFiClient wificlient;
4 String data;
5 #define ORG "86ykjn"
6 #define DEVICE_TYPE "assignment4"
7 #define DEVICE_ID "12345"
8 #define TOKEN "6DGHyn)myb)gRuxJvt"
9 #define speed 0.034
10 #define led 14
11 char server[] = ORG ".messaging.internetofthings.ibmcloud.com";
12 char publishTopic[] = "iot-2/evt/event2/fmt/json";
13 char topic[] = "iot-2/cmd/home/fmt/String";
14 char authMethod[] = "use-token-auth";
15 char token[] = TOKEN;
16 char clientId[] = "d:" ORG ":" DEVICE_TYPE ":" DEVICE_ID;
17 PubSubClient client(server, 1883, wificlient);
18
19
20
21 const int trigpin=5;
22 const int echopin=18;
23 String command;
24 String data="";
25 |
26 long duration;
27 float dist;
28
29
30
31 void setup()
32 {
33   Serial.begin(115200);
34   pinMode(led, OUTPUT);
35   pinMode(trigpin, OUTPUT);
36   pinMode(echopin, INPUT);
37   wifiConnect();
38   mqttConnect();

```



Connecting to Wifi...Wifi connected, IP address: 10.10.0.2
Reconnecting MQTT client to 86ykjn.messaging.internetofthings.ibmcloud.com