

Karpagam College of Engineering

(Electronics and Communication Engineering)

TEAM ID : PNT2022TMID12783

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("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!! 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

```
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 "6DGHynmybJgRuxJvt"
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[] = "ds" 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();
39 }
```

ESP32

DHT22

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