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("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");

  }



}
```

```
}
```