

Assignment 4

By Jagan S

Code:

```
#include <WiFi.h>
#include <PubSubClient.h>
WiFiClient wifiClient;
String data3;
#define ORG "qgn5t4"
#define DEVICE_TYPE "jagan"
#define DEVICE_ID "123"
#define TOKEN "123456789"
#define speed 0.034
#define led 14
char server[] = ORG ".messaging.internetofthings.ibmcloud.com";
char publishTopic[] = "iot-2/evt/jagan/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);
void publishData();

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("Warning crosses 110cm -- it automatically of the loop");
        digitalWrite(led,HIGH);
    }
}

if(dist>101 && dist<111){
    String payload = "{\"Normal Distance\":\"";
    payload += dist;
    payload += "}";
    Serial.print("\n");
    Serial.print("Sending payload: ");
    Serial.println(payload);
}
}

void callback(char* subscribeTopic, byte* payload, unsigned int
payloadLength){
    Serial.print("callback invoked for topic:");
    Serial.println(subscribeTopic);
    for(int i=0; i<payloadLength; i++){
        dist += (char)payload[i];
    }
    Serial.println("data:" + data3);
    if(data3=="lighton"){
        Serial.println(data3);
        digitalWrite(led,HIGH);
    }
    data3="";
}

```

WOKWI

SAVE

SHARE

Docs

esp32-dht22.ino

diagram.json

libraries.txt

Library Manager

Simulation

00:34.168 94%

```

1  #include <WiFi.h>
2  #include <PubSubClient.h>
3  WiFiClient wificlient;
4  int data3;
5  #define ORG "qgn5t4"
6  #define DEVICE_TYPE "jagan"
7  #define DEVICE_ID "123"
8  #define TOKEN "123456789"
9  #define speed 0.034
10 #define led 14
11 #define server ORG ".messaging.internetofthings.ibmcloud.com";
12 #define publishTopic "iot-2/evt/jagan/fmt/json";
13 #define topic "iot-2/cmd/home/fmt/String";
14 #define authMethod "use-token-auth";
15 #define token TOKEN;
16 #define clientId "d:" ORG ":" DEVICE_TYPE ":" DEVICE_ID;
17 PubSubClient client(server, 1883, wificlient);
18 void publishData();
19
20 #define trigpin 5;
21 #define echopin 18;
22 #define command;
23 #define data "";
24
25 #define duration;
26 #define dist;

```

Warning crosses 110cm -- it automatically of the loop

Sending payload: {"Alert Distance":72.00}

Warning crosses 110cm -- it automatically of the loop

Sending payload: {"Alert Distance":72.00}

Warning crosses 110cm -- it automatically of the loop

Cloud Output:

Watson IoT Platform

2019105538@student.annauniv.edu

ID: qgn5t4

Browse

Action

Device Types

Interfaces

Add Device

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

Event	Value	Format	Last Received
jagan	{"Alert Distance":72}	json	a few seconds ago
jagan	{"Alert Distance":72}	json	a few seconds ago
jagan	{"Alert Distance":72}	json	a few seconds ago
jagan	{"Alert Distance":72}	json	a few seconds ago
jagan	{"Alert Distance":72}	json	a few seconds ago