

ASSIGNMENT-4

CODE:

```
1  #include <WiFi.h>
2  #include <PubSubClient.h>
3  WiFiClient wifiClient;
4  String data3;
5  #define ORG "bbqvg"
6  #define DEVICE_TYPE "Assignment_4"
7  #define DEVICE_ID "1917141"
8  #define TOKEN "Kn50UzJ_6y!v4eDVNS"
9  #define speed 0.034
10 #define led 14
11 char server[] = ORG ".messaging.internetofthings.ibmcloud.com";
12 char publishTopic[] = "iot-2/evt/jumli_assignment/fmt/json";
13 char topic[] = "iot-2/cmd/led/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 const int trigpin=13;
20 const int echopin=12;
21 String command;
22 String data="";
23
24 long duration;
25 float dist;
26
27 void setup()
28 {
29   Serial.begin(115200);
30   pinMode(led, OUTPUT);
31   pinMode(trigpin, OUTPUT);
32   pinMode(echopin, INPUT);
33   wifiConnect();
34   mqttConnect();
35 }
36
37 void loop() {
38   bool isNearby = dist < 100;
39   digitalWrite(led, isNearby);
```

```
41   publishData();
42   delay(500);
43
44   if (!client.loop()) {
45       mqttConnect();
46   }
47 }
48
49 void wifiConnect() {
50     Serial.print("Connecting to "); Serial.print("Wifi");
51     WiFi.begin("Wokwi-GUEST", "", 6);
52     while (WiFi.status() != WL_CONNECTED) {
53         delay(500);
54         Serial.print(".");
55     }
56     Serial.print("WiFi connected, IP address: "); Serial.println(WiFi.localIP())
57 }
58
59 void mqttConnect() {
60     if (!client.connected()) {
61         Serial.print("Reconnecting MQTT client to "); Serial.println(server);
62         while (!client.connect(clientId, authMethod, token)) {
63             Serial.print(".");
64             delay(500);
65         }
66         initManagedDevice();
67         Serial.println();
68     }
69 }
70
71 void initManagedDevice() {
72     if (client.subscribe(topic)) {
73         // Serial.println(client.subscribe(topic));
74         Serial.println("IBM subscribe to cmd OK");
75     } else {
76         Serial.println("subscribe to cmd FAILED");
77     }
78 }
79 void publishData()
```

```

78     }
79     void publishData()
80     {
81         digitalWrite(trigpin,LOW);
82         digitalWrite(trigpin,HIGH);
83         delayMicroseconds(10);
84         digitalWrite(trigpin,LOW);
85         duration=pulseIn(echopin,HIGH);
86         dist=duration*speed/2;
87         if(dist<100){
88             String payload = "{\"Alert Distance\":\"";
89             payload += dist;
90             payload += "\"}";
91
92             Serial.print("\n");
93             Serial.print("Sending payload: ");
94             Serial.println(payload);
95             if (client.publish(publishTopic, (char*) payload.c_str())) {
96                 Serial.println("Publish OK");
97             }
98
99         }
100         if(dist>100){
101             String payload = "{\"Distance\":\"";
102             payload += dist;
103             payload += "\"}";
104
105             Serial.print("\n");
106             Serial.print("Sending payload: ");
107             Serial.println(payload);
108             if(client.publish(publishTopic, (char*) payload.c_str())) {
109                 Serial.println("Publish OK");
110             }else {
111                 Serial.println("Publish FAILED");
112             }
113         }
114     }

```

WOKWI:

WOKWI

SAVE

SHARE

Docs

sketch.ino

diagram.json

libraries.txt

Library Manager

```
1 #include <WiFi.h>
2 #include <PubSubClient.h>
3 WiFiClient wificlient;
4 String data3;
5 #define ORG "bbqvg"
6 #define DEVICE_TYPE "Assignment_4"
7 #define DEVICE_ID "1917141"
8 #define TOKEN "Kn50UzJ_6ylv4eDNIS"
9 #define speed 0.034
10 #define led 14
11 char server[] = ORG ".messaging.internetofthings.ibmcloud.com";
12 char publishTopic[] = "iot-2/evt/jumli_assignment/fmt/json";
13 char topic[] = "iot-2/cmd/led/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 const int trigpin=13;
20 const int echopin=12;
21 String command;
22 String data="";
23
24 long duration;
25 float dist;
26
27 void setup()
28 {
29   Serial.begin(115200);
30   pinMode(led, OUTPUT);
31   pinMode(trigpin, OUTPUT);
32   pinMode(echopin, INPUT);
33   wifiConnect();
34   mqttConnect();
35 }
36
37 void loop() {
38   bool isReady = dist < 100;
```

Simulation

00:28.561 45%

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

IBM CLOUD:

IBM Watson IoT Platform

rent.1917141@gcl.ac.in
ID: bbqvg

Browse Action Device Types Interfaces

Add Device

Search by Device ID

Device Simulator

Device ID	Status	Device Type	Class ID	Date Added	Descriptive Location
1917141	Disconnected	Assignment_4	Device	Nov 2, 2022 12:17 AM	

Identity

Device Information

Recent Events

State

Logs

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

Event	Value	Format	Last Received
-------	-------	--------	---------------

Waiting for device events...

0 Simulations running

← Back

Device Drilldown - 1917141

Device Credentials
Connection Information
Recent Events
State
Device Information
Metadata
Diagnostics
Connection Logs
Device Actions

Device Credentials

You registered your device to the organization. Add these credentials to the device to connect it to the platform. After the device is connected, you can navigate to view connection and event details.

Organization ID	bbqvgt
Device Type	Assignment_4
Device ID	1917141
Authentication Method	use-token-auth
Authentication Token	Kn50UzJ_6y/v4eD/VNS

Link: <https://wokwi.com/projects/347151709175284308>

Note:

Sir, I have done all the steps accordingly but it is not connecting to IBM ckoud. I would be very grateful if you could check my work through the link given above and reach back to me on the problem with my work done.

