

Assignment- 4

Assignment Date	22 October 2022
Student Name	S.G. Arivumozhi
Student Roll Number	211419106032
Maximum Marks	2 Marks

Question:

1. Write code and connections in wokwi for ultrasonic sensor. Whenever distance is less than 100 cms send "alert" to ibm cloud and display in device recent events.

Solution:

WOKWI SHARE LINK:

<https://wokwi.com/projects/347470799469281874>

IMAGE OF IBM CLOUD:

The screenshot displays the IBM Watson IoT Platform interface. At the top, the header shows 'IBM Watson IoT Platform' and user information: 'arivumozhi2001@gmail.com' and 'ID: 50i6i7'. The main navigation bar includes 'Browse', 'Action', 'Device Types', and 'Interfaces'. A search bar labeled 'Search by Device ID' is present. On the right, there is a 'Device Simulator' toggle and an 'Add Device' button. The central area shows a table of devices. One device is listed with ID '2022', status 'Connected', device type 'ARIVUMOZHI', class ID 'Device', and date added 'Nov 5, 2022 12:16 PM'. Below the table, a detailed view of the selected device is shown, including fields for Device ID, Device Type, Date Added, Added By, and Connection Status. The connection status is 'Connected' with details: 'Connection Time: Nov 5, 2022 1:00 PM' and 'Client Address: 216.246.119.62 Insecure'. The bottom of the interface shows 'Items per page 50' and '1-1 of 1 item'.

Device ID	Status	Device Type	Class ID	Date Added
2022	Connected	ARIVUMOZHI	Device	Nov 5, 2022 12:16 PM

Identity	Device Information	Recent Events	State	Logs
Device ID	2022			
Device Type	ARIVUMOZHI			
Date Added	Nov 5, 2022 12:16 PM			
Added By	arivumozhi2001@gmail.com			
Connection Status	Connected			
	Connection Time: Nov 5, 2022 1:00 PM			
	Client Address: 216.246.119.62 Insecure			

SIMULATION IMAGE:

WOKWI SAVE SHARE Docs A

sketch.ino diagram.json libraries.txt Library Manager

```
1 #include <WiFi.h>
2 #include <PubSubClient.h>
3 void callback(char* subscribetopic,byte* payload, unsigned int payloadLength);
4 #define ORG "50i617"
5 #define DEVICE_TYPE "ARIVUMOZHI"
6 #define DEVICE_ID "2022"
7 #define TOKEN "FW9t&R2ExlXkt9*(p0"
8 String data3;
9
10 char server[] = ORG ".messaging.internetofthings.ibmcloud.com";
11 char publishTopic[] = "iot-2/evt//fmt/json";
12 char subscribeTopic[] = "iot-2/cmd/test/fmt/String";
13 char authMethod[] = "use-token-auth";
14 char token[] = TOKEN;
15 char clientID[] = "d:"ORG":DEVICE_TYPE":DEVICE_ID;
16
17 WiFiClient wifiClient;
18 PubSubClient client(server,1883,callback,wifiClient);
19
20 #define ECHO_PIN 12
21 #define TRIG_PIN 13
22 #define led 14
23
24 void setup() {
25   // put your setup code here, to run once:
26   Serial.begin(115200);
27   pinMode(led, OUTPUT);
28   pinMode(TRIG_PIN, OUTPUT);
29   pinMode(ECHO_PIN, INPUT);
30   wifiConnect();
```

Simulation

Restart the simulation

HC-SR04

ESP32

Reconnecting to 50i617.messaging.internetofthings.ibmcloud.com
iot-2/cmd/test/fmt/String
subscribe to cmd ok

Measured distance: 111.00
Sending payload:{"distance":111.00}
publish ok

01:33.658 87%

Activate Windows
Go to Settings to activate Windows.

WOKWI SAVE SHARE Docs A

sketch.ino diagram.json libraries.txt Library Manager

```
1 #include <WiFi.h>
2 #include <PubSubClient.h>
3 void callback(char* subscribetopic,byte* payload, unsigned int payloadLength);
4 #define ORG "50i617"
5 #define DEVICE_TYPE "ARIVUMOZHI"
6 #define DEVICE_ID "2022"
7 #define TOKEN "FW9t&R2ExlXkt9*(p0"
8 String data3;
9
10 char server[] = ORG ".messaging.internetofthings.ibmcloud.com";
11 char publishTopic[] = "iot-2/evt//fmt/json";
12 char subscribeTopic[] = "iot-2/cmd/test/fmt/String";
13 char authMethod[] = "use-token-auth";
14 char token[] = TOKEN;
15 char clientID[] = "d:"ORG":DEVICE_TYPE":DEVICE_ID;
16
17 WiFiClient wifiClient;
18 PubSubClient client(server,1883,callback,wifiClient);
19
20 #define ECHO_PIN 12
21 #define TRIG_PIN 13
22 #define led 14
23
24 void setup() {
25   // put your setup code here, to run once:
26   Serial.begin(115200);
27   pinMode(led, OUTPUT);
28   pinMode(TRIG_PIN, OUTPUT);
29   pinMode(ECHO_PIN, INPUT);
30   wifiConnect();
```

Simulation

Restart the simulation

HC-SR04

ESP32

Measured distance: 13.00
Sending payload:{"ALERT":13.00}
publish ok
Measured distance: 32.00
Sending payload:{"ALERT":32.00}
publish ok
Reconnecting to 50i617.messaging.internetofthings.ibmcloud.com

01:07.783 26%

Activate Windows
Go to Settings to activate Windows.

