

Assignment -1

Assignment Date	15 October 2022
Student Name	R.V.Rohinth Ram
Student Roll Number	2019504571
Maximum Marks	2 Marks

Question:

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

Wokwi Simulation

<https://wokwi.com/projects/346105225235399251>

The screenshot displays the Wokwi web-based simulation environment. On the left, the code editor shows a C++ sketch for an ESP32. The code includes comments for IBM IoT Platform credentials and a logic to publish distance data to IBM Cloud when the distance is less than 100cm. On the right, the simulation interface shows an ESP32 board connected to an ultrasonic sensor. A slider indicates the current distance is 79cm. Below the simulation, a log window shows the published payload: {"Alert Message": "Distance very near (78.95cms)"}. The top of the interface includes a 'SIGN IN' button and a 'Docs' link.

```
5
6
7 void callback(char* subscribetopic, byte* payload, unsigned int payloadlength);
8
9 //-----credentials of IBM Accounts-----
10
11 #define ORG "psh4py"//IBM ORGANIZATION ID
12 #define DEVICE_TYPE "alert-device"//Device type mentioned in ibm watson IOT Platform
13 #define DEVICE_ID "4571"//Device ID mentioned in ibm watson IOT Platform
14 #define TOKEN "12345678" //Token
15
16
17
18 //----- Customise the above values -----
19 char server[] = ORG ".messaging.internetofthings.ibmcloud.com";// Server Name
20 char publishTopic[] = "iot-2/evt/Data/fmt/json";// topic name and type of event perform a
21 char subscribetopic[] = "iot-2/cmd/command/fmt/String";// cmd REPRESENT command type AND
22 char authmethod[] = "use-token-auth";// authentication method
23 char token[] = TOKEN;
24 char clientId[] = "d:" ORG ":" DEVICE_TYPE ":" DEVICE_ID;//client id
25
26
27
28 WiFiClient wificlient; // creating the instance for wificlient
29 PubSubClient client(server, 1883, callback ,wificlient); //calling the predefined client
30
31 // -----
32
33
34 const int trigPin = 12;
35 const int echoPin = 14;
36 float distanceCm;
37 int duration;
```

Simulation

Editing Ultrasonic Distance Sensor

Distance: 79cm

Publishing Data to IBM Cloud

Sending payload: {"Alert Message": "Distance very near (78.95cms)"}

Publish ok

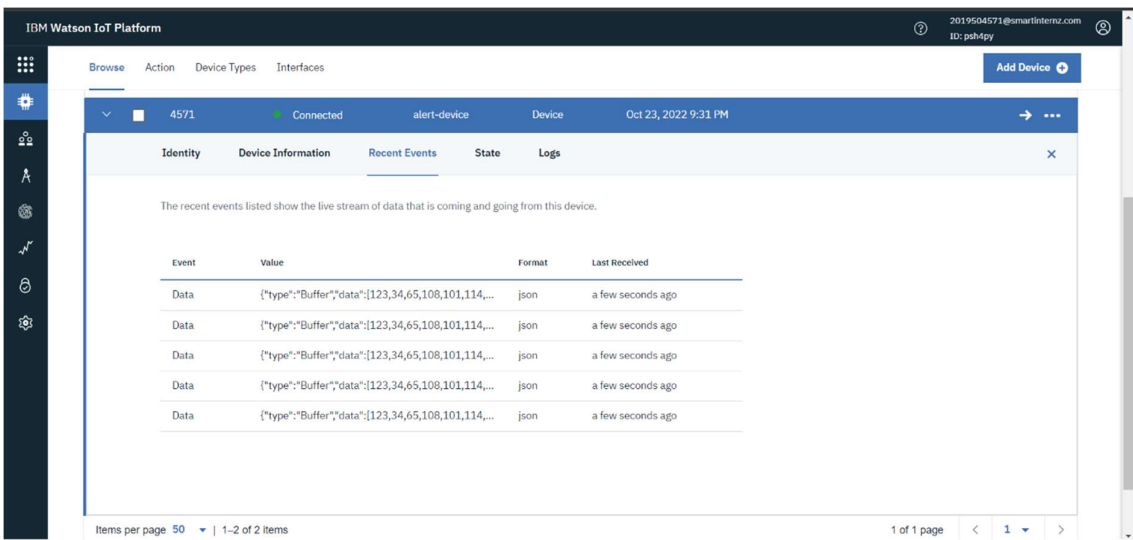
Distance : 78.95

Publishing Data to IBM Cloud

Sending payload: {"Alert Message": "Distance very near (78.95cms)"}

Publish ok

IBM Cloud Screenshots



Event Payload

```
{
  "type": "Buffer",
  "data": [
    123,
    34,
    65,
    108,
    101,
    114,
    116,
    32,
    77,
    101,
    115,
    115,
    97,
    103,
    101,
    34,
    58,
    32,
    68,
    105,
    115,
    116,
    97,
    110,
    99,
    101,
```

```
        32,  
        118,  
        101,  
        114,  
        121,  
        32,  
        110,  
        101,  
        97,  
        114,  
        32,  
        40,  
        55,  
        56,  
        46,  
        57,  
        53,  
        99,  
        109,  
        115,  
        41,  
        125  
    ]  
}
```

```
>>> l  
[123, 34, 65, 108, 101, 114, 116, 32, 77, 101, 115, 115, 97, 103, 101, 34, 58, 32, 68, 105, 11  
5, 116, 97, 110, 99, 101, 32, 118, 101, 114, 121, 32, 110, 101, 97, 114, 32, 40, 55, 56, 46, 5  
7, 53, 99, 109, 115, 41, 125]  
>>> for i in l:  
    print(end=chr(i))  
  
{"Alert Message": Distance very near (78.95cms)}  
>>> |
```