

ASSIGNMENT-4

Assignment Date	26 October 2022
Student Name	MENAKA.N
Student Roll Number	610819106034
Maximum Marks	2 marks

Question:

Write code and connections in wokwi for ultrasonic sensors. Whenever the distance is less than 100 cms send an "alert" to the IBM cloud and display it in the device recent events. Upload document with wokwi share link and images of IBM cloud.

Solution:

Link for reference: <https://wokwi.com/projects/347112257993310804>

OUTPUT:

The screenshot displays the Wokwi web interface for an Arduino simulation. On the left, the 'sketch.ino' file is open, showing the following code:

```
1 #include <WiFi.h>
2 #include <WiFiClient.h>
3 #include <PubSubClient.h>
4 const int trigPin = 5;
5 const int echoPin = 18;
6 //define sound speed in cm/uS
7 #define SOUND_SPEED 0.034
8 #define CM_TO_INCH 0.393701
9 long duration;
10 float distanceCm;
11 float distanceInch;
12
13 void callback(char* subscribetopic, byte* payload, unsigned int payloadLength)
14 //-----credentials of IBM Accounts-----
15
16
17 #define ORG "f1gm6b"//IBM ORGANITION ID
18 #define DEVICE_TYPE "menaka"//Device type mentioned in ibm watson IOT Platform
19 #define DEVICE_ID "2001"//Device ID mentioned in ibm watson IOT Platform
20 #define TOKEN "(hyT84+gN8rnM(5U1M" //Token
21 String data3;
22
23
24
25 //----- Customise the above values -----
26 char server[] = ORG ".messaging.internetofthings.ibmcloud.com";// Server Name
27 char publishTopic[] = "iot-2/evt/Data/fmt/json";// topic name and type of event
28 char subscribetopic[] = "iot-2/cmd/test/fmt/String";// cmd REPRESENT command
29 char authMethod[] = "use-token-auth";// authentication method
```

On the right, the 'Simulation' window shows a visual representation of the ESP32 microcontroller and the HC-SR04 ultrasonic sensor connected by wires. Below the simulation, the console output shows the following sequence of events:

```
Distance (inch): 45.27
Sending payload: {"Distance (cm)":114.99}
Publish ok
Distance (cm): 114.99
Distance (inch): 45.27
Sending payload: {"Distance (cm)":114.99}
Publish ok
```

The bottom of the screenshot shows the Windows taskbar with the system clock indicating 15:44 on 01-11-2022.