

Assignment -4

Assignment Date	01 november 2022
Student Name	Sravanthi paturu
Student Roll Number	111419104074
Maximum Marks	2 Marks

Question:

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. Upload document with wokwi share link and images of ibm cloud.

Solution:

The screenshot displays the Wokwi simulation environment. On the left, the code for an ESP32 is shown, which includes the necessary libraries and defines the pins for the ultrasonic sensor. The code also sets up the connection to IBM Cloud IoT and sends distance data to a specific topic. The simulation window on the right shows the ESP32 and the HC-SR04 sensor connected. The output of the simulation shows the distance measured in inches and centimeters, and the data being sent to the cloud.

```
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
14 void callback(char* subscribetopic, byte* payload, unsigned int payloadLength)
15 //-----credentials of IBM Accounts-----
16
17 #define ORG "ghq3wv"//IBM ORGANITION ID
18 #define DEVICE_TYPE "Boobalani"//Device type mentioned in ibm watson IOT Platf
19 #define DEVICE_ID "2001"//Device ID mentioned in ibm watson IOT Platform
20 #define TOKEN "(hyT84+@H8rmM(SUIM" //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 even
28 char subscribetopic[] = "iot-2/cmd/test/fmt/String";// cmd REPRESENT command
29 char authMethod[] = "use-token-auth";// authentication method
```

Simulation output:

```
Distance (inch): 85.41
Sending payload: {"Distance (cm)":216.94}
Publish ok
Distance (cm): 216.94
Distance (inch): 85.41
Sending payload: {"Distance (cm)":216.94}
Publish ok
```

Images of ibm cloud:

