

## Assignment -4

### ESP32 Program

|                     |                 |
|---------------------|-----------------|
| Assignment Date     | 29 OCTOBER 2022 |
| Student Name        | Divya.N         |
| Student Roll Number | 720319104006    |
| 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

Upload document with wokwi share link and images of ibm cloud

WOKWi Link: <https://wokwi.com/projects/346841237203976788>

```

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 "19k739"/"/IBM ORGANIZATION ID
18 #define DEVICE_TYPE "ultrasonic_project"/"/Device type mentioned in ibm watson
19 #define DEVICE_ID "IOT_28"/"/Device ID mentioned in ibm watson IOT Platform
20 #define TOKEN "6&3V10StqZ9kl(3r2P" //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
30 char token[] = TOKEN;
  
```

Simulation console output:

```

Distance (inch): 85.41
Sending payload: {"Distance (cm)":216.94}
Publish ok
Distance (cm): 216.97
Distance (inch): 85.42
Sending payload: {"Distance (cm)":216.97}
Publish ok
  
```

| Event | Value                    | Format | Last Received     |
|-------|--------------------------|--------|-------------------|
| Data  | {"Distance (cm)":217.01} | json   | a few seconds ago |
| Data  | {"Distance (cm)":216.94} | json   | a minute ago      |
| Data  | {"Distance (cm)":216.94} | json   | a minute ago      |
| Data  | {"Distance (cm)":217.38} | json   | 2 minutes ago     |
| Data  | {"Distance (cm)":216.97} | json   | 2 minutes ago     |