

Assignment 4

Assignment Date	04 November 2022
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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.

esp32-blink.ino

```

1  #include <ui.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* topic, byte* payload, unsigned int payloadlength);
15 //-----credentials of IBM Accounts-----
16
17 #define ORG "flag7e"//IBM ORGANTTID ID
18 #define DEVICE_TYPE "ultrasonic"//device type mentioned in ibm watson IoT Platform
19 #define DEVICE_ID "shud_2"//device ID mentioned in ibm watson IoT Platform
20 #define TOKEN "CvZAKfQUG7se_2Wk4" //TOKEN
21 String data;
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 perform a
28 char subscribTopic[] = "iot-2/cmd/test/fmt/String"; // cmd REPRESENT command type AND CO
29 char authMethod[] = "use-token-auth"; // authentication method
30 char token[] = TOKEN;
31 char clientId[] = "d:" ORG ":" DEVICE_TYPE ":" DEVICE_ID; //client id
32
33 WiFiClient wifiClient; // creating the instance for wifiClient
34 PubSubClient client(server, 1883, callback, wifiClient);
35

```

Simulation

Publish ok

Distance (cm): 216.94

Distance (inch): 85.41

Sending payload: {\"Distance (cm)\":216.94}

Publish ok

Reconnecting client to flag7e.messaging.internetofthings.ibmcloud.com

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The screenshot shows the 'Device Details' page for a device named 'shul_2'. The page is part of a larger application with a sidebar on the left containing various icons. The top navigation bar includes 'Browse', 'Action', 'Device Types', and 'Interfaces'. The main content area has a header with 'Device ID', 'Status', 'Device Type', 'Class ID', 'Date Added', and 'Descriptive Location'. Below this, there's a section for 'Identity', 'Device Information', 'Recent Events', 'State', and 'Logs'. The 'Recent Events' section contains a table of events.

Event	Value	Format	Last Received
Distance	[Distance (cm):216.94]	json	a few seconds ago
Distance	[Distance (cm):216.97]	json	a few seconds ago
Distance	[Distance (cm):216.94]	json	a few seconds ago
Distance	[Distance (cm):216.94]	json	a few seconds ago
Distance	[Distance (cm):216.94]	json	a few seconds ago