

Assignment 4

Student Name	Deepika.J
Student Roll Number	511919106002
Team ID	PNT2022TMID40121

Question:

Write a 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.

Solution:

Wokwi Project : <https://wokwi.com/projects/346840553621553748>

The screenshot displays the Wokwi online IDE interface. On the left, the 'sketch.ino' file contains the following C++ code:

```
70
71
72
73 /*.....retrieving to cloud.....*/
74
75 void PublishData(float dist) {
76   mqttconnect();//function call for connecting to ibm
77   /*
78    * creating the String in in form JSON to update the data to ibm cloud
79    */
80   String payload = "{\"distance\":\"";
81   payload += dist;
82
83
84   Serial.print("Sending payload: ");
85   Serial.println(payload);
86
87
88   if (client.publish(publishTopic, (char*) payload.c_str())) {
89     Serial.println("Publish ok");// If it successfully upload data on the cloud then it will
90   } else {
91     Serial.println("Publish failed");
92   }
93 }
94
95 }
96 void mqttconnect() {
97   if (!client.connected()) {
98     Serial.print("Reconnecting client to ");
99     Serial.println(server);
100     while (!client.connect(clientId, authMethod, token)) {
101       Serial.print(".");
102       delay(500);
103     }
104   }
105   initManagedDevice();
```

On the right, the 'Simulation' window shows a visual representation of the circuit. An ESP32 microcontroller is connected to an HC-SR04 ultrasonic sensor. A yellow LED is also connected to the ESP32. The simulation is running, and the log shows the following output:

```
Publish ok
distance in cm150.27
Sending payload: {"distance":150.27
Publish ok
distance in cm150.30
Sending payload: {"distance":150.30
Publish ok
```

WhatsApp x IBM x Roundcube Webmail : Inbox x Service Details - IBM Cloud x IBM Watson IoT Platform x

yw40lr.internetofthings.ibmcloud.com/dashboard/devices/browse

IBM Watson IoT Platform 511919106002@smartinternz.com ID: yw40lr

Browse Action Device Types Interfaces Add Device +

Search by Device ID Device Simulator

Device ID	Status	Device Type	Class ID	Date Added
sound	Disconnected	ultrasonic	Device	Nov 4, 2022 5:40 AM

Identity Device Information Recent Events State Logs

Device ID: sound
Device Type: ultrasonic
Date Added: Nov 4, 2022 5:40 AM
Added By: 511919106002@smartinternz.com
Connection Status: Disconnected

Items per page 50 | 1-1 of 1 item

1 Simulation running

Type here to search 6:21 PM 11/4/2022

WhatsApp x IBM x Roundcube Webmail : Inbox x Service Details - IBM Cloud x IBM Watson IoT Platform x

yw40lr.internetofthings.ibmcloud.com/dashboard/devices/browse

IBM Watson IoT Platform 511919106002@smartinternz.com ID: yw40lr

Browse Action Device Types Interfaces Add Device +

Device ID	Status	Device Type	Class ID	Date Added
sound	Disconnected	ultrasonic	Device	Nov 4, 2022 5:40 AM

Identity Device Information Recent Events State Logs

The recent events listed show the live stream of data that is coming and going from this device.

Event	Value	Format	Last Received
event_1	{"distance":76}	json	a few seconds ago
event_1	{"distance":85}	json	a few seconds ago
event_1	{"distance":82}	json	a few seconds ago
event_1	{"distance":64}	json	a few seconds ago
event_1	{"distance":14}	json	a few seconds ago

1 Simulation running

Type here to search 6:21 PM 11/4/2022

