

## Internet of Things Assignment

### Assignment 4:

Write code and connections in wokwi for the ultrasonic sensor.

Whenever the distance is less than 100 cms send an "alert" to the IBM cloud and display in the device recent events.

Upload document with wokwi share link and images of IBM cloud

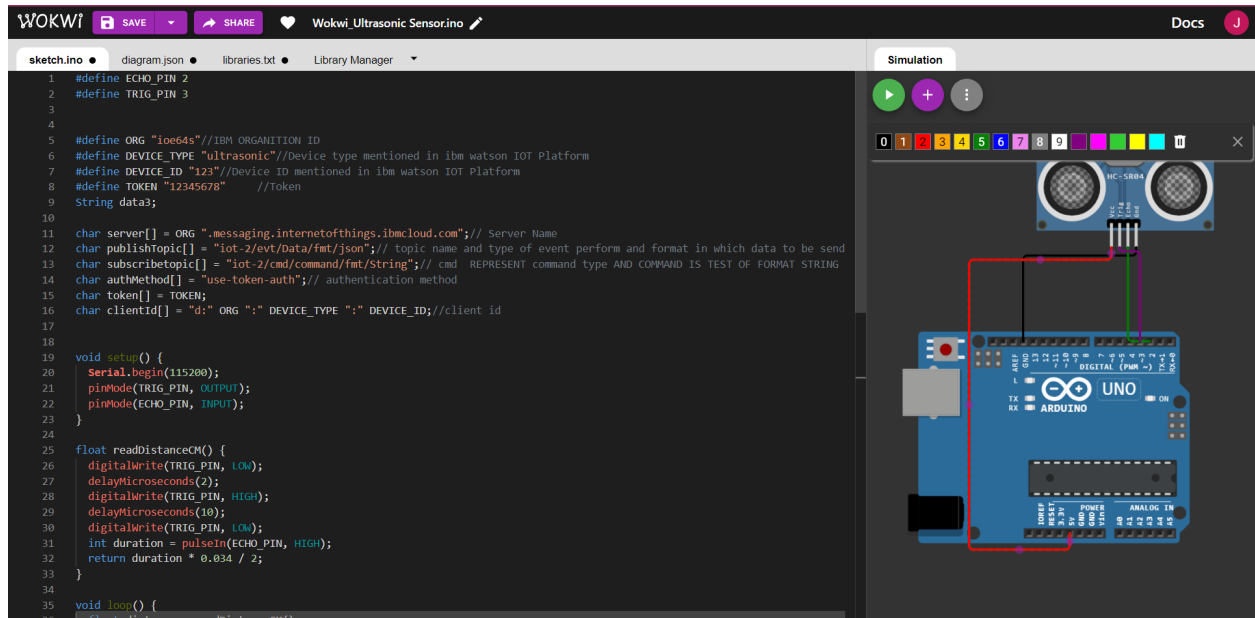
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### Link for Project Repository:

<https://wokwi.com/projects/348599390542234196>

### Snapshots:



WOKWI Wokwi Ultrasonic Sensor.ino

sketch.ino • diagram.json • libraries.txt • Library Manager

```
14 char authMethod[] = "use-token-auth"; // authentication method
15 char token[] = TOKEN;
16 char clientId[] = "d:" ORG ":" DEVICE_TYPE ":" DEVICE_ID;//client id
17
18
19 void setup() {
20   Serial.begin(115200);
21   pinMode(TRIG_PIN, OUTPUT);
22   pinMode(ECHO_PIN, INPUT);
23 }
24
25 float readDistanceCM() {
26   digitalWrite(TRIG_PIN, LOW);
27   delayMicroseconds(2);
28   digitalWrite(TRIG_PIN, HIGH);
29   delayMicroseconds(10);
30   digitalWrite(TRIG_PIN, LOW);
31   int duration = pulseIn(ECHO_PIN, HIGH);
32   return duration * 0.034 / 2;
33 }
34
35 void loop() {
36   float distance = readDistanceCM();
37
38   if (distance < 100)
39     Serial.print("alert");
40   else
41     Serial.print("Measured distance: ");
42   Serial.println(readDistanceCM());
43   delay(100);
44 }
45
46 }
```

Simulation

WOKWI Wokwi Ultrasonic Sensor.ino

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```
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```

Simulation

00:54.177 100%

Measured distance: 158.36  
Measured distance: 158.25  
Measured distance: 158.36  
Measured distance: 158.36  
Measured distance: 158.25  
Measured distance: 158.36  
Measured distance: 229.84  
Measured distance: 299.54  
Measured distance: 305.42  
Measured distance: 305.42  
Measured distance: 305.42  
Measured distance: 305.44  
Measured distance: 305.42

IBM Watson IoT Platform

Browse

Action

Device Types

Interfaces

ultrasonic\_1

Disconnected

ultrasonic

Identity

Device Information

Recent Events

State

The recent events listed show the live stream of data that is coming and going

Event	Value
event_1	{"randomNumber":93,"distance":39}
event_1	{"randomNumber":84,"distance":18}
event_1	{"randomNumber":93,"distance":13}
event_1	{"randomNumber":54,"distance":46}
event_1	{"randomNumber":58,"distance":85}

Simulations

Import/Export simulation

Device Type

ultrasonic

1 Event

1 Device

ultrasonic\_1

1 x

Create Simulated Device

Use Registered Device

111 events sent

4.4 KB sent