

ASSIGNMENT-4
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Qn: 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

LINK:

<https://wokwi.com/projects/new/arduino-uno>

CODE:

```
long int echoPin=7;
long int trigPin=5;
void setup()

    Serial.begin(9600);
    pinMode(7,OUTPUT);
    pinMode(5,INPUT);

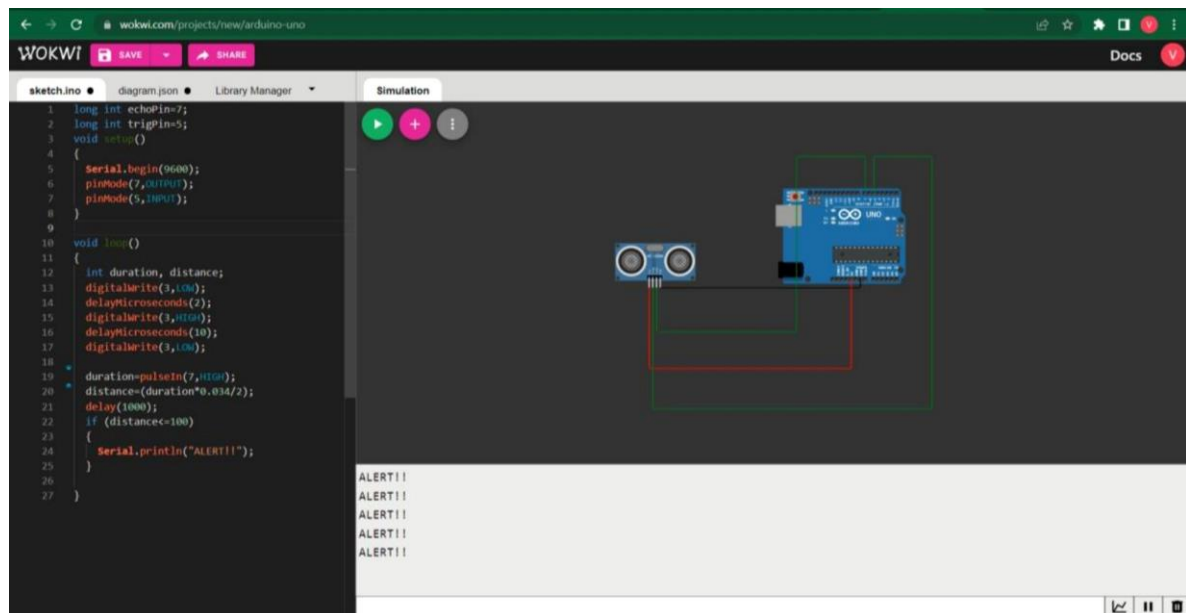
void loop()

    int duration, distance;
    digitalWrite(3,LOW);
    delayMicroseconds(2);
    digitalWrite(3,HIGH);
    delayMicroseconds(10);
    digitalWrite(3,LOW);

    duration=pulseIn(7,HIGH);
    distance=(duration*0.034/2);
    delay(1000);
    if (distance<=100)

        Serial.println("ALERT!!");
```

SIMULATIONS:



```
1 pH = random.r
2 turbidity = random.randint(1,
3 temperature = random.randint(0,
4
5 data = {'pH': pH, 'turbid': tur
6
7
8 # print(data)
9 def myOnPublishCallback():
10 while True
```

Run: Test_python_3.7.4

Published pH= 10 Turbidity: 242 Temperature: 71
Published pH= 12 Turbidity: 564 Temperature: 54
Published pH= 2 Turbidity: 571 Temperature: 98
Published pH= 7 Turbidity: 677 Temperature: 65
Published pH= 8 Turbidity: 352 Temperature: 13
Published pH= 5 Turbidity: 862 Temperature: 88
Published pH= 3 Turbidity: 834 Temperature: 7
Published pH= 9 Turbidity: 213 Temperature: 89
Published pH= 14 Turbidity: 677 Temperature: 22
Published pH= 11 Turbidity: 292 Temperature: 160
Published pH= 2 Turbidity: 53 Temperature: 21
Published pH= 6 Turbidity: 499 Temperature: 69
Published pH= 11 Turbidity: 238 Temperature: 26
Published pH= 2 Turbidity: 443 Temperature: 43
Published pH= 6 Turbidity: 986 Temperature: 91
Published pH= 5 Turbidity: 593 Temperature: 85
Published pH= 14 Turbidity: 308 Temperature: 86
Published pH= 4 Turbidity: 532 Temperature: 8
Published pH= 3 Turbidity: 54 Temperature: 8

IBM Watson IoT Platform

Browse Action Device Types Interfaces Add Device

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

Event	Value
demo	{ "pH": 12, "turbid": 93, "temp": 87 }
demo	{ "pH": 7, "turbid": 873, "temp": 94 }
demo	{ "pH": 3, "turbid": 204, "temp": 19 }
demo	{ "pH": 11, "turbid": 304, "temp": 77 }
demo	{ "pH": 13, "turbid": 16, "temp": 50 }

00003 Disconnected Micro_controller_2 Dev

Items per page 50 | 1-3 of 3 items 1 of 1 page

The screenshot displays the ThingsBoard web application. On the left is a dark sidebar with navigation icons. The top header contains tabs for "Browse", "Action", "Device Types", and "Interfaces", along with an "Add Device" button. The main content area shows a message: "The recent events listed show the live stream of data that is coming an". Below this is a table with two columns: "Event" and "Value".

Event	Value
demo	{"pH":12,"turbid":93,"temp":87}
demo	{"pH":7,"turbid":873,"temp":94}
demo	{"pH":3,"turbid":204,"temp":19}
demo	{"pH":11,"turbid":304,"temp":77}
demo	{"pH":13,"turbid":16,"temp":50}

At the bottom, there is a status bar for device "00003", which is "Disconnected". It also lists the device type as "Micro_controller_2". Below the status bar is a pagination control showing "Items per page 50" and "1-3 of 3 items 1 of 1 page", with navigation arrows.