

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 long int echoPin=7;
2 long int trigPin=5;
3 void setup()
4 {
5   Serial.begin(9600);
6   pinMode(7,OUTPUT);
7   pinMode(5,INPUT);
8 }
9
10 void loop()
11 {
12   int duration, distance;
13   digitalWrite(3,LOW);
14   delayMicroseconds(2);
15   digitalWrite(3,HIGH);
16   delayMicroseconds(10);
17   digitalWrite(3,LOW);
18
19   duration=pulseIn(7,HIGH);
20   distance=(duration*0.034/2);
21   delay(1000);
22   if (distance<=100)
23   {
24     Serial.println("ALERT!!");
25   }
26 }
27 }
```

ALERT!!
ALERT!!
ALERT!!
ALERT!!
ALERT!!

```
42 pH = random.r
43 turbidity = random.randint(1,
44 temperature = random.randint(0,
45
46 data = {'pH': pH, 'turbid': tur
47
48 # print(data)
49 def myOnPublishCallback():
50 while True
```

Published pH= 4 Turbidity:242 Temperature:91
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:100
Published pH= 2 Turbidity:53 Temperature:21
Published pH= 6 Turbidity:499 Temperature:69
Published pH= 11 Turbidity:238 Temperature:20
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:388 Temperature:86
Published pH= 4 Turbidity:532 Temperature:8
Published pH= 3 Turbidity:56 Temperature:88

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}

The screenshot displays the ThingsBoard web application. On the left is a dark sidebar with icons for home, devices, widgets, settings, and other functions. The top navigation bar includes links for Browse, Action, Device Types, Interfaces, and 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 message 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 of the screen, there is a status bar showing a search icon, the ID "00003", a disconnected device icon, the name "Micro_controller_2", and the label "Dev". Below this is a pagination control showing "Items per page 50", a dropdown menu, and "1-3 of 3 items 1 of 1 page". Navigation arrows and page numbers are also present.