

ASSIGNMENT-4

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:

The screenshot shows the Wokwi web IDE interface. On the left, the sketch code is displayed:

```
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 }
```

The simulation window on the right shows an Arduino Uno board with a sensor module connected. The console output shows the text "ALERT!!" being printed multiple times.

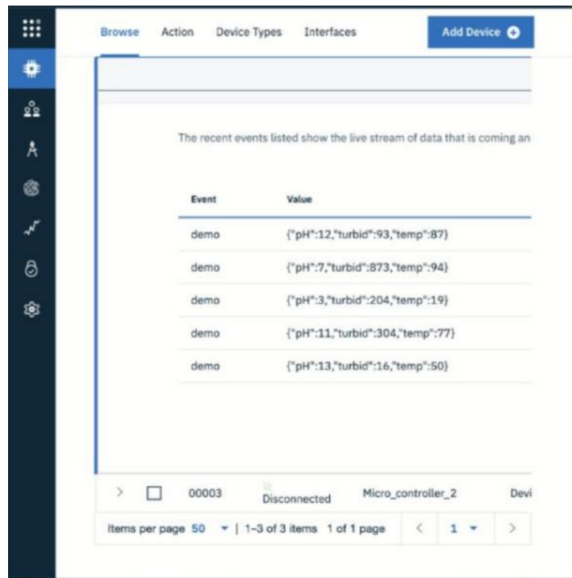
The screenshot shows the IBM Watson IoT Platform interface. The left pane displays a Python script for generating random data:

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

The right pane shows the 'Recent events' table, which displays a stream of data points:

| 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 bottom of the interface shows the device status, including the device ID "00003", the status "Disconnected", and the device name "Micro_controller_2".



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