

#### ASSIGNMENT-4

**NAME:** Adhavan.B

**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 }
```

On the right, the simulation window 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. On the left, the code for the microcontroller is displayed:

```
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
50 def myOnPublishCallback():
51     while True
```

On the right, the data stream is shown. The table lists the events and their values:

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, the status bar shows "00003 Disconnected Micro\_controller\_2" and "Items per page 50".

The screenshot shows the 'Interfaces' tab selected in the top navigation bar. The main content area displays a message: "The recent events listed show the live stream of data that is coming in". Below this message is a table with two columns: "Event" and "Value". The table contains five rows of data, each representing a sensor reading event.

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 dashboard, there is a status bar showing a search icon, the ID "00003", the status "Disconnected", the device name "Micro\_controller\_2", and the label "Dev1". Below this is a pagination control showing "Items per page 50", a range "1-3 of 3 items", and "1 of 1 page" with navigation arrows.