

**Assignment -4**  
**ULTRASONIC SENSOR**

|                     |                 |
|---------------------|-----------------|
| Assignment Date     | 29 October 2022 |
| Student Name        | ARTHI.V         |
| Student Roll Number | 412519106013    |
| Maximum Marks       | 2 Marks         |

**QUESTION:**

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

**SOLUTION:**

```
#define ECHO_PIN 2
#define TRIG_PIN 3
#define organization = "x0cl0i"
#define deviceType = "ultrasonicsensor"
#define deviceId = "ultrasonic_sensor"
#define authMethod = "use-token-auth"
#define authToken = "yfZ@HoxcWNUv3ZePkK"

void setup()
{
  Serial.begin(9600);
  pinMode(TRIG_PIN, OUTPUT);
  pinMode(ECHO_PIN, INPUT);
}

float readDistanceCM()
{
  digitalWrite(TRIG_PIN, LOW);
```

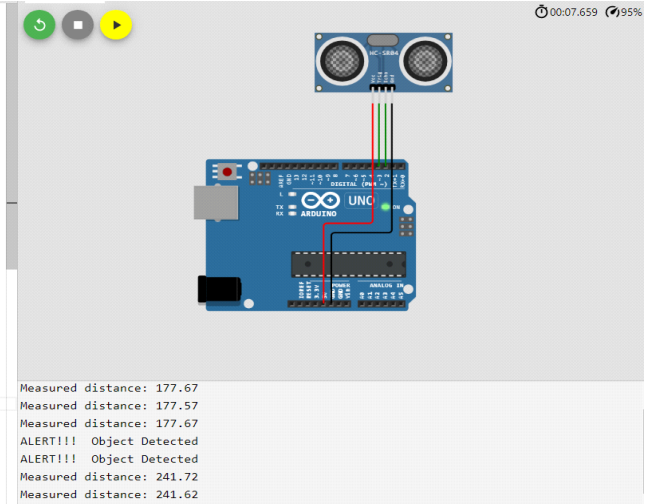
```
delayMicroseconds(2);  
digitalWrite(TRIG_PIN, HIGH);  
delayMicroseconds(10);  
digitalWrite(TRIG_PIN, LOW);  
int duration = pulseIn(ECHO_PIN, HIGH);  
return duration * 0.034 / 2;  
}  
void loop()  
{  
float distance = readDistanceCM();  
if (distance <= 100)  
{  
Serial.println("ALERT!!! Object Detected");  
}  
else  
{  
Serial.print("Measured distance: ");  
Serial.println(readDistanceCM());  
}  
delay(1000);  
}
```

**SIMULATION OUTPUT :**

```

1  #define ECHO_PIN 2
2  #define TRIG_PIN 3
3  #define organization = "x0cl0i"
4  #define deviceType = "ultrasonicsensor"
5  #define deviceId = "ultrasonic_sensor"
6  #define authMethod = "use-token-auth"
7  #define authToken = "yFz@HoxcHUV3ZePkK"
8  void setup()
9  {
10 Serial.begin(9600);
11 pinMode(TRIG_PIN, OUTPUT);
12 pinMode(ECHO_PIN, INPUT);
13 }
14 float readDistanceCM()
15 {
16 digitalWrite(TRIG_PIN, LOW);
17 delayMicroseconds(2);
18 digitalWrite(TRIG_PIN, HIGH);
19 delayMicroseconds(10);
20 digitalWrite(TRIG_PIN, LOW);
21 int duration = pulseIn(ECHO_PIN, HIGH);
22 return duration * 0.034 / 2;
23 }
24 void loop()
25 {
26 float distance = readDistanceCM();
27 if (distance <= 100)
28 {
29 Serial.println("ALERT!!! Object Detected");
30 }
31 else
32 {
33 Serial.print("Measured distance: ");
34 Serial.println(readDistanceCM());
35 }
36 delay(1000);

```



**WOKWI SHARE LINK:**

<https://wokwi.com/projects/347291092185514580>

**IBM CLOUD DEVICE DETAILS :**

IBM Watson IoT Platform

412519106110@smartinternz.com  
ID: x0cl0i

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## Device Drilldown - ultrasonic\_sensor

Connection Information

Recent Events

State

Device Information

Metadata

Diagnostics

Connection Logs

Device Actions

Connection Information

Basic connection information about this device.

|                   |                               |
|-------------------|-------------------------------|
| Device ID         | ultrasonic_sensor             |
| Device Type       | ultrasonicsensor              |
| Date Added        | Nov 3, 2022 1:04 PM           |
| Added By          | 412519106110@smartinternz.com |
| Connection Status | Disconnected                  |

Recent Events

1 Simulation running

**IBM CLOUD DEVICE RECENT EVENTS:**

IBM Watson IoT Platform

?

412519106110@smartinternz.com

ID: x0cl0i

Browse

Action

Device Types

Interfaces

Add Device +

Identity

Device Information

Recent Events

State

Logs

X

The recent events listed show the live stream of data that is coming and going from this device.

| Event | Value                           | Format | Last Received     |
|-------|---------------------------------|--------|-------------------|
| event | {"ALERT!!! OBJECT DETECTED":98} | json   | a few seconds ago |
| event | {"ALERT!!! OBJECT DETECTED":10} | json   | a few seconds ago |
| event | {"ALERT!!! OBJECT DETECTED":66} | json   | a few seconds ago |
| event | {"ALERT!!! OBJECT DETECTED":56} | json   | a few seconds ago |
| event | {"ALERT!!! OBJECT DETECTED":64} | json   | a few seconds ago |

## LINE CHART OF IBM CLOUD DEVICE:

