

## ASSIGNMENT 4

### Ultrasonic sensor simulation in Wokwi

**PROJECT NAME:** GAS LEAKAGE MONITERING AND ALERTING SYSTEM

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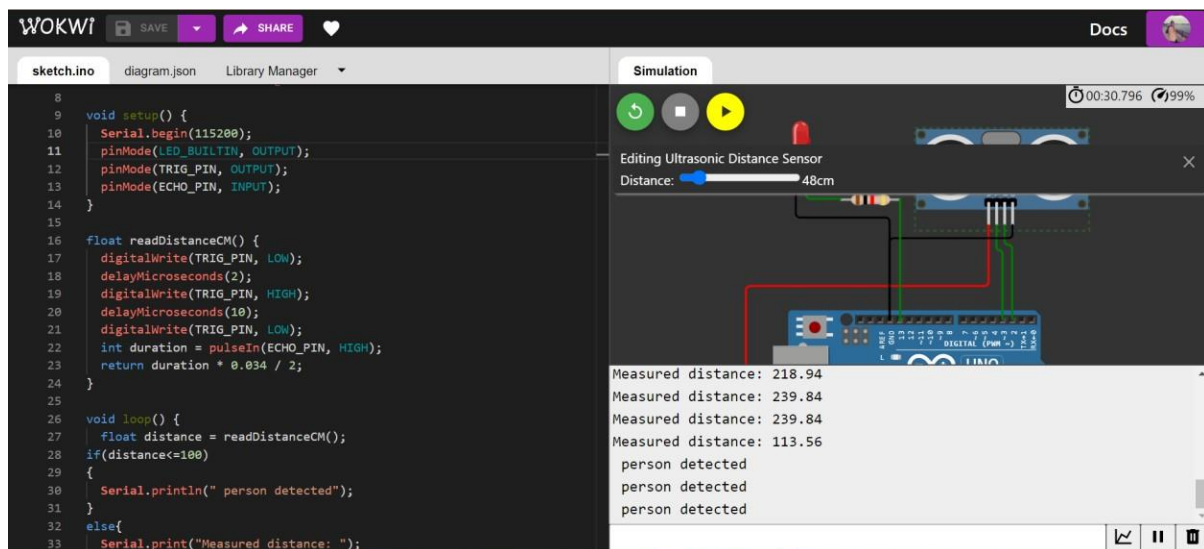
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**Question :** Write a code and connections in wokwi for the ultrasonic sensor. Whenever the distance is less than 100cms send an "Alert" to IBM cloud and display in the device recent events.

**Wokwi simulation link:** <https://wokwi.com/projects/347124503089775188>

**WOKWI OUTPUT SCREENSHOT:**



**CODE:**

```
#define ECHO_PIN 2
#define TRIG_PIN 3
#define organization = "md8rdq"
#define deviceType = "123"
#define deviceId = "123456"
#define authMethod = "token"
#define authToken = "Titik@2002"

void setup() {
  Serial.begin(115200);
  pinMode(LED_BUILTIN, OUTPUT);
  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(" person detected");
    }
    else{
        Serial.print("Measured distance: ");
        Serial.println(readDistanceCM());
    }

    delay(1000);
}

```

The screenshot displays the IBM Watson IoT Platform interface. On the left, a sidebar contains navigation icons for various platform features. The main area is divided into two panels. The left panel, titled 'Device Type: 123', shows a table of devices with columns for Device ID, Status, and Device Type. A device with ID 123456 is listed as 'Disconnected'. Below this, a 'Recent Events' section shows a stream of data events. The right panel, titled 'Device Type: 123', is a configuration window for an event type named 'event\_1'. It includes a 'Schedule' section set to 'Every Minute' and a 'Payload' section where a JSON payload is being edited. The payload is a JSON object with 'randomNumber' and 'distance' fields, each using a random function. A 'Send' button is visible at the top right of the configuration window.

Device ID	Status	Device Type
123456	Disconnected	123

Event	Value
event_1	{"randomNumber":92,"distance":11}
event_1	{"randomNumber":45,"distance":56}

```

{
  "randomNumber": random(0, 100),
  "distance": random(0, 150)
}

```

IBM Watson IoT Platform

Browse

Action

Device Types

Interfaces

Search by Device ID

Device ID

Status

Device Type

123456

Disconnected

123

Identity

Device Information

Recent Events

Device ID

123456

Device Type

123

Date Added

Nov 1, 2022 3:43 PM

Added By

titiksha.ec19@bitsathy.ac.in

Connection Status

Disconnected

Device Type: 123

Event type name

event\_1

Send

Schedule

1

Every Minute

Payload

Specify the event payload in the editor window or by uploading a [CSV file](#).

0

{

1

"randomNumber": random(0, 100),

2

"distance" : random(0,150)

3

}

4

Upload a CSV file

What functions can I apply?

IBM Watson IoT Platform

ultrasonic sensor

Line chart

100

50

0

17:28

17:28:30

now

1 minute

distance

Device Type: 123

Events

1

New event type

Event type name

event\_1

Send

Schedule

2

Every Minute

Payload

Specify the event payload in the editor window or by uploading a [CSV file](#).

0

{

1

"randomNumber": random(0, 100),

2

"distance" : random(0,150)

3

}

4

Upload a CSV file