

# ASSIGNMENT 4

## Ultrasonic sensor simulation in Wokwi

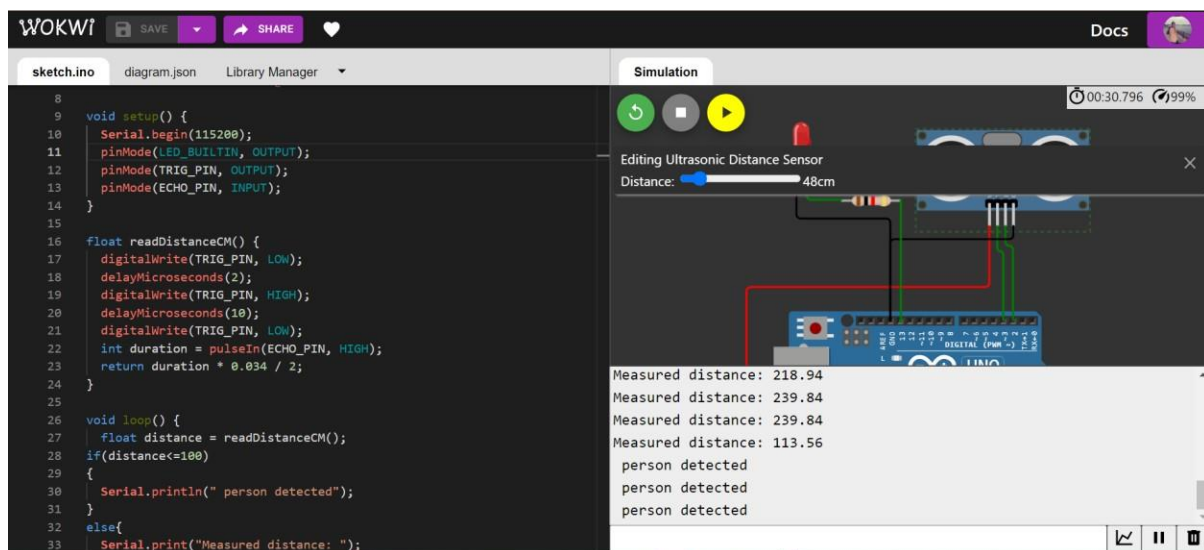
### PROJECT NAME: Real-Time River Water Quality Monitoring and Control System

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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 home, devices, actions, and settings. The main panel is titled 'Device Type: 123' and shows a table of devices. One device with ID '123456' is listed as 'Disconnected'. Below the table, there are tabs for 'Identity', 'Device Information', and 'Recent Events'. The 'Recent Events' tab is active, showing a list of events with their values. A modal window is open on the right, allowing configuration for 'event\_1'. It includes a 'Schedule' section set to 'Every Minute' and a 'Payload' section with a JSON template: `{ "randomNumber": random(0, 100), "distance": random(0, 150) }`. There are buttons for 'Send', 'Upload a CSV file', and a link for 'What functions can I apply?'.

Device ID	Status	Device Type
123456	Disconnected	123

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

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