

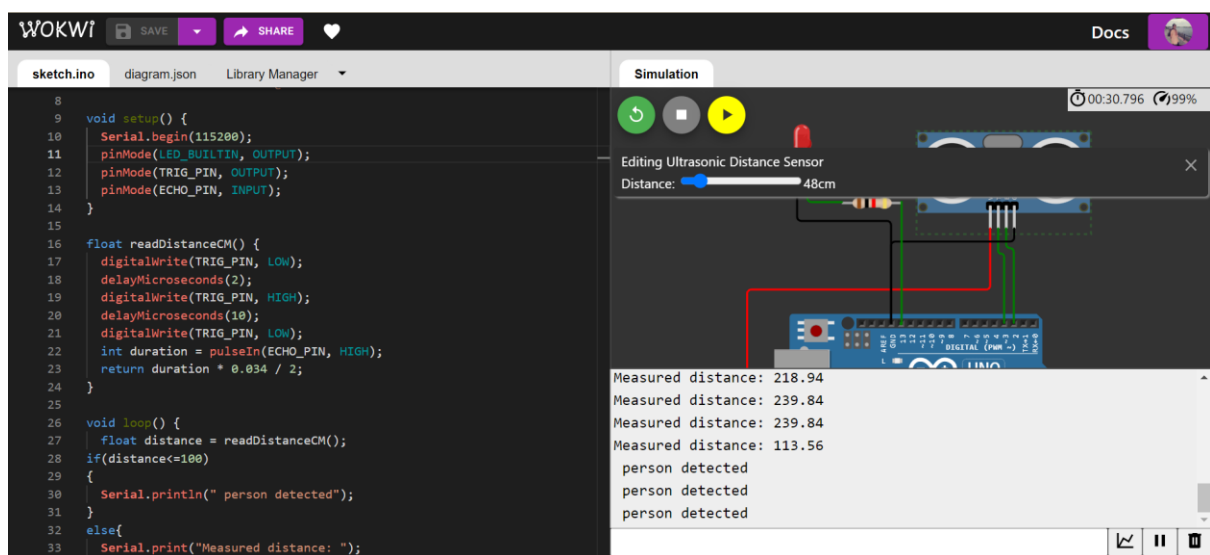
## ASSIGNMENT 4

### Ultrasonic sensor simulation in Wokwi

**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 panel is titled 'Device Type: 123' and includes a 'Send' button. Below this, there's a 'Schedule' section with a dropdown set to 'Every Minute'. The 'Payload' section allows users to specify the event payload in the editor window or by uploading a CSV file. The payload editor shows a JSON structure with two fields: 'randomNumber' and 'distance', both using random functions. Below the editor, there's an 'Upload a CSV file' button. At the bottom, a table lists recent events for the device.

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

Below the table, the text 'a few seconds ago' is displayed.

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

1 minute [now](#)

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 CSV file](#)