

# IBM PROJECT

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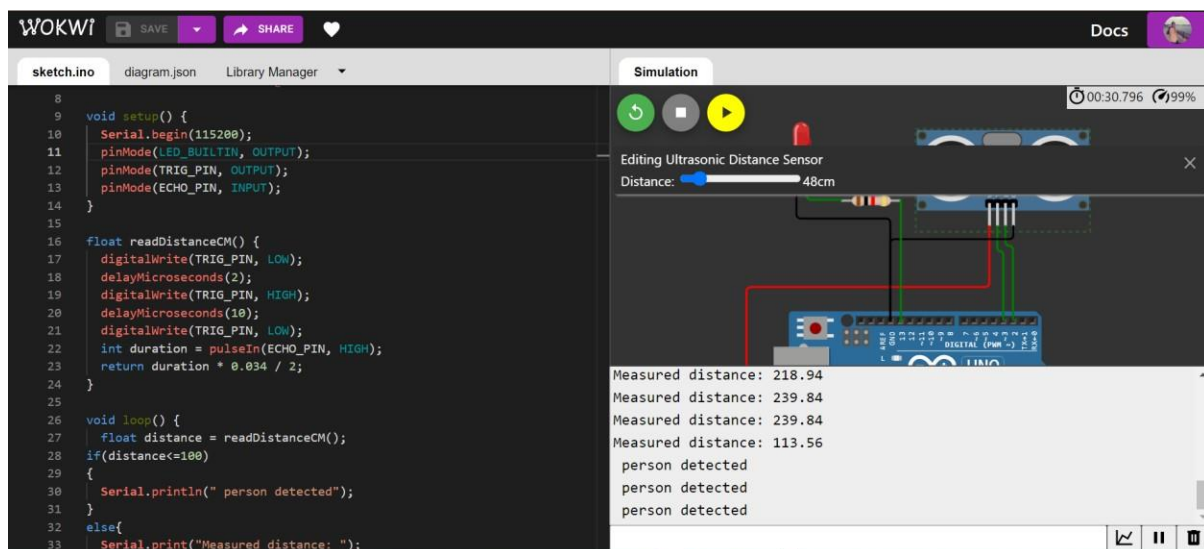
## ASSIGNMENT 4

### 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. The main panel is titled 'Device Type: 123' and includes a search bar 'Search by Device ID'. Below this is a table with columns 'Device ID', 'Status', and 'Device Type'. A device with ID '123456' and status 'Disconnected' is highlighted. 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 columns 'Event' and 'Value'. Two events are listed: 'event\_1' with value '{\"randomNumber\":92,\"distance\":11}' and 'event\_1' with value '{\"randomNumber\":45,\"distance\":56}'. On the right, a configuration panel for 'Device Type: 123' is open, showing 'Event type name' as 'event\_1', a 'Schedule' of 'Every Minute', and a 'Payload' editor. The payload editor contains a JSON object: {\"randomNumber\": random(0, 100), \"distance\": random(0, 150)}. Below the payload editor is an 'Upload a CSV file' button and a link '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

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 a CSV file](#)