

IBM PROJECT

NAME: SANDANA K A

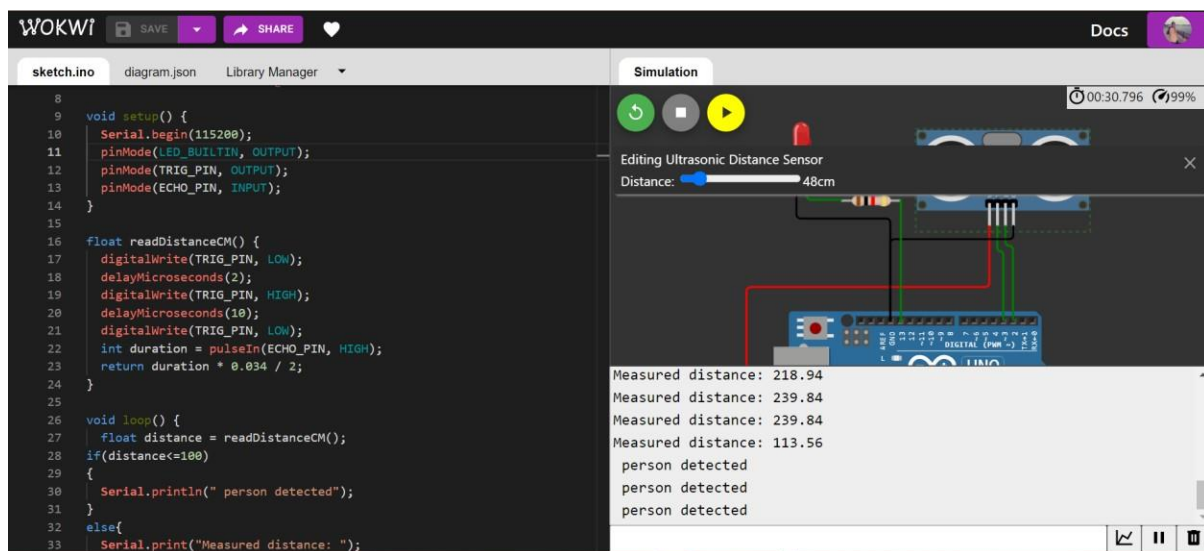
ASSIGNMENT 4

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 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 section for 'Recent Events' shows a stream of data. The right panel, also titled 'Device Type: 123', provides configuration options 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 defined: `{ "randomNumber": random(0, 100), "distance": random(0, 150) }`. A link to 'What functions can I apply?' is visible at the bottom right of the payload editor.

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](#)