

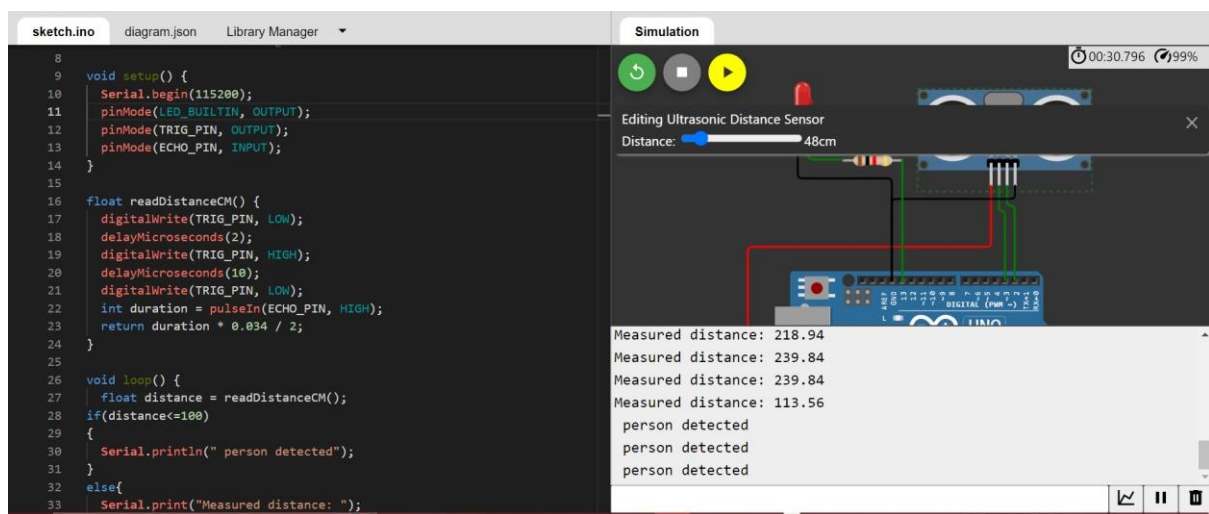
ASSIGNMENT 4

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 several sections:

- Top Navigation:** Includes tabs for "Browse", "Action", "Device Types", and "Interfaces".
- Search Bar:** A search bar labeled "Search by Device ID".
- Device List Table:** A table with columns "Device ID", "Status", and "Device Type". One device is listed with ID "123456", status "Disconnected", and type "123".
- Device Details Panel:** A panel for the selected device (ID 123456) showing tabs for "Identity", "Device Information", and "Recent Events".
- Recent Events Table:** A table showing the latest events for the device. It has columns "Event" and "Value". Two events are listed:

| Event | Value |
|---------|-----------------------------------|
| event_1 | {"randomNumber":92,"distance":11} |
| event_1 | {"randomNumber":45,"distance":56} |
- Event Configuration Modal:** A modal window titled "Device Type: 123" is open, allowing configuration of an event named "event_1". It includes:
 - Schedule:** A dropdown menu set to "Every Minute".
 - Payload Editor:** A text area showing a JSON payload:


```
{
  "randomNumber": random(0, 100),
  "distance": random(0, 150)
}
```
 - Buttons:** "Send" and "Upload a CSV file" buttons.
 - Footer:** A link "What functions can I apply?".

IBM Watson IoT Platform

BrowseActionDevice TypesInterfaces

Search by Device ID

Device IDStatusDevice Ty

123456Disconnected123

IdentityDevice InformationRecent Events

Device ID123456

Device Type123

Date AddedNov 1, 2022 3:43 PM

Added Bytitiksha.ec19@bitsathy.ac.in

Connection StatusDisconnected

Device Type: 123

Event type nameevent_1Send

Schedule1Every Minute

PayloadSpecify 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

100500

17:2817:28:30

1 minute

distance

now

Device Type: 123

Events1New event type+

Event type nameevent_1Send

Schedule2Every Minute

PayloadSpecify 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