

ASSIGNMENT 4

Ultrasonic sensor simulation in Wokwi

PROJECT NAME: Hazardous Area Monitoring for Industrial Plant powered by IOT

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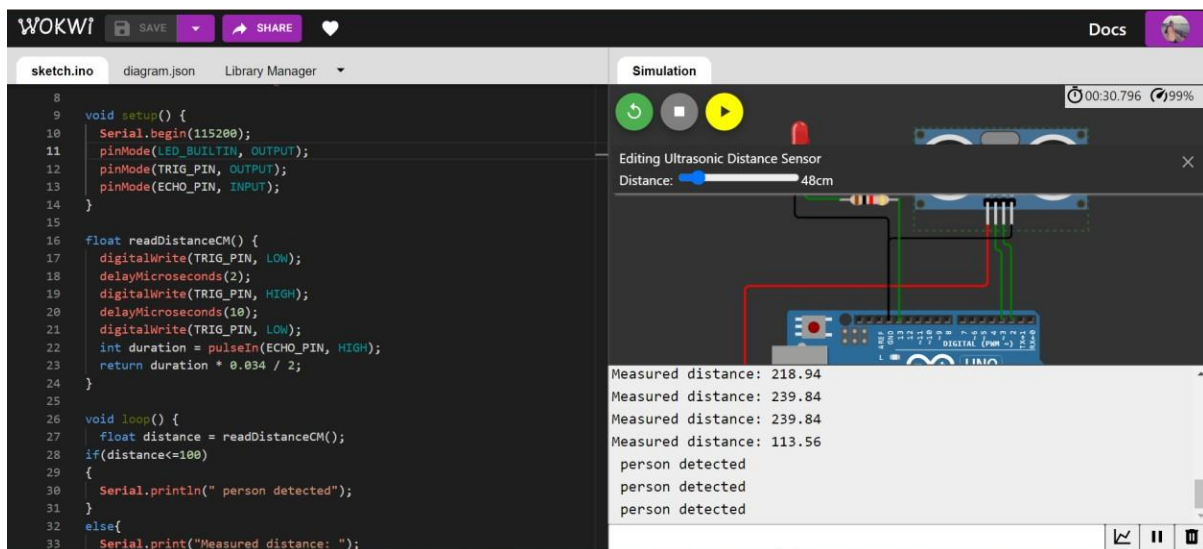
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Question : Write a code and connections in wokwi for the ultrasonic sensor. Whenever the distance is less than 100cms send an "Alert" to IBM cloud and display in the device recent events.

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 various platform features. The main panel is titled 'Device Type: 123' and includes tabs for 'Browse', 'Action', 'Device Types', and 'Interfaces'. A search bar labeled 'Search by Device ID' is present. Below it, a table lists device information:

Device ID	Status	Device Type
123456	Disconnected	123

Below the table, there are sections for 'Identity', 'Device Information', and 'Recent Events'. The 'Recent Events' section shows a live stream of data:

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

On the right, a configuration window for 'event_1' is open. 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)
}

```

Buttons for 'Send', 'Upload a CSV file', and a link 'What functions can I apply?' are also visible.

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 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

100

50

0

17:28

17:28:30

now

1 minute

distance

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