ASSIGNMENT 4

Ultrasonic sensor simulation in Wokwi

PROJECT NAME: Hazardous Area Monitoring for Industrial Plant powered by IOT
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Question : Write a code and connections in wokwi for the ultrasonic sensor. Whenever the distanceis 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:
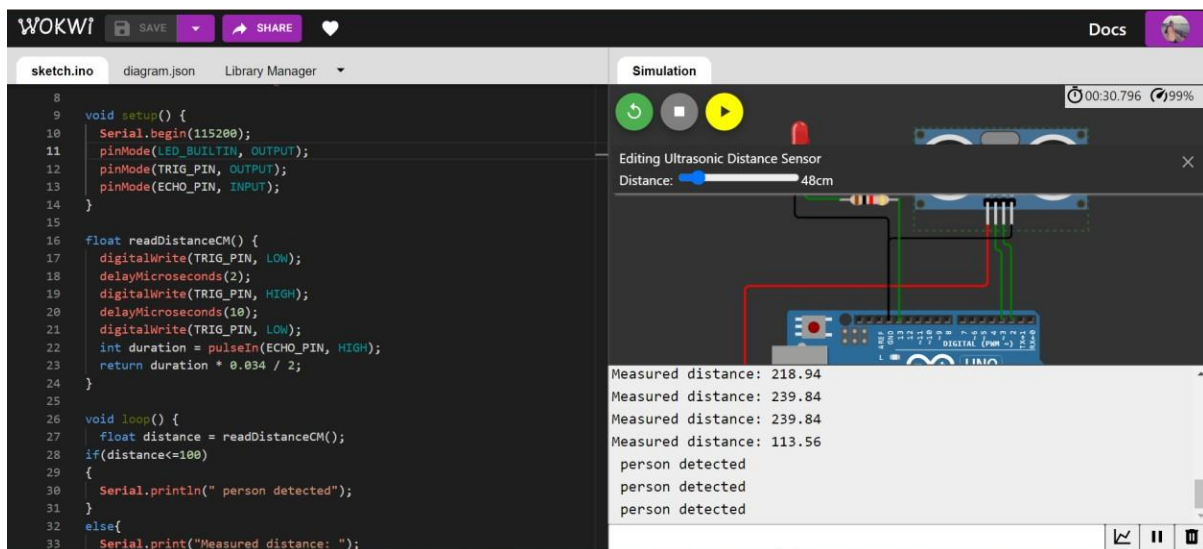
CODE:

```
#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);
}
```

IBM Watson IoT Platform

Browse   Action   Device Types   Interfaces

Q Search by Device ID

	Device ID	Status	Device Ty
☑	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?**

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‹ **ultrasonic sensor**

🔲 Line chart   •••

```
100
50
0
   17:28        17:28:30
```

1 minute ▾   ⬥⌄⌄⌃   now
        ● distance

‹ 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