

#### Assignment -4

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Assignment Date	01 November 2022
Team ID	PNT2022TMID18159
Project Name	Project – SMART SOLUTIONS FOR RAILWAYS
Maximum Marks	2 Marks

**WRITE CODE AND CONNECTIONS IN WOKWI FOR ULTRASONIC. WHENEVER DISTANCE IS LESS THAN 100 CMS SEND“ALERT” TO IBM CLOUD AND DISPLAY IN DEVICE RECENT EVENTS.**

#### **SOLUTION:**

```
#define ECHO_PIN 2
#define TRIG_PIN 3
#define organization = "mmbh4c"
#define deviceType = "Ultrasonic"
#define deviceId = "1112"
#define authMethod = "use-token-auth"
#define authToken = "123456789"

void setup() {
  Serial.begin(9600);
  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(100);
}
```

WOKWI SAVE SHARE Docs SIGN UP

sketch.ino • diagram.json • libraries.txt Library Manager

```
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2 #define TRIG_PIN 3
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4 #define deviceType = "Ultrasonic"
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9 void setup() {
10   Serial.begin(9600);
11   pinMode(TRIG_PIN, OUTPUT);
12   pinMode(ECHO_PIN, INPUT);
13 }
14
15 float readDistanceCM() {
16   digitalWrite(TRIG_PIN, LOW);
17   delayMicroseconds(2);
18   digitalWrite(TRIG_PIN, HIGH);
19   delayMicroseconds(10);
20   digitalWrite(TRIG_PIN, LOW);
21   int duration = pulseIn(ECHO_PIN, HIGH);
22   return duration * 0.034 / 2;
23 }
24
25 void loop() {
26   float distance = readDistanceCM();
```

Simulation

00:03.314 99%

Measured distance: 395.25  
Measured distance: 395.25  
Measured distance: 395.27

Wokwi Link: <https://wokwi.com/projects/345395196387656275>

#### OUTPUT:

```
Measured distance: 395.25
Measured distance: 395.35
Measured distance: 395.25
Measured distance: 395.27
Measured distance: 395.25
Measured distance: 395.25
Measured distance: 395.25
Measured distance: 395.27
Measured distance: 395.25
Measured distance: 395.25
Measured distance: 395.25
Measured distance: 395.27
Measured distance: 395.25
Measured distance: 395.27
Measured distance: 395.25
Measured distance: 395.
```

The screenshot displays the EdgeX Foundry user interface. At the top, there's a navigation bar with 'Browse', 'Device Types', and 'Interfaces' links, and an 'Add Device' button. Below this, a header bar shows the selected device 'Ultrasonic\_1' is 'Connected', along with its type 'Ultrasonic', a 'Device' link, and a timestamp 'Oct 26, 2022 7:54 PM'. A sidebar on the left contains icons for various system functions. The main content area is divided into tabs: 'Identity', 'Device Information', 'Recent Events' (which is active), 'State', and 'Logs'. Under the 'Recent Events' tab, a message states: 'The recent events listed show the live stream of data that is coming and going from this device.' Below this message is a table with the following data:

Event	Value	Format	Last Received
event_1	{"status":"Person Detected"}	json	a few seconds ago
event_1	{"status":"Person Detected"}	json	a few seconds ago
event_1	{"status":"Person Detected"}	json	a few seconds ago
event_1	{"status":"Person Detected"}	json	a few seconds ago

At the bottom of the interface, a status message indicates '1 Simulation running'.