

Assignment -4

Student's Name	Logadevi Chitra Banu M
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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4 #define deviceType = "Ultrasonic"
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9 void setup() {
10   Serial.begin(9600);
11   pinMode(TRIG_PIN, OUTPUT);
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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 shows the EdgeX Foundry web interface. The top navigation bar includes 'Browse', 'Action', 'Device Types', and 'Interfaces'. A sidebar on the left contains icons for various functions. The main content area displays the 'Recent Events' tab for the device 'Ultrasonic_1'. The table below shows a stream of events, all of which are 'Person Detected' status updates. A status box at the bottom right indicates that one simulation is running.

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

1 Simulation running