

ASSIGNMENT 4

CODE :

```
#define ECHO_PIN2

#define TRIG_PIN3

#define organization = "pb6xw8"

#define deviceType = "abcd"

#define deviceId = "12"

#define authMethod = "token"

#define authToken = "12345678"


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(1000);  
}
```

IBM CLOUD:

The screenshot displays the IBM Watson IoT Platform interface, specifically the 'ultrasonic sesor' device page. The dashboard includes a line chart showing 'randomNumber' and 'distance' over time, a donut chart indicating a total of 224 meters, and a configuration panel for the device type 'abcd'.

Device Configuration Panel:

- Device Type: abcd
- Events: 1
- Event type name: ultrasonic
- Schedule: 1 Every Minute
- Payload:

```
{  "randomNumber": "random(0, 100)",  "distance": "random(50, 150)"}
```
- Buttons: Upload a CSV file, Cancel, Save

Device List Table:

Device ID	Status	Device Type	Class ID	Date Added	Descriptive Location
12	Disconnected	abcd	Device	10 Oct 2022 13:26	

Device Details:

- Device ID: 12
- Device Type: abcd
- Date Added: 10 Oct 2022 13:26
- Added By: 613519106054@smartinternz.com
- Connection Status: Disconnected
- Last Connected: 17 Oct 2022 15:28
- Client Address: 157.49.199.101
- SecureToken
- Duration: 6 minutes
- Data Transferred: 3.2 KB

Items per page: 50 | 1-1 of 1 item

1 Simulation running

The image shows two browser windows. The top window is the IBM Watson IoT Platform dashboard. It displays a table of devices with columns: Device ID, Status, Device Type, Class ID, Date Added, and Descriptive Location. A device with ID 12 is selected, showing its status as 'Disconnected'. Below the table, there is a section for 'Recent Events' with a table of events. The bottom window is the Wokwi simulation interface. It shows the Arduino IDE with a sketch named 'hc-sr04.ino' by 'urish'. The sketch code is visible on the left, and the simulation of an Arduino Uno with an HC-SR04 ultrasonic sensor is on the right. The sensor's distance is shown as 57cm. The console output shows the sensor's measurements and detection status.

IBM Watson IoT Platform

Search by Device ID

Device ID	Status	Device Type	Class ID	Date Added	Descriptive Location
12	Disconnected	abcd	Device	10 Oct 2022 13:26	

Identity Device Information Recent Events State Logs

The recent events listed show the live stream of data that is coming and going from this device.

Event	Value	Format	Last Received
ultrasonic	{"randomNumber":79,"distance":94}	json	a few seconds ago
ultrasonic	{"randomNumber":88,"distance":113}	json	a few seconds ago
ultrasonic	{"randomNumber":77,"distance":145}	json	a few seconds ago
ultrasonic	{"randomNumber":71,"distance":109}	json	a few seconds ago

1 Simulation running

WOKWI

hc-sr04.ino

```
9 #define ECHO_PIN 2
10 #define TRIG_PIN 3
11 #define organization = "pb6xxw8"
12 #define deviceType = "abcd"
13 #define deviceId = "12"
14 #define authMethod = "token"
15 #define authToken = "12345678"
16
17
18 void setup() {
19   Serial.begin(115200);
20   pinMode(LED_BUILTIN, OUTPUT);
21   pinMode(TRIG_PIN, OUTPUT);
22   pinMode(ECHO_PIN, INPUT);
23 }
24
25 float readDistanceCM() {
26   digitalWrite(TRIG_PIN, LOW);
27   delayMicroseconds(2);
28   digitalWrite(TRIG_PIN, HIGH);
29   delayMicroseconds(10);
30   digitalWrite(TRIG_PIN, LOW);
31   int duration = pulseIn(ECHO_PIN, HIGH);
32   return duration * 0.034 / 2;
33 }
34
35 void loop() {
36   float distance=readDistanceCM();
37
38   if(distance<100)
39   {
40     Serial.println("person detected");
41   }
42   else{
43     Serial.println("Measured distance:");
44   }
```

Simulation

Editing Ultrasonic Distance Sensor

Distance: 57cm

Measured distance:101.76
Measured distance:101.76
Measured distance:101.75
person detected
person detected
person detected
person detected

WOKWI LINK:

<https://wokwi.com/projects/290056311044833800>