

## ASSIGNMENT-4

### Question-1:

*Write code and connections in wokwi for ultrasonic. Whenever distance is less than 100 cm's send "alert" to IBM cloud and display in device recent events.*

```
#define ECHO_PIN 2
#define TRIG_PIN 3
#define organization ="aaeicj"
#define deviceType="Arduino"
#define deviceId ="202002"
#define authMethod ="use-token-auth"
#define authToken ="vTIgFdXgIXL-IPxgZo"
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);
}
```

WOKWI PROJECT LINK: <https://wokwi.com/projects/347048462117765715>

# ASSIGNMENT-4

The screenshot shows the Wokwi web IDE interface. On the left, the sketch editor contains the following code:

```
1 #define ECHO_PIN 2
2 #define TRIG_PIN 3
3 #define organization "aaaiqj"
4 #define deviceType "Arduino"
5 #define deviceId "202002"
6 #define authMethod "use-token-auth"
7 #define authToken "vTigFdXgIXL-IPxgZo"
8 void setup() {
9   Serial.begin(9600);
10  pinMode(TRIG_PIN, OUTPUT);
11  pinMode(ECHO_PIN, INPUT);
12 }
13
14 float readDistanceCM() {
15   digitalWrite(TRIG_PIN, LOW);
16   delayMicroseconds(2);
17   digitalWrite(TRIG_PIN, HIGH);
18   delayMicroseconds(10);
19   digitalWrite(TRIG_PIN, LOW);
20   int duration = pulseIn(ECHO_PIN, HIGH);
21   return duration * 0.034 / 2;
22 }
23
24 void loop() {
25   float distance = readDistanceCM();
26   if(distance <= 100) {
27     Serial.println("person detected");
28   }
29   else {
30     Serial.print("Measured distance: ");
31     Serial.println(readDistanceCM());
32   }
33   delay(1000);
34 }
35
36
37
```

On the right, the simulation window shows an Arduino Uno board with an Ultrasonic Distance Sensor connected. The sensor's measured distance is displayed as 395.25 cm. The simulation is running at 100% speed.

The screenshot shows the IBM Watson IoT Platform dashboard. The page title is "Device Drilldown - 202002". The left sidebar contains navigation links: Back, Device Credentials, Connection Information, Recent Events, State, Device Information, Metadata, Diagnostics, Connection Logs, and Device Actions.

The main content area displays the "Device Credentials" section, which includes the following information:

Organization ID	aaaiqj
Device Type	arduino
Device ID	202002
Authentication Method	use-token-auth
Authentication Token	vTigFdXgIXL-IPxgZo

Below the credentials, there is a warning message: "Authentication tokens are non-recoverable. If you misplace this token, you will need to re-register the device to generate a new authentication token." and a link to "Find out how to add these credentials to your device".

The "Connection Information" section displays the following information:

Device ID	202002
Device Type	arduino

At the bottom right, it indicates "0 Simulations running".

## ASSIGNMENT-4

The screenshot shows the IBM Watson IoT Platform interface. The top navigation bar includes the IBM logo and the text 'IBM Watson IoT Platform'. The main header area displays 'Device Drilldown - arduino\_1'. On the left, a sidebar contains navigation links: 'Connection Information', 'Recent Events', 'State', 'Device Information', 'Metadata', 'Diagnostics', 'Connection Logs', and 'Device Actions'. The 'Connection Information' section is active, showing details for the device 'arduino\_1'. The 'Recent Events' section displays a table of events. A notification box at the bottom right indicates '5 Simulations running'.

Event	Value	Format	Last Received
event_1	["version":1,"author":"shobana devi","editor":"w...	json	a few seconds ago
event_1	["version":1,"author":"shobana devi","editor":"w...	json	a few seconds ago
event_1	["version":1,"author":"shobana devi","editor":"w...	json	a few seconds ago
event_1	["version":1,"author":"shobana devi","editor":"w...	json	a few seconds ago
event_1	["version":1,"author":"shobana devi","editor":"w...	json	a few seconds ago

5 Simulations running