

J.Jeshmitha Assignment4

Question-1: Write code and connections in wokwi for ultrasonic sensor.
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 ="6zxq7e"
#define deviceType="arduino"
#define deviceId ="0815"
#define authMethod ="use-token-auth"
#define authToken ="s2K-09rA5?w((8TcoO"

void setup() {
  // put your setup code here, to run once:
  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() {  
    // put your main code here, to run repeatedly:  
    float distance = readDistanceCM();  
    if(distance <= 100)  
    {  
        Serial.println("person detected ");  
    }  
    else{  
        Serial.print("Measured distance: ");  
        Serial.println(readDistanceCM());  
    }  
    delay(1000);
```

```
}
```

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wokwi.com/projects/347215744236257874

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WOKWI

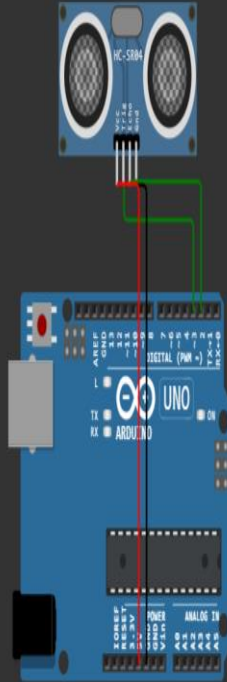
SAVE SHARE

Docs

sketch.ino diagram.json Library Manager

Simulation

```
3 #define organization ="jsx3j0"
4 #define deviceType=" Arduino"
5 #define deviceId ="50601"
6 #define authMethod ="use-token-auth"
7 #define authToken ="050620010"
8
9 void setup() {
10 // put your setup code here, to run once:
11 Serial.begin(9600);
12 pinMode(TRIG_PIN,OUTPUT);
13 pinMode(ECHO_PIN, INPUT);
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 }
26
27 void loop() {
28 // put your main code here, to run repeatedly:
29 float distance = readDistanceCM();
30 if(distance <= 100)
31 {
32 Serial.println("person detected ");
33 }
34 else{
35 Serial.print("Measured distance: ");
36 Serial.println(readDistanceCM());
37 }
38 delay(1000);
39
40
41 }
42
43 }
```



jesmithasun@gmail.com

Discord

My projects


The Club

Feature Roadmap

Language

Logout

24°C Cloudy



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Output:

Wokwi simulation interface showing the Arduino Uno code and the simulated hardware setup.

Code (sketch.ino):

```
1 #define ECHO_PIN 2
2 #define TRIG_PIN 3
3 #define organization="ysx3j0"
4 #define deviceType="arduino"
5 #define deviceId="50601"
6 #define authMethod="use-token-auth"
7 #define authToken="050620010"
8
9 void setup() {
10   // put your setup code here, to run once:
11   Serial.begin(9600);
12   pinMode(TRIG_PIN, OUTPUT);
13   pinMode(ECHO_PIN, INPUT);
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 }
26
27 void loop() {
28   // put your main code here, to run repeatedly:
29   float distance = readDistanceCM();
30   if(distance <= 100)
31   {
32     Serial.println("person detected ");
33   }
34   else{
35     Serial.print("Measured distance: ");
36     Serial.println(readDistanceCM());
37   }
38   delay(1000);
39 }
40
41 }
42
43 }
```

Simulation: The hardware setup shows an Arduino Uno connected to an HC-SR04 ultrasonic sensor. The sensor's VCC pin is connected to the 5V pin on the Arduino, and its GND pin is connected to a GND pin. The TRIG pin is connected to digital pin 3, and the ECHO pin is connected to digital pin 2.

Serial Monitor Output:

```
Measured distance: 395.25
Measured distance: 395.25
Measured distance: 395.27
Measured distance: 395.25
Measured distance: 395.35
Measured distance: 395.25
Measured distance: 395.25
```

Wokwi logo, SAVE, SHARE, Docs, sketch.ino, diagram.json, Library Manager, Simulation, 00:14.748, 100%, 24°C Cloudy, 11:07 PM 14-11-2022.

Wokwi Link: <https://wokwi.com/projects/348325363830489683>

IBM CLOUD

Device Recent Events

The screenshot shows the IBM Watson IoT Platform interface. The browser address bar displays the URL: 62zq7e.internetofthings.ibmcloud.com/dashboard/devices/drilldown/arduino:0815?returnTo=/devices/browse. The page title is "Device Drilldown - 0815". A warning message states: "Authentication tokens are non-recoverable. If you misplace this token, you will need to re-register the device to generate a new authentication token." Below this, a link says "Find out how to add these credentials to your device". The "Connection Information" section provides the following details:

Property	Value
Device ID	0815
Device Type	arduino
Date Added	14 Nov 2022 22:50
Added By	jeshmithaarun@gmail.com
Connection Status	Disconnected

The "Recent Events" section is partially visible at the bottom. The left sidebar contains navigation links: Back, Device Credentials, Connection Information, Recent Events, State, Device Information, Metadata, Diagnostics, Connection Logs, and Device Actions. The top right of the dashboard shows the user profile for jeshmithaarun@gmail.com with ID: 62zq7e. The Windows taskbar at the bottom shows the date and time as 10:51 PM on 14-11-2022.

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6zmq7e.internetofthings.ibmcloud.com/dashboard/devices/drilldown/arduino0815?returnTo=/devices/browse

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IBM Watson IoT Platformjeshmithaarun@gmail.comID: 6zmq7e

Back

Device Drilldown - 0815

Connection Information

Recent Events

State

Device Information

Metadata

Diagnostics

Connection Logs

Device Actions

Recent Events

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

Event	Value	Format	Last Received
event_1	{"version":1,"author":"Anonymous maker","edito...	json	a few seconds ago
event_1	{"version":1,"author":"Anonymous maker","edito...	json	a few seconds ago
event_1	{"version":1,"author":"Anonymous maker","edito...	json	a few seconds ago
event_1	{"version":1,"author":"Anonymous maker","edito...	json	a few seconds ago
event_1	{"version":1,"author":"Anonymous maker","edito...	json	a few seconds ago

State

2 Simulations running

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