

SUGASAHILA.R ASSIGNMENT-4

QUESTION- 1: Write code and connection in wokwi for ultrasonic sensor. Whenever distances 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 ="26kfi7"
#define deviceType=" Arduino"
#define deviceId ="77777"
#define authMethod ="use-token-auth"
#define authToken ="PvXOirUN7@IXsblWUv"

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);

}

Service Details - IBM Cloud x IBM Watson IoT Platform x New Arduino Uno Project - Wokwi x

wokwi.com/projects/new/arduino-uno

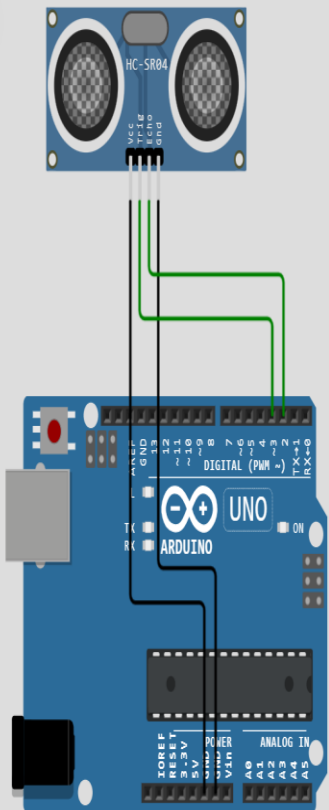
Gmail YouTube D

WOKWI SAVE SHARE Docs

sketch.ino diagram.json Library Manager

```
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 }
```

Simulation



HC-SR04

ARDUINO UNO

28°C Cloudy 1906 01-11-2022

Output:

Service Details - IBM Cloud x IBM Watson IoT Platform x New Arduino Uno Project - Wokwi x +

wokwi.com/projects/new/arduino-uno

Gmail YouTube D

WOKWI SAVE SHARE Docs

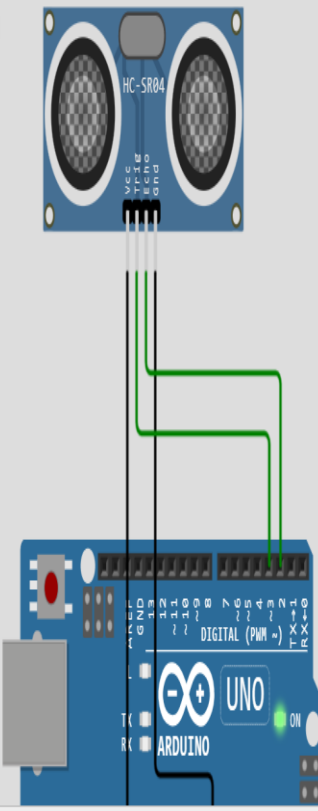
sketch.ino diagram.json Library Manager

Simulation

00:16.128 99%

Restart the simulation

```
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 }
```



Measured distance: 395.25

Measured distance: 395.27

Measured distance: 395.25

Measured distance: 395.35

Measured distance: 395.25

Measured distance: 395.25

Measured distance: 395.25

Wokwi link: <https://wokwi.com/projects/347326623040668244>

IBM

Devices recent events

The screenshot shows the IBM Watson IoT Platform interface. The left sidebar contains a navigation menu with icons for Home, Devices, Recent Events, State, Device Information, Metadata, Diagnostics, Connection Logs, and Device Actions. The main content area is titled "Device Drilldown - 77777" and displays the "Device Credentials" section. This section includes a description: "You registered your device to the organization. Add these credentials to the device to connect it to the platform. After the device is connected, you can navigate to view connection and event details." Below this is a table with the following data:

Organization ID	26kf7
Device Type	arduino
Device ID	77777
Authentication Method	use-token-auth
Authentication Token	nmHhu6ic89PSmfZs

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

The screenshot shows the IBM Watson IoT Platform interface, similar to the previous one, but with the "Connection Information" section selected. This section includes a description: "Basic connection information about this device." Below this is a table with the following data:

Device ID	77777
Device Type	arduino
Date Added	Nov 3, 2022 10:10 PM
Added By	sugasahila2001@gmail.com
Connection Status	Disconnected

Below the table, there is a section titled "Recent Events" with a description: "The recent events listed show the live stream of data that is coming and going from this device." The "Recent Events" table is currently empty.

Service Details - IBM Cloud x IBM Watson IoT Platform x sketch.ino copy - Wokwi Arduino x +

26k7f7.internetofthings.ibmcloud.com/dashboard/devices/browse

Gmail YouTube D

IBM Watson IoT Platform

sugasahila2001@gmail.com
ID: 26k7f7

Browse Action Device Types Interfaces

Add Device +

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
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

Items per page 50 | 1-1 of 1 item

1 of 1 page

1 Simulation running

