

Assignment - 4

Assignment Date	19 October 2022
Student Name	Durga N
Student Roll Number	620119104019
Maximum Marks	2 Marks

Write code and connections in wokwi for the ultrasonic sensor. Whenever the distance is less than 100 cms send an "alert" to the IBM cloud and display in the device recent events.

Code:

```
#define ECHO_PIN 2
#define TRIG_PIN 3
#define organization ="o58zsl "
#define device type ="abcd"
#define device Id="1234"
#define auth_method="token"
#define auth_Token="12345678"
void setup() {
  Serial.begin(115200);
  pinMode(LED_BUILTIN, OUTPUT);
  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:");
```

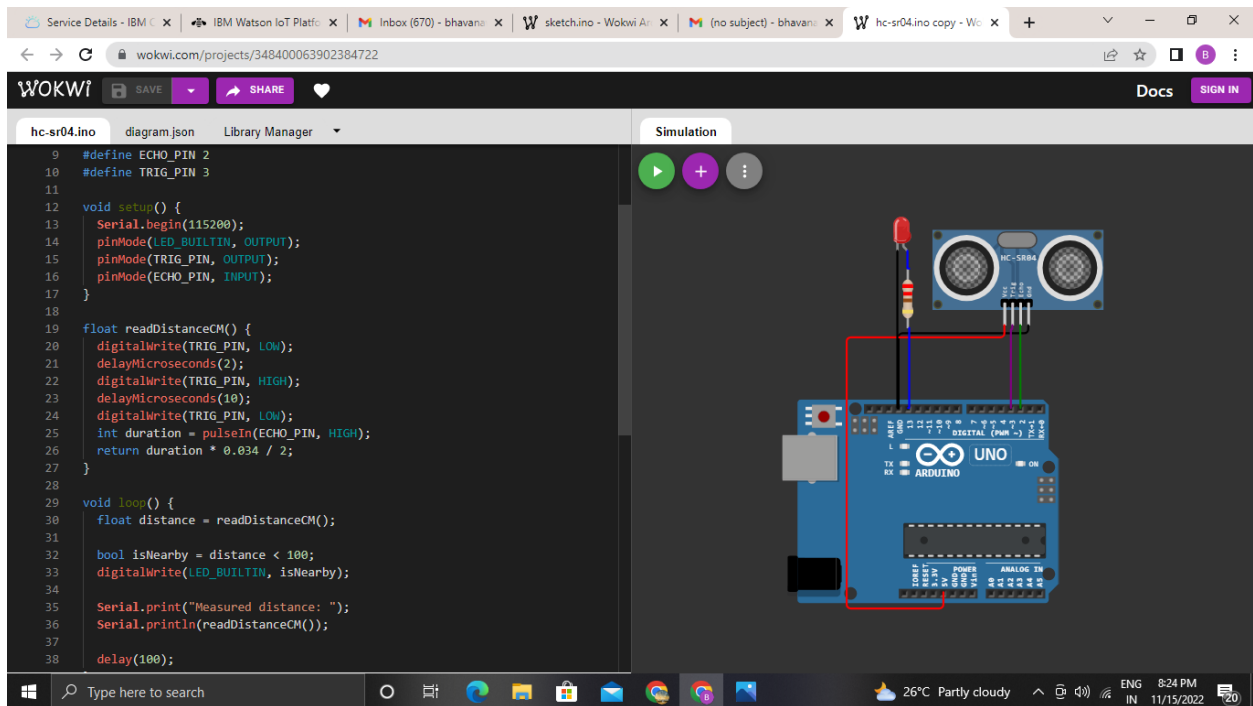
```
Serial.println(readDistanceCM());
```

```
}
```

```
delay(1000);
```

```
}
```

Wokwi link : <https://wokwi.com/projects/348400063902384722>



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wokwi.com/projects/348400063902384722

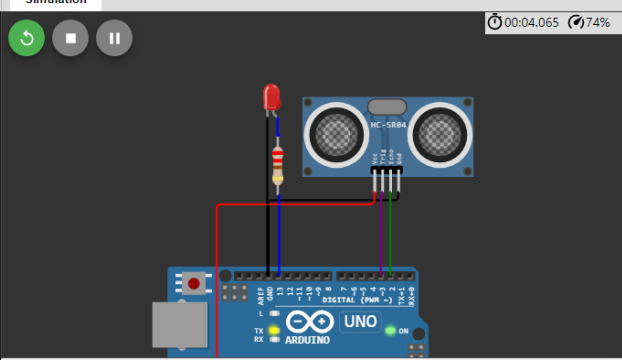
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hc-sr04.ino diagram.json Library Manager

```
9 #define ECHO_PIN 2
10 #define TRIG_PIN 3
11
12 void setup() {
13   Serial.begin(115200);
14   pinMode(LED_BUILTIN, OUTPUT);
15   pinMode(TRIG_PIN, OUTPUT);
16   pinMode(ECHO_PIN, INPUT);
17 }
18
19 float readDistanceCM() {
20   digitalWrite(TRIG_PIN, LOW);
21   delayMicroseconds(2);
22   digitalWrite(TRIG_PIN, HIGH);
23   delayMicroseconds(10);
24   digitalWrite(TRIG_PIN, LOW);
25   int duration = pulseIn(ECHO_PIN, HIGH);
26   return duration * 0.034 / 2;
27 }
28
29 void loop() {
30   float distance = readDistanceCM();
31
32   bool isNearby = distance < 100;
33   digitalWrite(LED_BUILTIN, isNearby);
34
35   Serial.print("Measured distance: ");
36   Serial.println(readDistanceCM());
37
38   delay(100);
39 }
```

Simulation

00:04.065 74%



Measured distance: 177.24
Measured distance: 177.26
Measured distance: 177.24
Measured distance: 177.26
Measured distance: 177.24
Measured distance: 177.16
Measured distance: 177.24

Type here to search

26°C Partly cloudy 8:24 PM 11/15/2022

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o58zsl.internetofthings.ibmcloud.com/dashboard/devices/browse

IBM Watson IoT Platform

renuvadi@gmail.com ID: o58zsl

Browse Action Device Types Interfaces

Add Device

Browse Devices

All Devices Diagnose

This table shows a summary of all devices that have been added. It can be filtered, organized, and searched on using different criteria. To get started, you can add devices by using the Add Device button, or by using API.

Search by Device ID

Device Simulator

Device ID	Status	Device Type	Class ID	Date Added
1234	Connected	abcd	Device	15 Nov 2022 6:14 PM
12345	Disconnected	raspberrypi	Device	2 Nov 2022 8:06 PM

Items per page 50 | 1-2 of 2 items

1 of 1 page

Type here to search

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IBM Watson IoT Platform

Browse

Action

Device Types

Interfaces

1234

Disconnected

abcd

Identity

Device Information

Recent Events

State

The recent events listed show the live stream of data that is coming and going

Event	Value
event_1	{"Distance":50}
event_1	{"distance":61}
event_1	{"Distance":73}
event_1	{"distance":59}

Simulations

Import/Export simulation

1/50 Simulations Running

+ New Simulation

Device Type

abcd

1 Event

1234

1 x

Create Simulated Device

Use Registered Device

Type here to search

Humid

ENG IN

8:29 PM

11/15/2022