

## A. Sandhiya Assignment -4

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 ="xKKc6o"
#define deviceType=" Arduino"
#define deviceId ="4444"
#define authMethod ="use-token-auth"
#define authToken ="nMX@9nrIyogMe)!mjt"
```

```
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);
```

```
}
```

WOKWI

SAVE

SHARE

Docs

sketch.ino

diagram.json

Library Manager

```
1 #define ECHO_PIN 2
2 #define TRIG_PIN 3
3 #define organization "xKkC6o"
4 #define deviceType "Arduino"
5 #define deviceId "4444"
6 #define authMethod "use-token-auth"
7 #define authToken "%Mq@nrIyqMe!n!t"
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

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Output:

WOKWI SAVE SHARE Docs

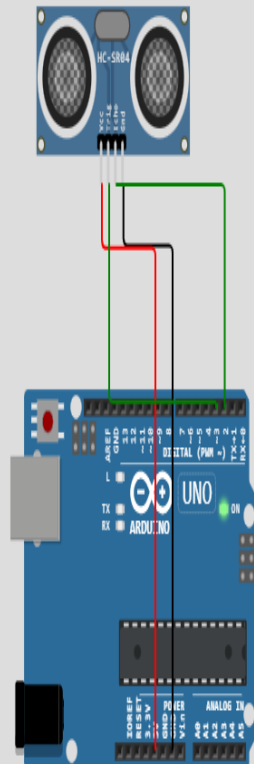
sketch.ino diagram.json Library Manager

```
1 #define ECHO_PIN 2
2 #define TRIG_PIN 3
3 #define organization "xKk6o"
4 #define deviceType "Arduino"
5 #define deviceId "4444"
6 #define authMethod "use-token-auth"
7 #define authToken "nWg9nrIyogMeInJt"
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 }
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36     Serial.println(readDistanceCM());
37   }
38   delay(1000);
39 }
40
41
42 }
43
```

Simulation

00:04:529 97%

Rectangular Snip



Measured distance: 395.25  
Measured distance: 395.27  
Measured distance: 395.25  
Measured distance: 395.27  
Measured distance: 395.25

Wokwi Link: <https://wokwi.com/projects/347054740456079955>

IBM CLOUD

## Device Recent Events

IBM Watson IoT Platform

sandysandhiya164@gmail.com  
ID: xkko6o

Browse

Action

Device Types

Interfaces

Search by Device ID

Device Simulator ☒

Device ID	Status	Device Type	Class ID	Date Added	
4444	Disconnected	arduino	Device	Oct 31, 2022 11:33 PM	→ ...

Identity

Device Information

Recent Events

State

Logs

X

Device ID

4444

Device Type

arduino

Date Added

Oct 31, 2022 11:33 PM

Added By

sandysandhiya164@gmail.com

Connection Status

Disconnected

Items per page 50 | 1-1 of 1 item

1 of 1 page < 1 >

1 Simulation running



Browse Action Device Types Interfaces



	Device ID	Status	Device Type	Class ID	Date Added	
▼	4444	Disconnected	arduino	Device	Oct 31, 2022 11:33 PM	→ ...

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

1 Simulation running