

## T. L. Gayathri 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 ="a73vfr"
#define deviceType=" Arduino"
#define deviceId ="2002"
#define authMethod ="use-token-auth"
#define authToken ="XAS55GPfftdSdAcslp"
```

```
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

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```
1 #define ECHO_PIN 2
2 #define TRIG_PIN 3
3 #define organization "a73vfr"
4 #define deviceType "Arduino"
5 #define deviceId "1002"
6 #define authMethod "use-token-auth"
7 #define authToken "XAS5SGPfftdSdAcslP"
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

**Output:**

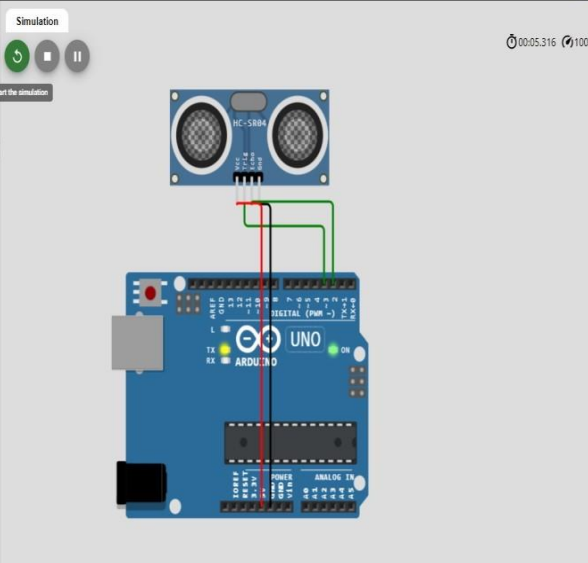
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```
1 #define ECHO_PIN 2
2 #define TRIG_PIN 3
3 #define organization "a73vfr"
4 #define deviceType "Arduino"
5 #define deviceId "1002"
6 #define authMethod "use-token-auth"
7 #define authToken "Xa555Gpfftd5dAcslp"
8
9 void setup() {
10   // put your 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

Restart the simulation



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

Wokwi Link: <https://wokwi.com/projects/347224372934607443>

IBM CLOUD

Device Recent Events

IBM Watson IoT Platform

tlgayathri2002@gmail.com  
ID: a73vfr

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Device Drilldown - 2002

Device Credentials

Connection Information

Recent Events

State

Device Information

Metadata

Diagnostics

Connection Logs

Device Actions

Connection Information

Basic connection information about this device.

Device ID

2002

Device Type

Arduino

Date Added

Nov 2, 2022 7:22 PM

Added By

tlgayathri2002@gmail.com

Connection Status

Disconnected

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
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IBM Watson IoT Platform

tlgayathri2002@gmail.com  
ID: a73vfr

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Device Drilldown - 2002

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

This table shows a list of data points that are reported by this device.

1 Simulation running