

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 ="sms611"
#define deviceType=" Arduino"
#define deviceId ="14061"
#define authMethod ="use-token-auth"
#define authToken ="753998223"

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

IBM Watson IoT Platform

IBM Watson IoT Platform

New Arduino Uno Project - Wokwi

Fwd: Document from - sara

wokwi.com/projects/new/arduino-uno

WOKWI

SAVE

SHARE

Docs

sketch.ino

diagram.json

Library Manager

Simulation

```
1 #define ECHO_PIN 2
2 #define TRIG_PIN 3
3 #define organization ="sms611"
4 #define deviceType=" Arduino"
5 #define deviceId ="14061"
6 #define authMethod ="use-token-auth"
7 #define authToken ="753998223"
8 void setup() {
9   // put your setup code here, to run once:
10  Serial.begin(9600);
11  pinMode(TRIG_PIN,OUTPUT);
12  pinMode(ECHO_PIN, INPUT);
13 }
14 float readDistanceCM() {
15   digitalWrite(TRIG_PIN, LOW);
16   delayMicroseconds(2);
17   digitalWrite(TRIG_PIN, HIGH);
18   delayMicroseconds(10);
19   digitalWrite(TRIG_PIN, LOW);
20   int duration = pulseIn(ECHO_PIN, HIGH);
21   return duration * 0.034 / 2;+
22 }
23 }
24
25 void loop() {
26   // put your main code here, to run repeatedly:
27   float distance = readDistanceCM();
28   if(distance <= 100)
29   {
30     Serial.println("&quot;person detected &quot;);
31   }
32   else{
33     Serial.print("&quot;Measured distance: &quot;);
34     Serial.println(readDistanceCM());
35   }
```

Simulation

▶

+

⋮

Windows Taskbar

ENG IN

21:18

02-11-2022

Output:

The screenshot displays the Wokwi IDE interface. The left pane shows the sketch code, and the right pane shows the simulation of the hardware.

Sketch Code:

```
1 #define ECHO_PIN 2
2 #define TRIG_PIN 3
3 #define organization ="sms611"
4 #define deviceType=" Arduino"
5 #define deviceId ="14061"
6 #define authMethod ="use-token-auth"
7 #define authToken ="753998223"
8 void setup() {
9   // put your setup code here, to run once:
10  Serial.begin(9600);
11  pinMode(TRIG_PIN,OUTPUT);
12  pinMode(ECHO_PIN, INPUT);
13 }
14 float readDistanceCM() {
15  digitalWrite(TRIG_PIN, LOW);
16  delayMicroseconds(2);
17  digitalWrite(TRIG_PIN, HIGH);
18  delayMicroseconds(10);
19  digitalWrite(TRIG_PIN, LOW);
20  int duration = pulseIn(ECHO_PIN, HIGH);
21  return duration * 0.034 / 2;
22 }
23 }
24
25 void loop() {
26   // put your main code here, to run repeatedly:
27   float distance = readDistanceCM();
28   if(distance<= 100)
29   {
30     Serial.println("person detected");
31   }
32   else{
33     Serial.print("Measured distance:");
34     Serial.println(readDistanceCM());
35   }
```

Simulation: The simulation window shows an Arduino Uno board connected to an HC-SR04 ultrasonic sensor. The sensor's VCC pin is connected to the Arduino's 5V pin, GND to GND, TRIG to digital pin 3, and ECHO to digital pin 2. The console output shows the measured distance as 395.39 cm.

Measured distance:395.39
Measured distance:395.39
Measured distance:395.39
Measured distance:395.39
Measured distance:395.39
Measured distance:395.39
Measured distance:395.49

Wokwi Link: <https://wokwi.com/projects/347231524608803411>

IBM CLOUD

Device Recent Events

Service Details - IBM Cloud x IBM Watson IoT Platform x IBM Watson IoT Platform x sketchino - Wokwi Arduino and x Inbox (206) - saranya311406@gmail.com x +

← → ↻ sms611.internetofthings.ibmcloud.com/dashboard/devices/browse

IBM Watson IoT Platform saranya311406@gmail.com ID: sms611

Browse Action Device Types Interfaces Add Device +

Search by Device ID Device Simulator

Device ID	Status	Device Type	Class ID	Date Added	Descriptive Location
14061	Disconnected	arduino	Device	Nov 2, 2022 8:38 PM	

Identity Device Information Recent Events State Logs X

Device ID 14061

Device Type arduino

Date Added Nov 2, 2022 8:38 PM

Added By saranya311406@gmail.com

Connection Status Disconnected

Items per page 50 | 1-1 of 1 item 1 of 1 page < 1 >

1 Simulation running

ENG IN 22:09 02-11-2022

