

# ASSIGNMENT-4

## QUESTION:

Write a code and connections in working for ultrasonic sensor.  
Whenever distance is less than 100 CMS send alert to IBM Cloud and display in device events.

## ANSWER:

## WORKING:

The screenshot displays the Wokwi simulation environment. On the left, the code for the simulation is shown in a text editor. The code includes the `Ultrasonic` library, initializes the sensor at pins 12 and 13, and sets pin 6 as an output. In the `loop` function, it reads the distance, prints it, and if the distance is less than or equal to 100 cm, it prints "alert!!!!" and sets digital pin 4 to HIGH. A 1-second delay is included between iterations.

```
1 #include "Ultrasonic.h"
2 Ultrasonic ultrasonic(12, 13);
3 int distance;
4
5 void setup() {
6   Serial.begin(9600);
7   pinMode(6, OUTPUT);
8 }
9
10 void loop() {
11   distance = ultrasonic.read(CM);
12   Serial.print("Distance in CM: ");
13   Serial.println(distance);
14   if(distance<=100)
15   {
16     Serial.println("alert!!!!");
17     digitalWrite(4, HIGH);
18   }
19
20
21   delay(1000);
22 }
```

On the right, the simulation 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 12, and Echo to digital pin 13. A red LED is connected to digital pin 4. The output console at the bottom shows the following sequence of events:

```
Distance in CM: 50
alert!!!!
Distance in CM: 50
alert!!!!
Distance in CM: 50
alert!!!!
```

IBM CLOUD

Browse

Action

Device Types

Interfaces

Add Device

Device ID	Status	Device Type	Class ID	Date Added	Descriptive Location
123	Disconnected	hp1501	Device	Oct 11, 2022 10:32 PM	
1234	Disconnected	asign@hp	Device	Oct 26, 2022 8:12 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_1hp	["distance":30]	json	a few seconds ago
event_1hp	["distance":28]	json	a few seconds ago
event_1hp	["distance":48]	json	a few seconds ago
event_1hp	["distance":74]	json	a few seconds ago
event_1hp	["distance":59]	json	a few seconds ago

1 Simulation running

ultrasonic

+

Add New Card

Pause Card

Settings

Use chart

80

60

40

20

0

21:42

21:43

21:44

21:45

21:46

5 minutes

distance

now

1 Simulation running