

# Assignment - 4

## Ultrasonic Sensor in Wokwi

Assignment Date	26 October 2022
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Maximum Marks	2 Marks

### Question-1:

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

### CODE:

#### Sketch.ino

/\*

Ultrasonic Simple

Prints the distance read by an ultrasonic sensor in

centimeters. They are supported to four pins ultrasound

sensors (like HC-SC04) and three pins (like PING)))

and Sreed Studio sensors).

The circuit:

\* \* Module HC-SC04 (four pins) or PING))) (and other with three pins), attached to digital pins as follows:

-----

| HC-SC04 | Arduino | | 3 pins | Arduino |

-----

| Vcc | 5V | | Vcc | 5V |

| Trig | 12 | OR | SIG | 13 |

```
| Echo | 13 | | Gnd | GND |  
| Gnd | GND | -----  
-----
```

```
*/
```

```
#include "Ultrasonic.h"
```

```
/*
```

Pass as a parameter the trigger and echo pin, respectively,

or only the signal pin (for sensors 3 pins), like:

```
Ultrasonic ultrasonic(13);
```

```
*/
```

```
Ultrasonic ultrasonic(12, 13);
```

```
int distance;
```

```
void setup() {
```

```
  Serial.begin(9600);
```

```
}
```

```
void loop() {
```

```
  // Pass INC as a parameter to get the distance in inches
```

```
  distance = ultrasonic.read(CM);
```

```
  Serial.print("Distance in CM: ");
```

```
  Serial.println(distance);
```

```
  distance = ultrasonic.read(INC);
```

```
  Serial.print("Distance in Inches: ");
```

```
  Serial.println(distance);
```

```
  delay(1000);
```

```
}
```

### **Diagram.json**

```
{
```

```
  "version": 1,
```

```
"author": "Rozen Berg",

"editor": "wokwi",

"parts": [

{

"type": "wokwi-arduino-uno",

"id": "uno",

"top": 259.31,

"left": 31.06,

"rotate": 0,

"hide": false,

"attrs": {}

},

{

"type": "wokwi-hc-sr04",

"id": "ultrasonic",

"top": 86.99,

"left": 109.89,

"rotate": 0,

"hide": false,

"attrs": { "distance": "100" }

},

"connections": [

[ "uno:GND.1", "ultrasonic:GND", "black", [ "v-8", "*", "v8" ] ],

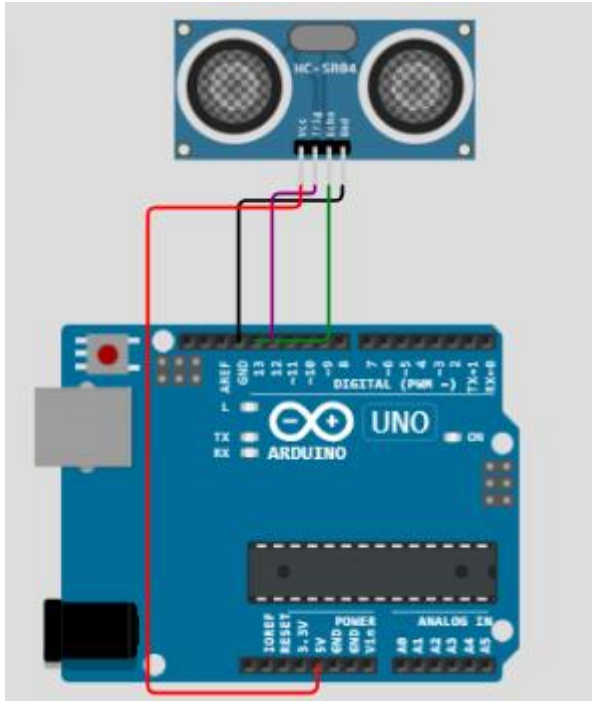
[ "uno:13", "ultrasonic:ECHO", "green", [ ] ],

[ "uno:12", "ultrasonic:TRIG", "purple", [ "*", "v4" ] ],

[ "uno:5V", "ultrasonic:VCC", "red", [ "v16", "h-96", "*", "v12" ] ]
```

]  
}

## Circuit Diagram:



## Output:

WOKWI SAVE SHARE Docs SIGN UP

sketch.ino • diagram.json • libraries.txt • Library Manager

```
1  /*
2   * Ultrasonic Simple
3   * Prints the distance read by an ultrasonic sensor in
4   * centimeters. They are supported to four pins ultrasound
5   * sensors (like HC-SC04) and three pins (like PING))
6   * and Seeed Studio sensors).
7   *
8   * The circuit:
9   * * Module HC-SC04 (four pins) or PING)) (and other with
10  * three pins), attached to digital pins as follows:
11  *
12  * | HC-SC04 | Arduino | | 3 pins | Arduino |
13  * |-----|-----| |-----|-----|
14  * | Vcc     | 5V      | | Vcc     | 5V      |
15  * | Trig    | 12      | | SIG     | 13      |
16  * | Echo    | 13      | | Gnd     | GND     |
17  * | Gnd     | GND     | |-----|-----|
18  *
19  */
20
21
22 #include "Ultrasonic.h"
23
24 /*
25  * Pass as a parameter the trigger and echo pin, respectively,
26  * or only the signal pin (for sensors 3 pins), like:
27  * Ultrasonic ultrasonic(13);
28  */
29 Ultrasonic ultrasonic(13, 12);
```

Simulation

Distance in Inches: 41  
Distance in CM: 105  
Distance in Inches: 41  
Distance in CM: 104  
Distance in Inches: 41  
Distance in CM: 105  
Distance in Inches: 41