

Assignment - 4
Ultrasonic Sensor in Wokwi

Assignment Date	01NOVEMBER 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 ultrasoundsensors (like HC-SC04) and three pins (like PING))) and Seeed Studio sensors).

The circuit:

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

HC-SC04	Arduin o		3 pins	Arduin o
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": {}
    },
  ],

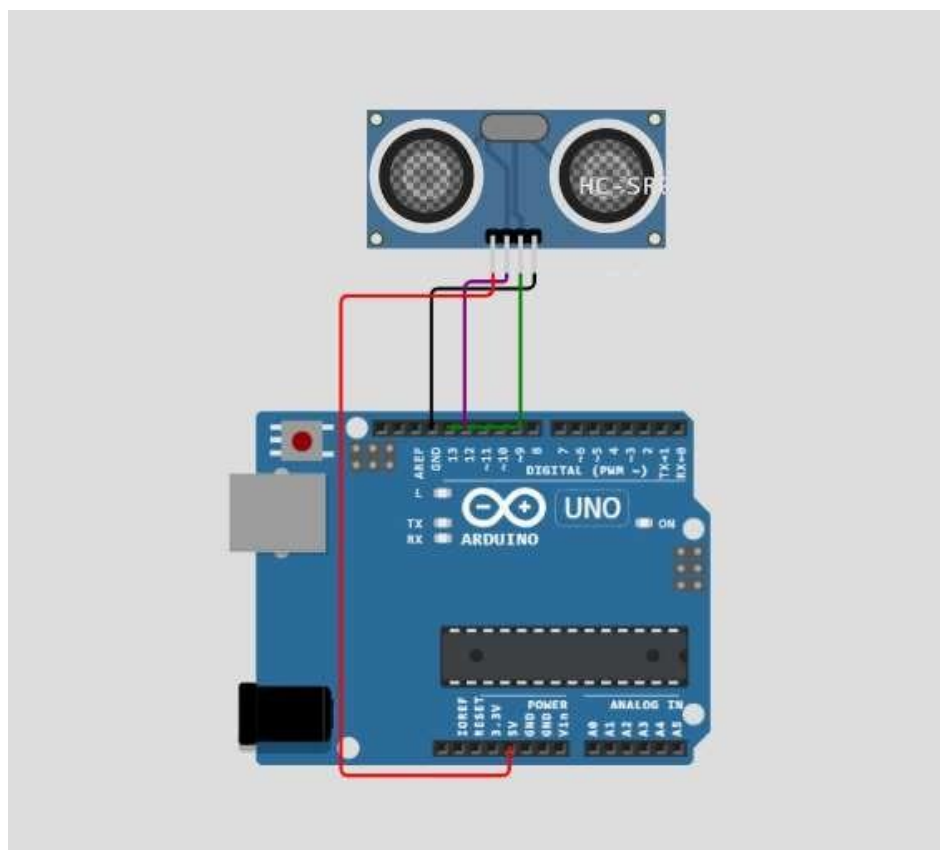
```

```

    {
      "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

Sketches • Diagrams • Libraries

Simulation

```
1 // Ultrasonic Single
2 // Prints the distance read by an ultrasonic sensor in
3 // centimeters. They are supported in four pins ultrasonic
4 // sensors (like HC-SR04) and three pins (like PING))
5 // and need 5V and GND.
6
7 // The circuit:
8 // - module HC-SR04 (four pins) or PING)) (and other with
9 // three pins), attached to digital pins as follows:
10
11 // HC-SR04 / Sensors | | 3 pins / Sensors |
12
13 //   VCC | 5V | 5V | 5V |
14 //   Trig | 13 | 13 | 13 |
15 //   Echo | 11 | 11 | 11 |
16 //   Gnd | GND | GND | GND |
17
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, 11);
28
29
30 ultrasonic.trigger(13, 11);
31 int distance;
32
33 void setup() {
34   Serial.begin(9600);
35 }
36
37 void loop() {
```

Distance in CM: 184
Distance in Inches: 41
Distance in CM: 185
Distance in Inches: 41
Distance in CM: 184
Distance in Inches: 41
Distance in CM: 185
Distance in Inches: 41
Distance in CM: 184
Distance in Inches: 41
Distance in CM: 185
Distance in Inches: 41