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ASSIGNMENT – 4

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:

```
#include "Ultrasonic.h"

Ultrasonic ultrasonic(12, 13);
int distance;

void setup() {
    Serial.begin(9600);
}

void loop() {

    distance = ultrasonic.read(CM);

    Serial.print("Distance in CM: ");
    Serial.println(distance);
    if (distance<100)
        Serial.print("alert");
    Serial.println();
    delay(1000);
}
```

Output:

The screenshot shows the Wokwi IDE interface. The left pane displays a JSON file named `diagram.json` with the following content:

```
10 {
11   "left": 31.06,
12   "rotate": 0,
13   "hide": false,
14   "attrs": {}
15 },
16 {
17   "type": "wokwi-hc-sr04",
18   "id": "ultrasonic",
19   "top": 86.99,
20   "left": 109.89,
21   "rotate": 0,
22   "hide": false,
23   "attrs": { "distance": "100" }
24 },
25 "connections": [
26   [ "uno:GND.1", "ultrasonic:GND", "black", [ "v-8", "*", "v8" ] ],
27   [ "uno:13", "ultrasonic:ECHO", "green", [ ] ],
28   [ "uno:12", "ultrasonic:TRIG", "purple", [ "*", "v4" ] ],
29   [ "uno:5V", "ultrasonic:VCC", "red", [ "v16", "h-96", "*", "v12" ] ]
30 ]
31 }
```

The right pane shows a simulation of an Arduino Uno board with an HC-SR04 ultrasonic sensor connected. The sensor's output is displayed as "Distance in CM: 260".

The screenshot shows the Wokwi IDE interface. The left pane displays a C++ code file named `sketch.ino` with the following content:

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

The right pane shows the same simulation of an Arduino Uno board with an HC-SR04 ultrasonic sensor. The output now shows "Distance in CM: 48" repeated multiple times, indicating the sensor is detecting a closer object.

LINK: <https://wokwi.com/projects/347403405791068754>