

Assignment -4

WOKWI SIMULATION

Question :

Write code and connections in wokwi for the ultrasonic sensor.

Whenever the distance is less than 100cms send an alert to the ibm cloud and display in the device recent events.

Link: <https://wokwi.com/projects/347225790183637586>

Code:

```
#define ECHO_PIN 2
#define TRIG_PIN 3

void setup() {
  Serial.begin(115200);
  pinMode(LED_BUILTIN, OUTPUT);
  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() {
  float distance = readDistanceCM();

  bool isNearby = distance < 100;
```

```

digitalWrite(LED_BUILTIN, isNearby);

Serial.print("Measured distance: ");
Serial.println(readDistanceCM());

delay(100);
}

```

DIAGRAM.JSON:

```

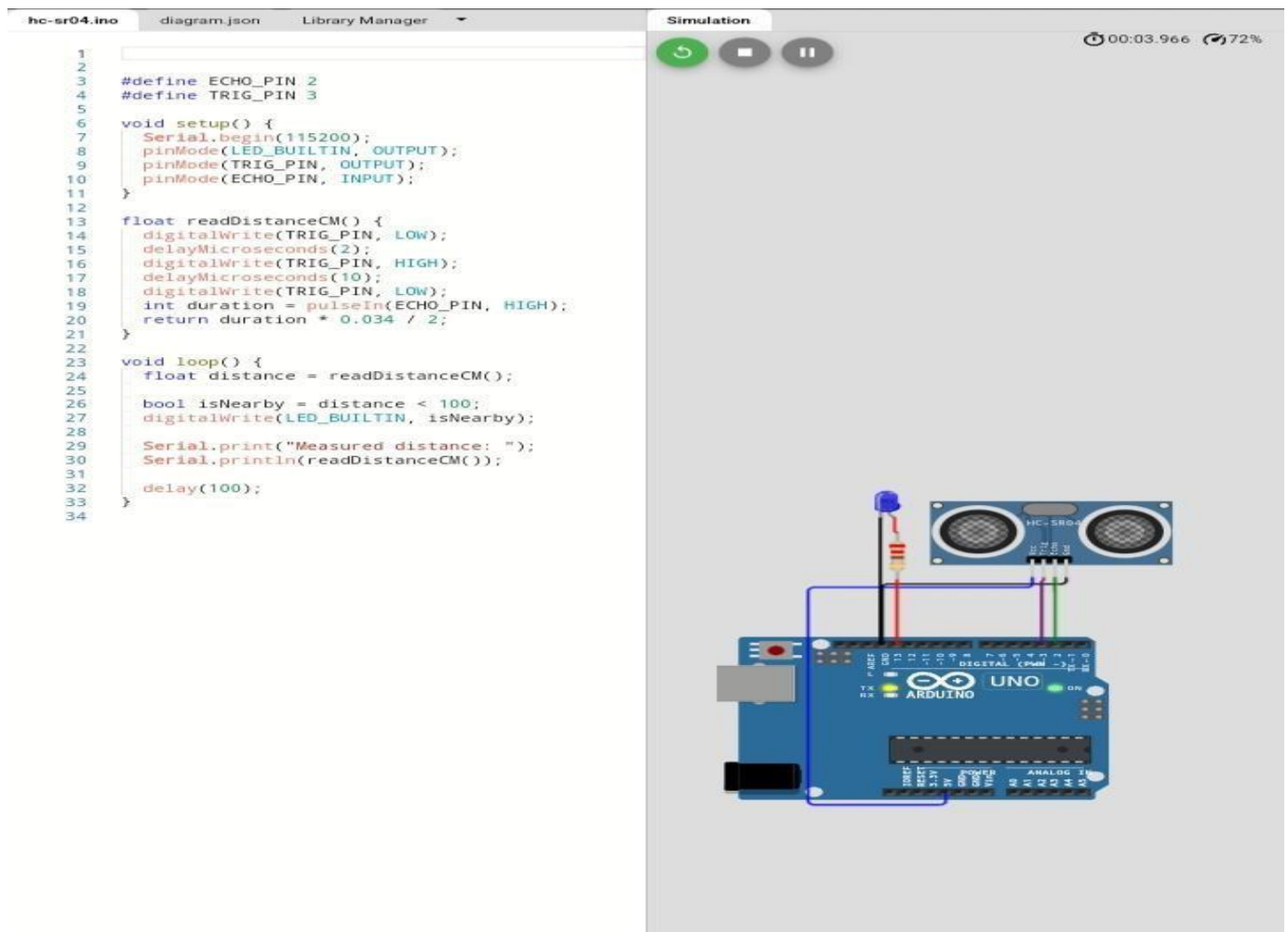
{
  "version": 1,
  "author": "sindhuja",
  "editor": "wokwi",
  "parts": [
    {
      "type": "wokwi-arduino-uno",
      "id": "uno",
      "top": 275.99,
      "left": 47.73,
      "rotate": 0,
      "hide": false,
      "attrs": {}
    },
    {
      "type": "wokwi-resistor",
      "id": "r1",
      "top": 165.87,
      "left": 142.81,
      "rotate": 90,
      "hide": false,
      "attrs": { "value": "220" }
    },
    {
      "type": "wokwi-led",
      "id": "led",
      "top": 87.29,
      "left": 147.05,
      "rotate": 0,
      "hide": false,
      "attrs": { "color": "blue" }
    },
    {
      "type": "wokwi-hc-sr04",
      "id": "ultrasonic",

```

```

        "top": 108.43,
        "left": 196.5,
        "rotate": 0,
        "hide": false,
        "attrs": { "distance": "180" }
    }
],
"connections": [
    [ "uno:GND.1", "ultrasonic:GND", "black", [ "v-8", "*", "v8" ] ],
    [ "uno:2", "ultrasonic:ECHO", "green", [ ] ],
    [ "uno:3", "ultrasonic:TRIG", "purple", [ "*", "v4" ] ],
    [ "uno:5V", "ultrasonic:VCC", "blue", [ "v16", "h-96", "*", "v12" ] ],
    [ "uno:GND.1", "led:C", "black", [ ] ],
    [ "r1:1", "led:A", "red", [ ] ],
    [ "uno:13", "r1:2", "red", [ ] ]
]
}
}
OUTPUT:

```

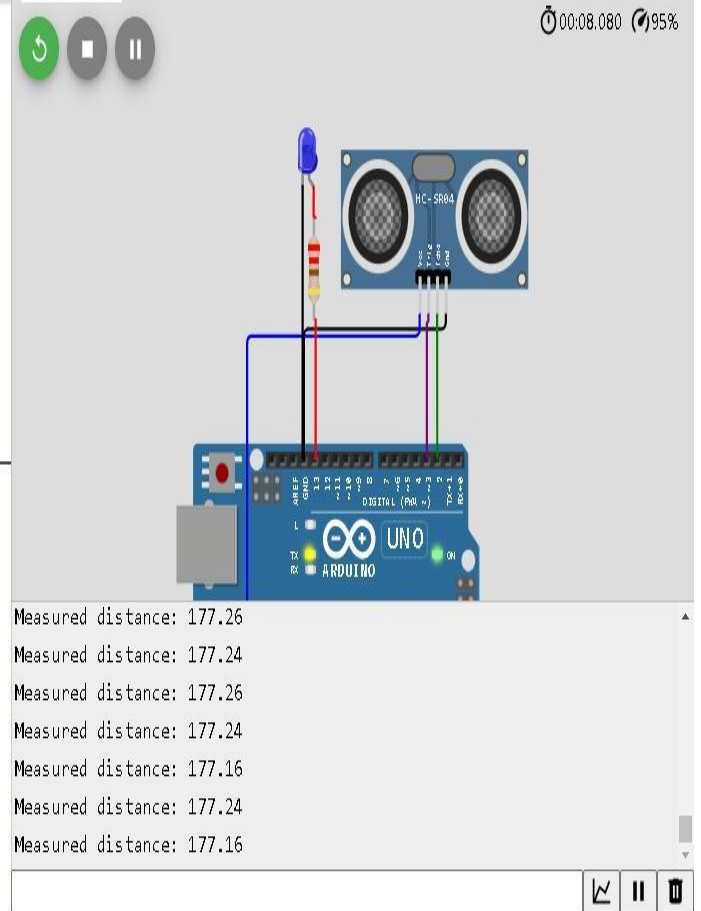


```

4 void setup() {
5   Serial.begin(115200);
6   pinMode(LED_BUILTIN, OUTPUT);
7   pinMode(TRIG_PIN, OUTPUT);
8   pinMode(ECHO_PIN, INPUT);
9 }
10
11 float readDistanceCM() {
12   digitalWrite(TRIG_PIN, LOW);
13   delayMicroseconds(2);
14   digitalWrite(TRIG_PIN, HIGH);
15   delayMicroseconds(10);
16   digitalWrite(TRIG_PIN, LOW);
17   int duration = pulseIn(ECHO_PIN, HIGH);
18   return duration * 0.034 / 2;
19 }
20
21 void loop() {
22   float distance = readDistanceCM();
23
24   bool isNearby = distance < 100;
25   digitalWrite(LED_BUILTIN, isNearby);
26
27   Serial.print("Measured distance: ");
28   Serial.println(readDistanceCM());
29
30   delay(100);
31 }
32

```

00:08.080 95%



Measured distance: 177.26
 Measured distance: 177.24
 Measured distance: 177.26
 Measured distance: 177.24
 Measured distance: 177.16
 Measured distance: 177.24
 Measured distance: 177.16