

SMARTBRIDGE EXTERNSHIP

Internet Of Things

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Assignment 1 : *In Wowki, if the distance is less than 100cms for an ultrasonic sensor, glow a LED*

Code:

sketch.ino

```
#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);

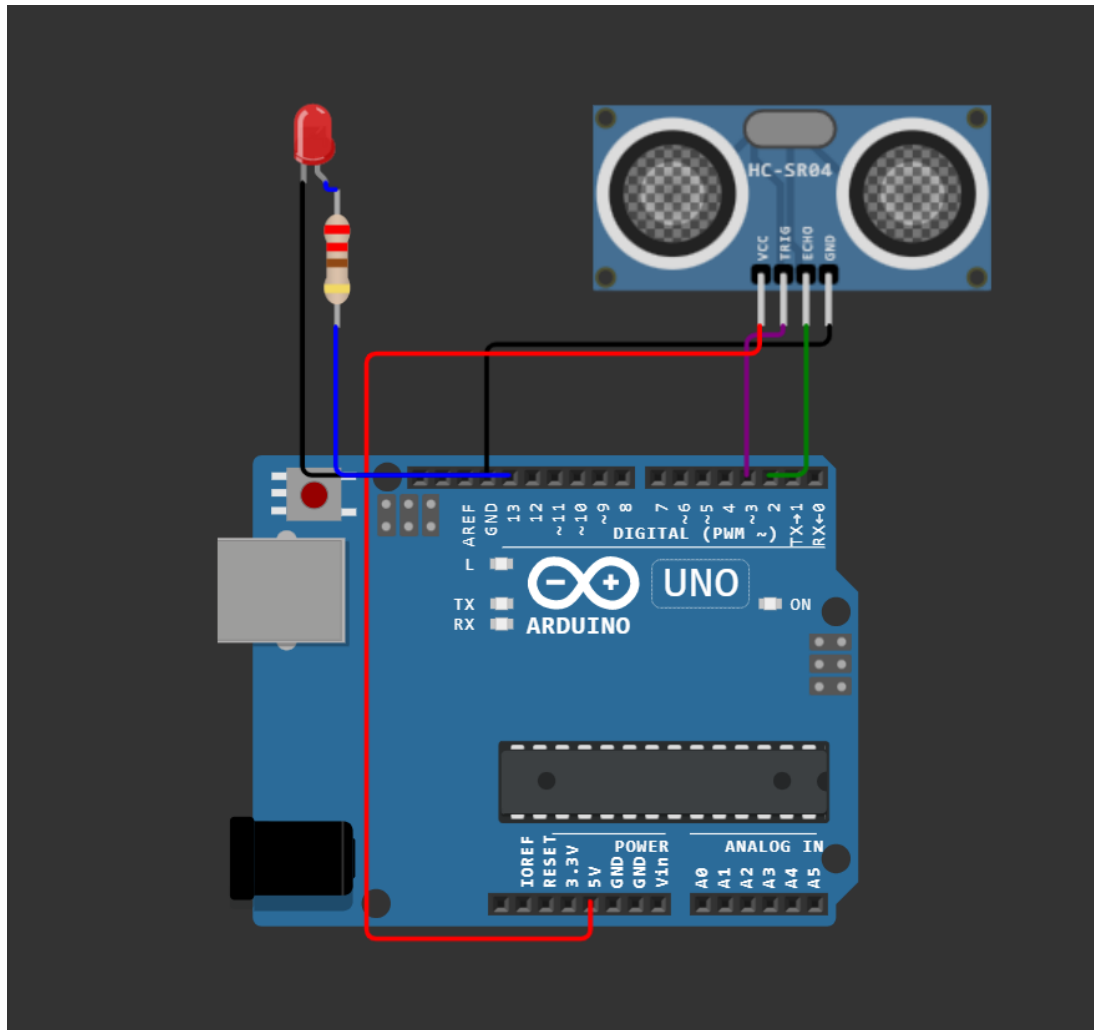
    Serial.print("Measured distance: ");
    Serial.println(readDistanceCM());

    delay(100);
}
```

diagram.json

```
{
  "version": 1,
  "author": "JYOTI PRAKASH BEHURA 20BCE7355",
  "editor": "wokwi",
  "parts": [
    { "type": "wokwi-arduino-uno", "id": "uno", "top": 299.62, "left": 89.42,
      "attrs": {} },
    {
      "type": "wokwi-resistor",
      "id": "r1",
      "top": 210.34,
      "left": 110.84,
      "rotate": 90,
      "attrs": { "value": "220" }
    },
    {
      "type": "wokwi-led",
      "id": "led",
      "top": 141.49,
      "left": 110.91,
      "attrs": { "color": "red", "flip": "" }
    },
    {
      "type": "wokwi-hc-sr04",
      "id": "ultrasonic",
      "top": 150.12,
      "left": 250.7,
      "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", "red", [ "v16", "h-96", "*", "v12" ] ],
    [ "uno:GND.1", "led:C", "black", [] ],
    [ "r1:1", "led:A", "blue", [] ],
    [ "uno:13", "r1:2", "blue", [] ]
  ],
  "dependencies": {}
}
```

Diagram:



Outputs:

sketch.ino

```
sketch.ino  diagram.json  Library Manager  ▼
1  #define ECHO_PIN 2
2  #define TRIG_PIN 3
3
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
33
```

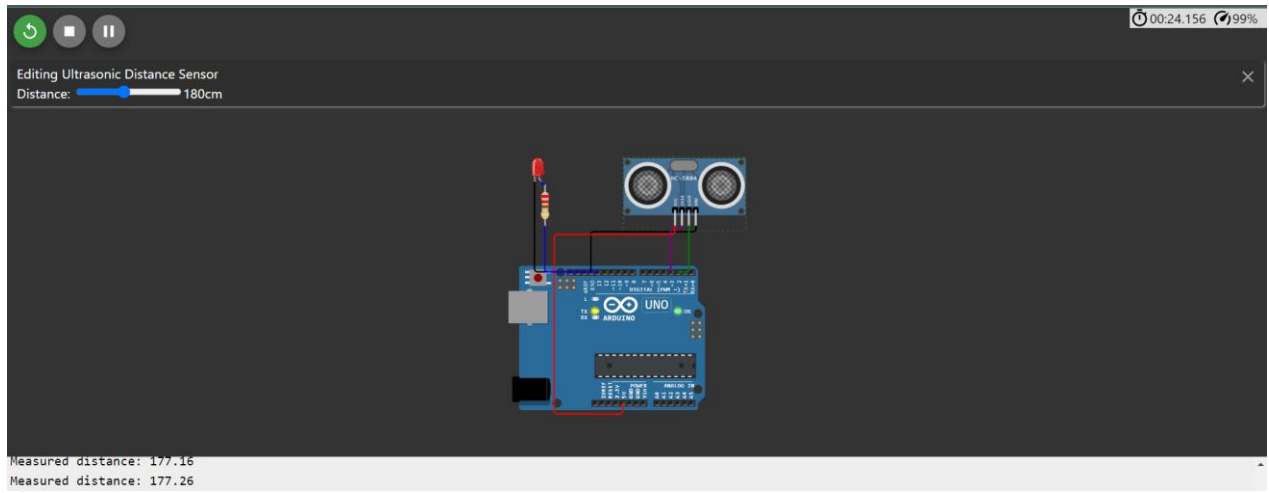
Diagram.json

```
sketch.ino  diagram.json  Library Manager  ▾

1  {
2    "version": 1,
3    "author": "JYOTI PRAKASH BEHURA 20BCE7355",
4    "editor": "wokwi",
5    "parts": [
6      { "type": "wokwi-arduino-uno", "id": "uno", "top": 299.62, "left": 89.42, "attrs":
7        {
8          "type": "wokwi-resistor",
9          "id": "r1",
10         "top": 210.34,
11         "left": 110.84,
12         "rotate": 90,
13         "attrs": { "value": "220" }
14       },
15       {
16         "type": "wokwi-led",
17         "id": "led",
18         "top": 141.49,
19         "left": 110.91,
20         "attrs": { "color": "red", "flip": "" }
21       },
22     ],
23     {
24       "type": "wokwi-hc-sr04",
25       "id": "ultrasonic",
26       "top": 150.12,
27       "left": 250.7,
28       "attrs": { "distance": "180" }
29     },
30   ],
31   "connections": [
32     [ "uno:GND.1", "ultrasonic:GND", "black", [ "v-8", "*", "v8" ] ],
33     [ "uno:2", "ultrasonic:ECHO", "green", [ ] ],
34     [ "uno:3", "ultrasonic:TRIG", "purple", [ "*", "v4" ] ],
35     [ "uno:5V", "ultrasonic:VCC", "red", [ "v16", "h-96", "*", "v12" ] ],
36     [ "uno:GND.1", "led:C", "black", [ ] ],
37     [ "r1:1", "led:A", "blue", [ ] ],
38     [ "uno:13", "r1:2", "blue", [ ] ]
39   ],
40   "dependencies": {}
}
```

Output:

i) Distance more than 100cm



ii) Distance less than 100cm

