

Assignment -4
Ultrasonic sensor simulation in Wokwi

Assignment Date	17 November 2022
Student Name	Elavarasi.R
Student Roll Number	19BEC01
Maximum Marks	2 Marks

Question-1:

Write a code and connections in wokwi for the ultrasonic sensor. Whenever the distance is less than 100cms send an “Alert” to IBM cloud and display in the device recent events.

CODE:

```
#define ECHO_PIN 2
#define TRIG_PIN 3
#define organization = "k2m20e"
#define deviceType = "abcd"
#define deviceId = "16"
#define authMethod = "token"
#define authToken = "12345678"

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

```

    if(distance<=100)
    {
        Serial.println("person detected");
    }
else{
    Serial.print("Measured distance:");
    Serial.println(readDistanceCM());
}
    delay(1000);
}

```

Diagram.json:

```

{
  "version": 1,
  "author": "Anonymous maker",
  "editor": "wokwi",
  "parts": [
    { "type": "wokwi-arduino-uno", "id": "uno", "top": 128.34, "left": -37.99, "attrs": {} },
    {
      "type": "wokwi-led",
      "id": "led1",
      "top": -51.17,
      "left": 63.02,
      "attrs": { "color": "red" }
    },
    {
      "type": "wokwi-resistor",
      "id": "r1",
      "top": 29.69,
      "left": 63.05,
      "rotate": 90,
      "attrs": { "value": "1000" }
    },
    { "type": "wokwi-hc-sr04", "id": "ultrasonic1", "top": -117.02, "left": 175.77, "attrs": {} }
  ],
  "connections": [

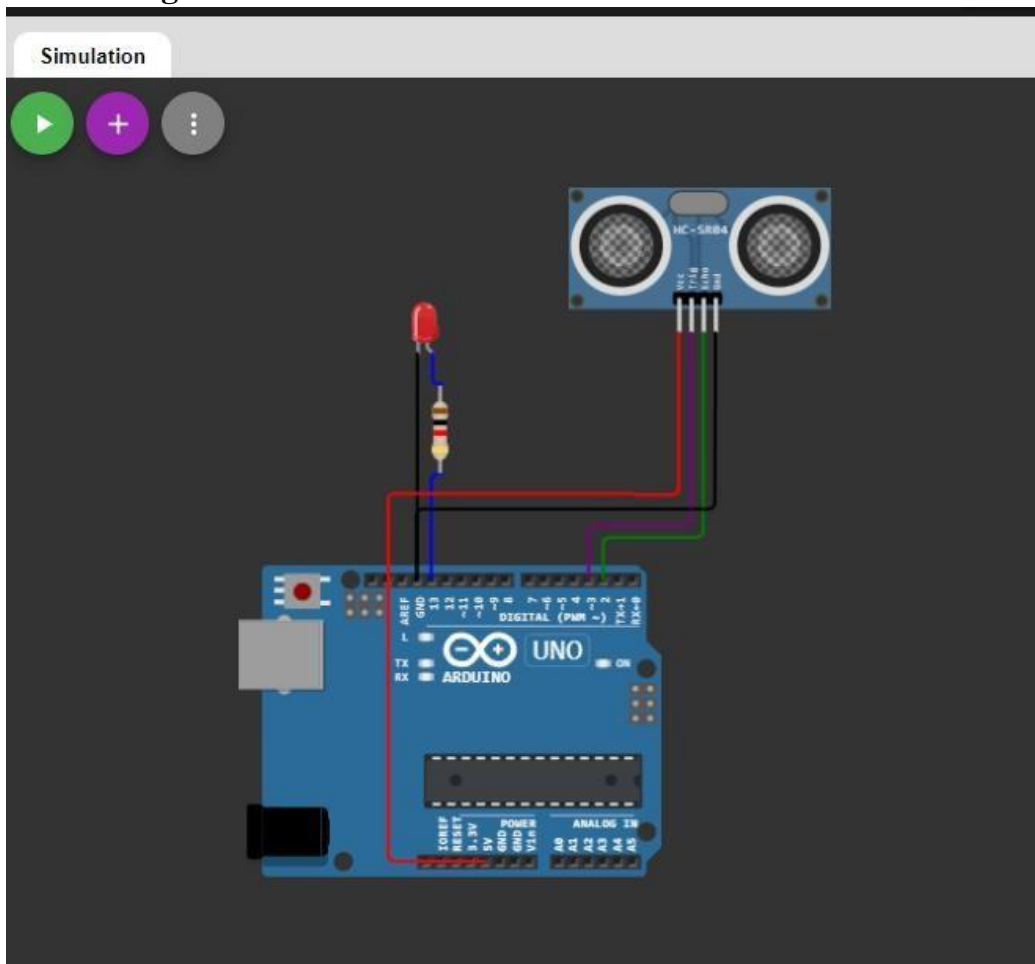
```

```

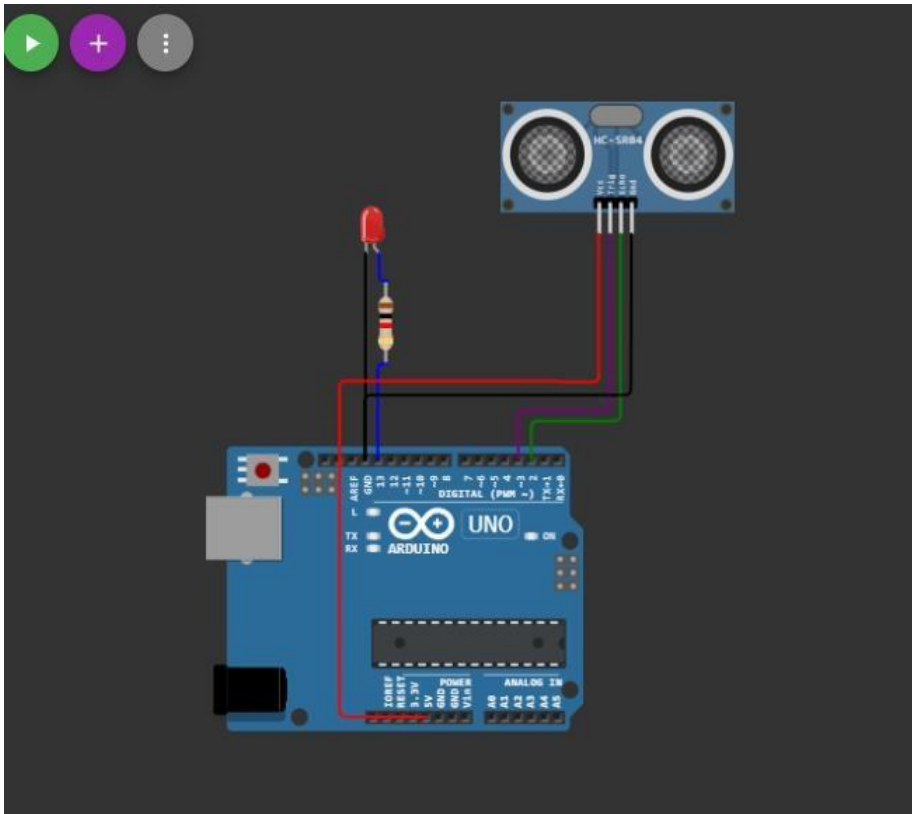
[ "led1:C", "uno:GND.1", "black", [ "v0" ] ],
[ "led1:A", "r1:1", "blue", [ "v0" ] ],
[ "r1:2", "uno:13", "blue", [ "h0" ] ],
[ "ultrasonic1:TRIG", "uno:3", "purple", [ "v125.11", "h-70.38" ] ],
[ "uno:2", "ultrasonic1:ECHO", "green", [ "v-27.25", "h63.19" ] ],
[ "ultrasonic1:GND", "uno:GND.1", "black", [ "v37.64", "h-0.36", "v76.64",
"h194.93" ] ],
[
  "ultrasonic1:VCC",
  "uno:5V",
  "red",
  [ "v105.12", "h-28.34", "v-0.83", "h-159.94", "v236.58" ]
]
]
}

```

Circuit Diagram:



Output:



Wokwi simulation interface showing the Arduino Uno project setup and the resulting output.

Sketch Code (sketch.ino):

```

1  #define ECHO_PIN 2
2  #define TRIG_PIN 3
3  #define organization = "k2m20e"
4  #define deviceType = "abcd"
5  #define deviceId = "16"
6  #define authMethod = "token"
7  #define authToken = "12345678"
8
9  void setup(){
10     Serial.begin(9600);
11     pinMode(TRIG_PIN,OUTPUT);
12     pinMode(ECHO_PIN,INPUT);
13 }
14
15 float readDistanceCM(){
16     digitalWrite(TRIG_PIN,LOW);
17     delayMicroseconds(2);
18     digitalWrite(TRIG_PIN,HIGH);
19     delayMicroseconds(10);
20     digitalWrite(TRIG_PIN,LOW);
21     int duration=pulseIn(ECHO_PIN,HIGH);
22     return duration*0.034/2;
23 }
24 void loop(){
25     float distance=readDistanceCM();
26
27     if(distance<=100)
28     {
29         Serial.println("person detected");
30     }
31 }

```

Simulation Output:

```

Measured distance:395.39
Measured distance:395.39
Measured distance:395.39
Measured distance:395.39
Measured distance:395.39
Measured distance:395.39

```

Wokwi output

Wokwi link: <https://wokwi.com/projects/348553038979400276>

IBM Cloud

