

Assignment -4
Ultrasonic sensor simulation in Wokwi

Assignment Date	17 November 2022
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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": [

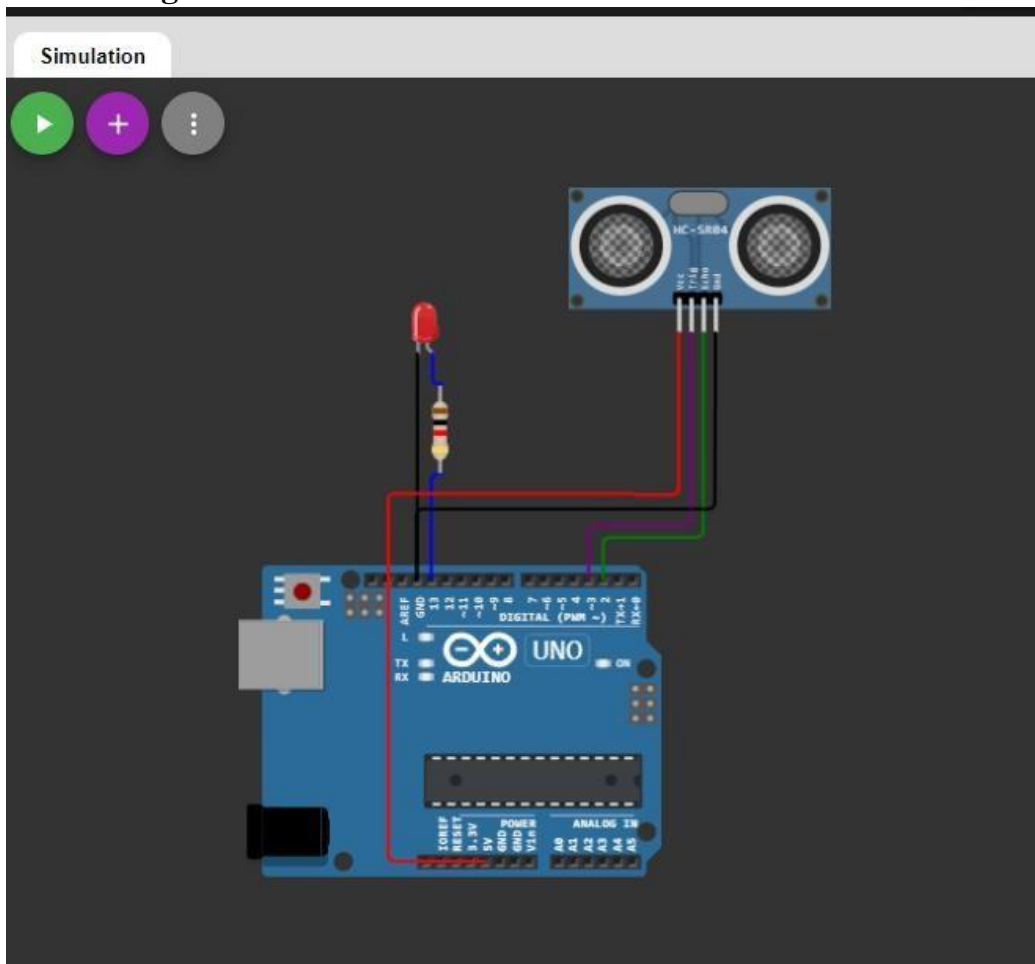
```

```

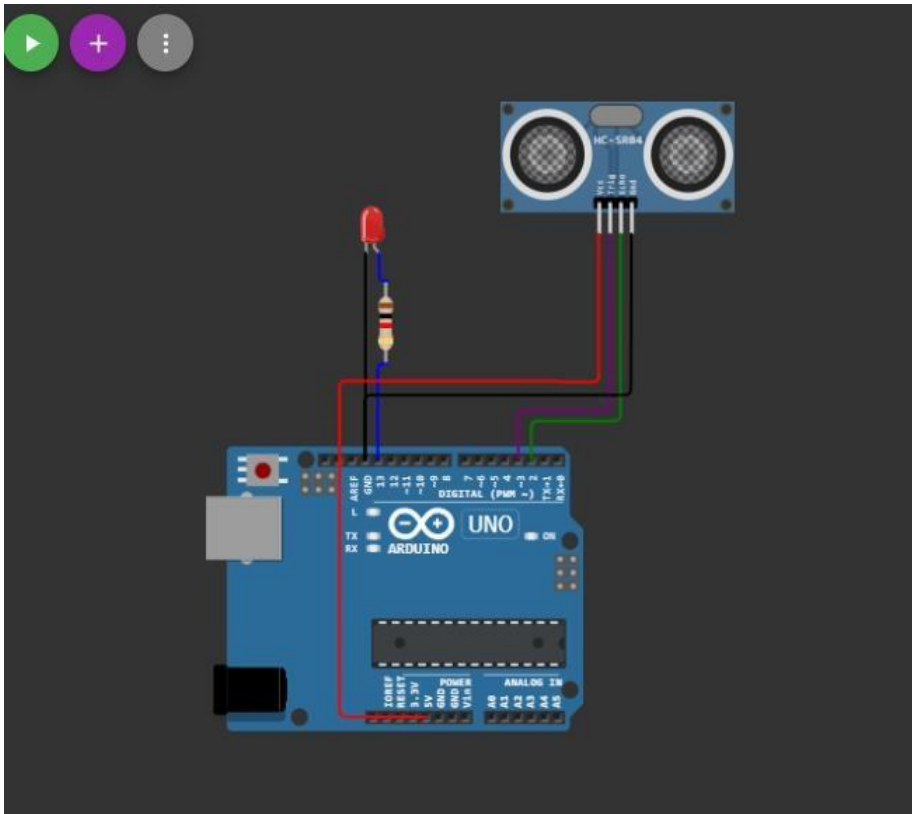
[ "led1:C", "uno:GND.1", "black", [ "v0" ] ],
[ "led1:A", "r1:1", "blue", [ "v0" ] ],
[ "r1:2", "uno:13", "blue", [ "h0" ] ],
[ "ultrasonic1:TRIG", "uno:3", "purple", [ "v125.11", "h-70.38" ] ],
[ "uno:2", "ultrasonic1:ECHO", "green", [ "v-27.25", "h63.19" ] ],
[ "ultrasonic1:GND", "uno:GND.1", "black", [ "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/348551392921649748>

IBM Cloud

The screenshot displays the IBM Cloud dashboard in a web browser. The browser's address bar shows the URL `cloud.ibm.com`. The dashboard header includes the IBM Cloud logo, a search bar, and navigation links for 'Catalog', 'Manage', and the user's account 'Shanmugapriya S's Acc...'. A user profile dropdown menu is open on the right, showing options like 'Profile', 'Log in to CLI and API', 'Privacy', 'Change theme', and 'Log out'. The main content area is titled 'Dashboard' and features a 'For you' section with five cards: 'Build' (a large blue card), 'Build a web app with Watson Speech to Text' (15 min), 'Get Started with Watson Studio' (2 hr), 'IBM Watson Knowledge Catalog' (2 min), and 'Build a V Cloud (V' (7 min). The bottom section contains 'User access' (with a 'Manage users' link), 'News' (with a 'View all' link and items like 'IBM Cloud Satellite New Pricing' and 'IBM Cloud Data Shield Deprecation'), and 'Planned maintenance' (with a 'View all' link).