

Assignment -4
Ultrasonic sensor simulation in Wokwi

Assignment Date	15 Novemberr 2022
Student Name	Raguram S
Student Roll Number	19BCS22
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": [

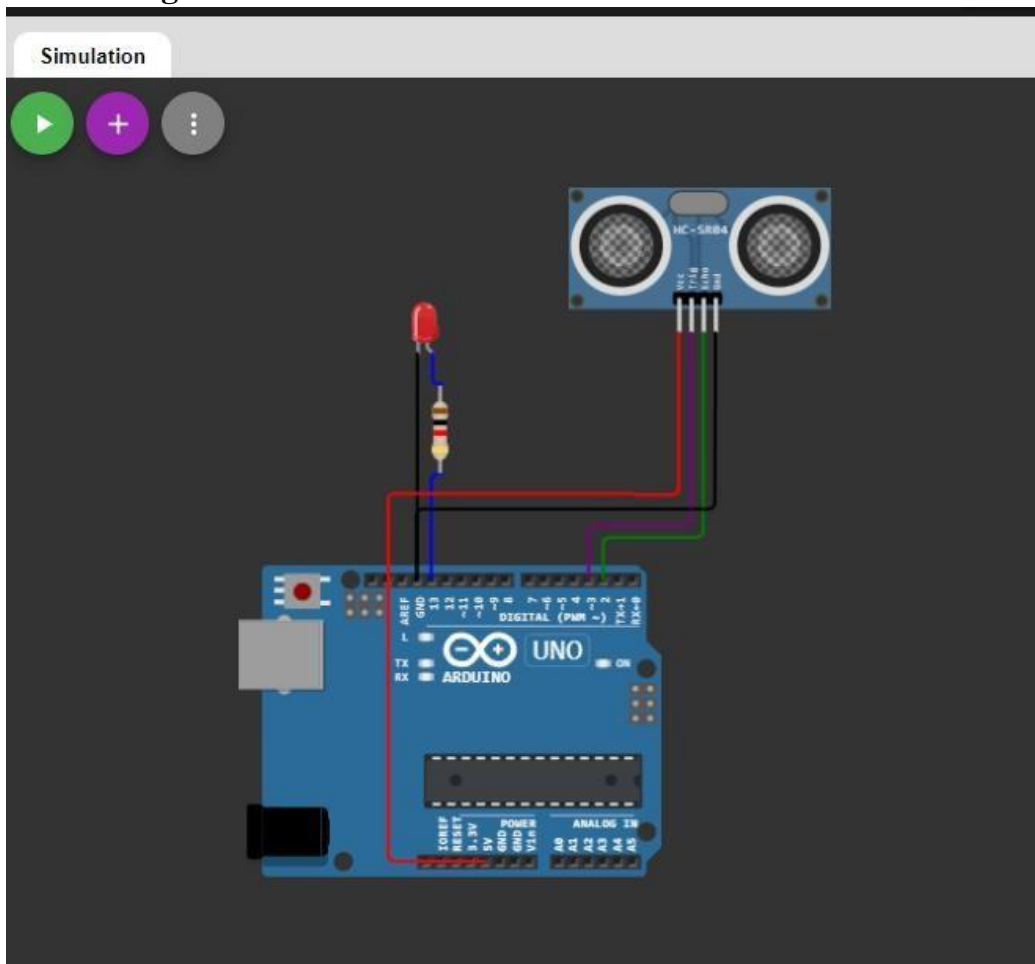
```

```

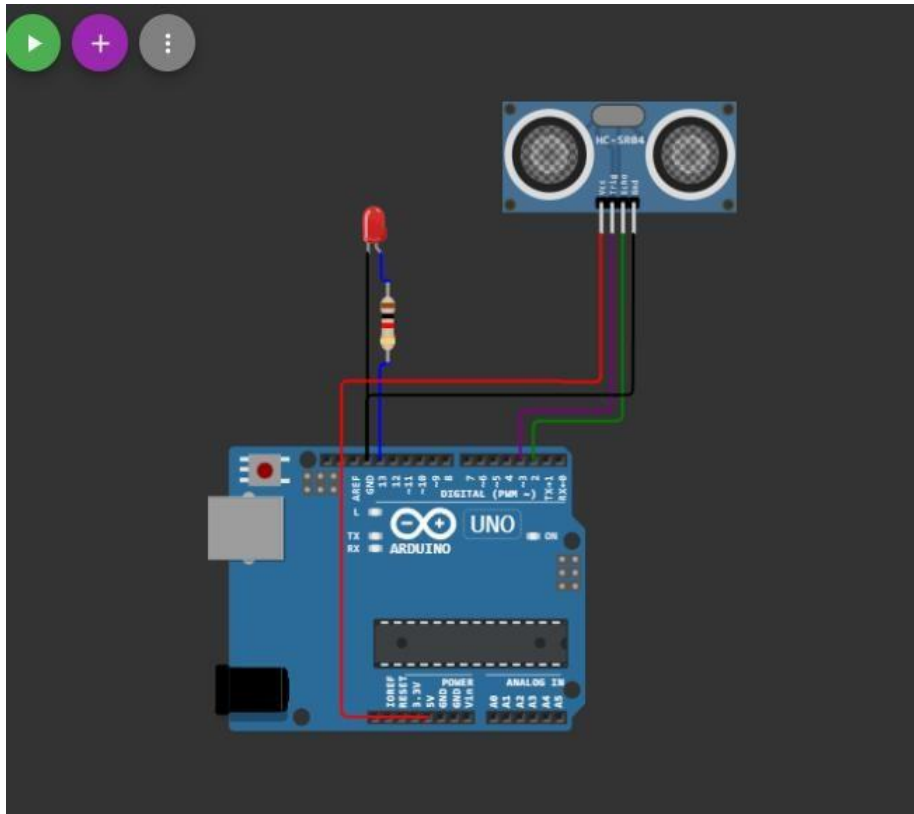
[ "led1:C", "uno:GND.1", "black", [ "v0" ] ],
[ "led1:A", "r1:1", "blue", [ "v0" ] ],
[ "r1:2", "uno:13", "blue", [ "h0" ] ],
[ "ultrasonic1:TRIG", "uno:3", "purple", [ "v125.11", "h-70.38" ] ],
[ "uno:2", "ultrasonic1:ECHO", "green", [ "v-27.25", "h63.19" ] ],
[ "ultrasonic1:GND", "uno:GND.1", "black",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



New Arduino Uno Project - Wokwi

wokwi.com/projects/new/arduino-uno

Gmail YouTube Maps Problem Statement...

WOKWI SAVE SHARE Docs SIGN UP

sketch.ino diagram.json Library Manager

```

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 }

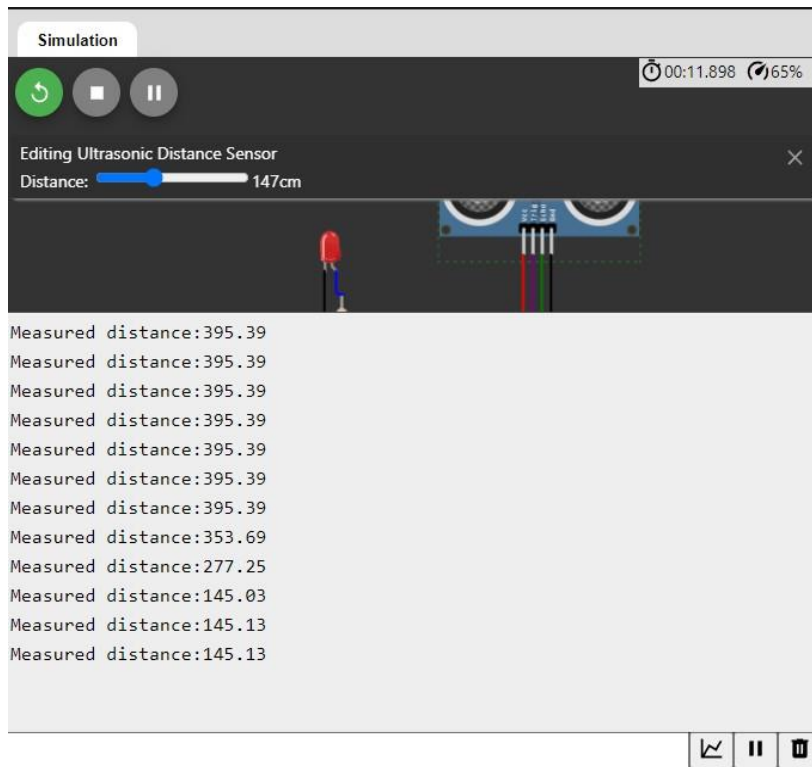
```

Simulation

00:10.063 71%

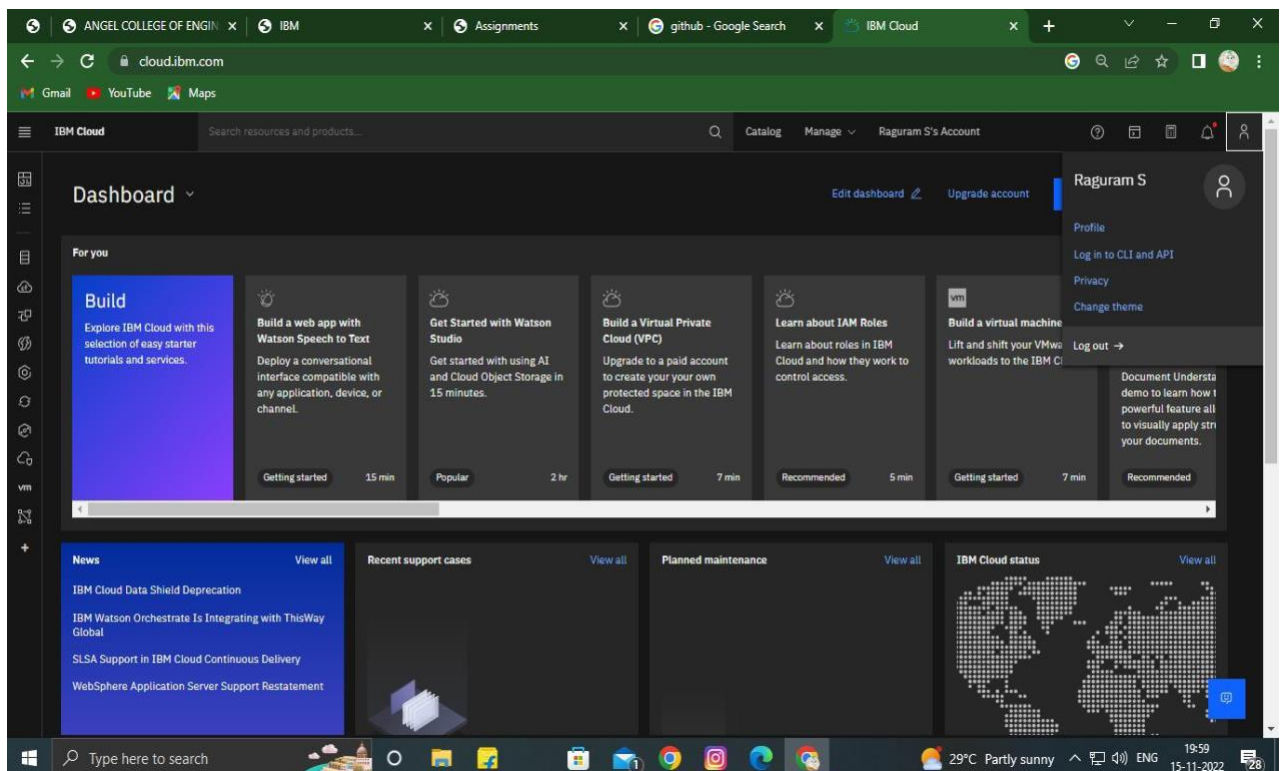
Measured distance:395.39
Measured distance:395.39
Measured distance:395.39
Measured distance:395.39
Measured distance:395.39
Measured distance:395.39

Wokwi output



Wokwi link:<https://wokwi.com/projects/348411044811506260>

IBM Cloud



IBM watson IoT platform

The screenshot shows the IBM Cloud console for the 'Internet of Things Platform-6q' resource. The left sidebar contains a 'Manage' tab and a 'Plan' section with 'Connections' and 'Plan' options. The main content area features a large graphic of a central node connected to four peripheral nodes, with the text 'Let's get started with IBM Watson IoT Platform'. Below this, a 'Launch' button is visible. A section titled 'Ready for the next level?' introduces the 'IBM Watson IoT Platform Journey' with three stages: Lite, Non-Production, and Production. Each stage includes a brief description and a list of features or limits.

Let's get started with IBM Watson IoT Platform

Securely connect, control, and manage devices. Quickly build IoT applications that analyze data from the physical world.

[Launch](#) [Docs](#)

Ready for the next level?

IBM Watson IoT Platform Journey

- Lite**
The Lite service plan provides a lightweight development environment to get you started with the connectivity capabilities of Watson IoT Platform.
 - Free
 - 200 MB data-transfer limit
 - 500 application bindings limit
- Non-Production**
The Non-Production service plan is a full-featured, fully-integrated offering that enables you to explore Watson IoT Platform to see how the service can fit into your IoT environment.
 - Starts at \$500 per month
 - Capacity limit based on device type
 - Optional Analytics Service and Blockchain
- Production**
The Production service is a fully managed SaaS offering that enables you to manage and analyze enterprise IoT data.
 - Includes IBM Service & Support
 - Pricing based on number of devices per device type

The screenshot shows the IBM Watson IoT Platform landing page. The header includes the 'Sign in' button. The main visual is a dark background with white circuit-like lines and icons representing various IoT devices (cloud, factory, airplane, car, house, etc.). The central text reads 'Things' in a large, white font. Below this, the text 'Collect data from' and 'and make value from it' is visible. A 'Learn More' link is located at the bottom center.

IBM Watson IoT Platform [Sign in](#)

Things

Collect data from and make value from it

[Learn More](#)