Assignment -4

Ultrasonic sensor simulation in Wokwi

Assignment Date	15 November 2022
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Student Roll Number	19BCS11
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();
```

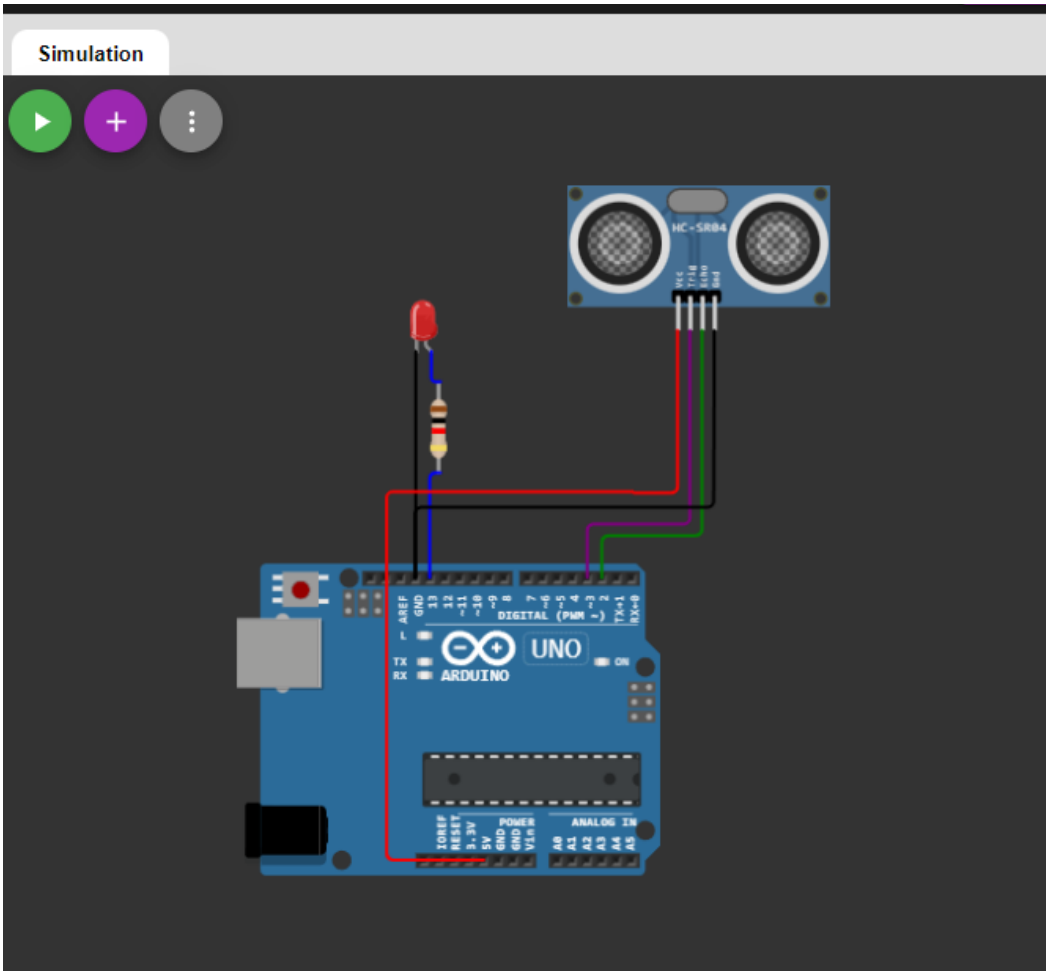
```
    if(distance<=100)
    {
       Serial.println("person detected");
    }
    else{
       Serial.print("Measured distance:");
       Serial.println(readDistanceCM());
    }
    delay(1000);
}
```

Diagram.json:

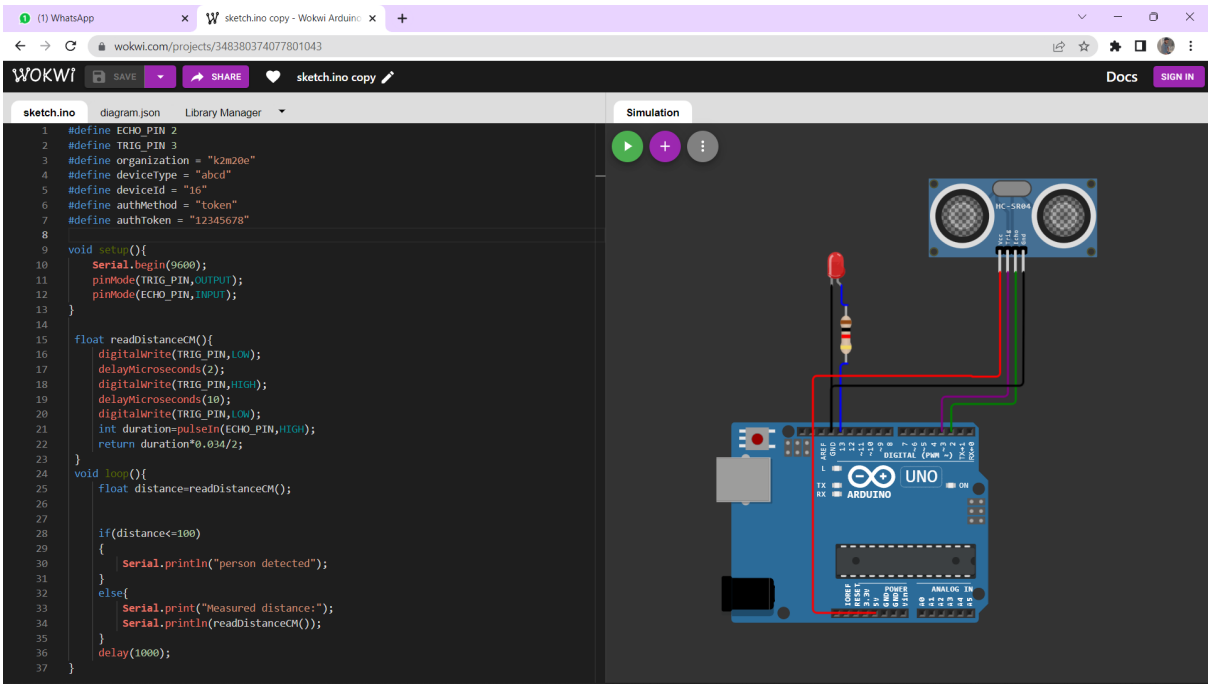
```
{
  "version": 1,
  "author": "Anonymous maker",
  "editor": "wokwi",
  "parts": [
    { "type": "wokwi-arduino-uno", "id": "uno", "top": 128.34, "left": -37.99, "attrs": {}
},
    {
      "type": "wokwi-led",
      "id": "led1",
      "top": -51.17,
      "left": 63.02,
      "attrs": { "color": "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",
"h-194.93" ] ],
    [
      "ultrasonic1:VCC",
      "uno:5V",
      "red",
      [ "v105.12", "h-28.34", "v-0.83", "h-159.94", "v236.58" ]
    ]
  ]
}
```

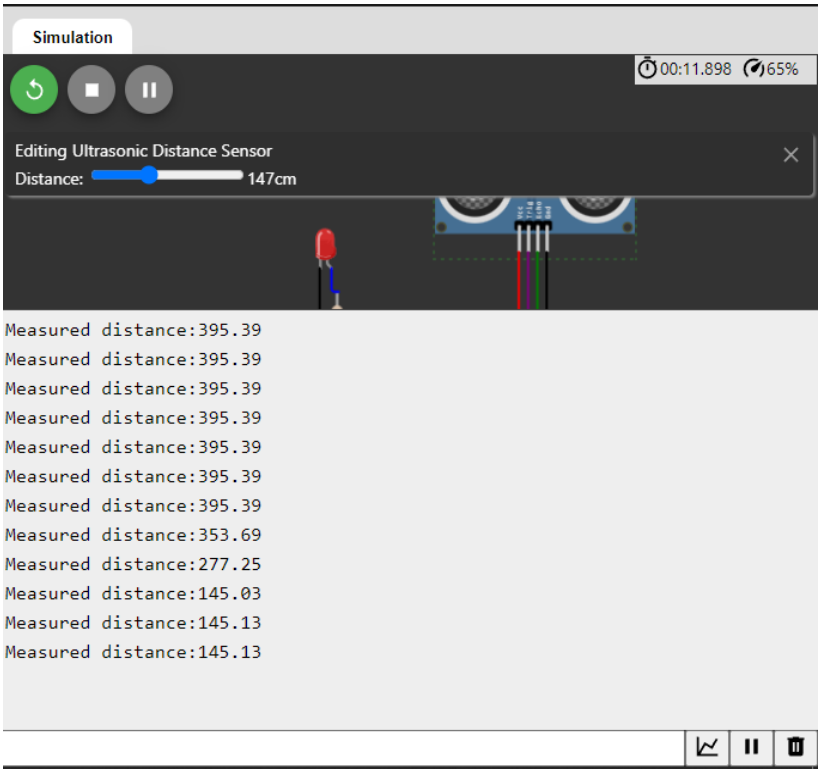
Circuit Diagram:



Output:

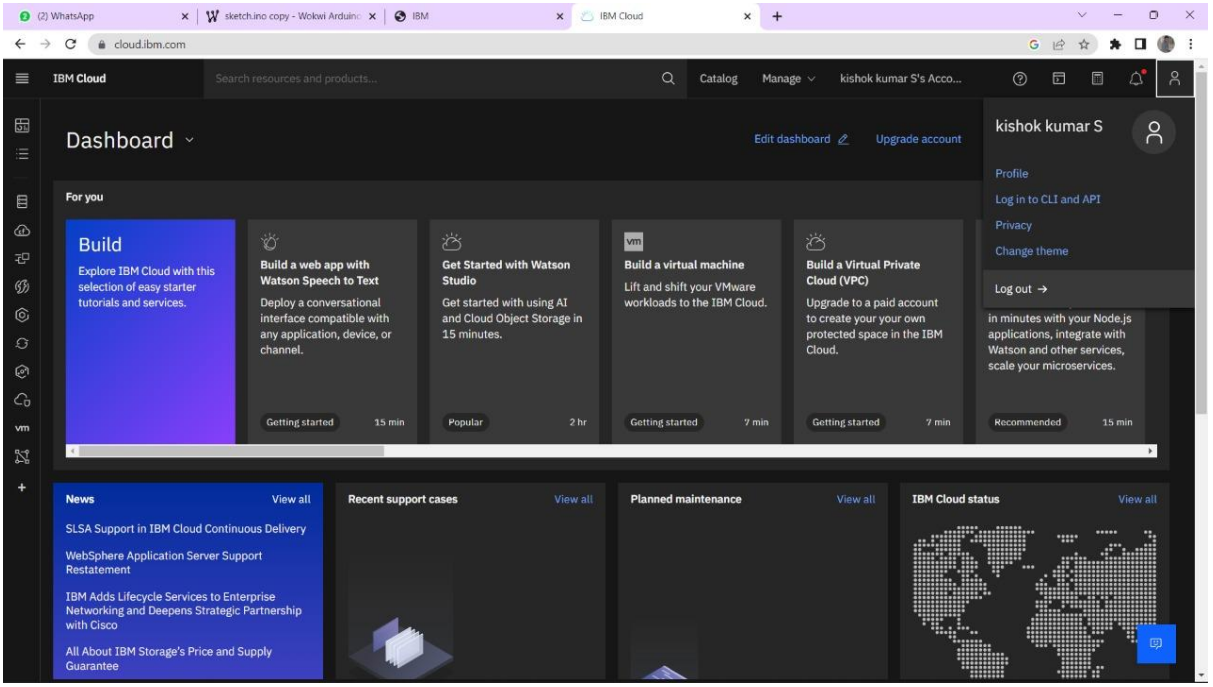


Wokwi output

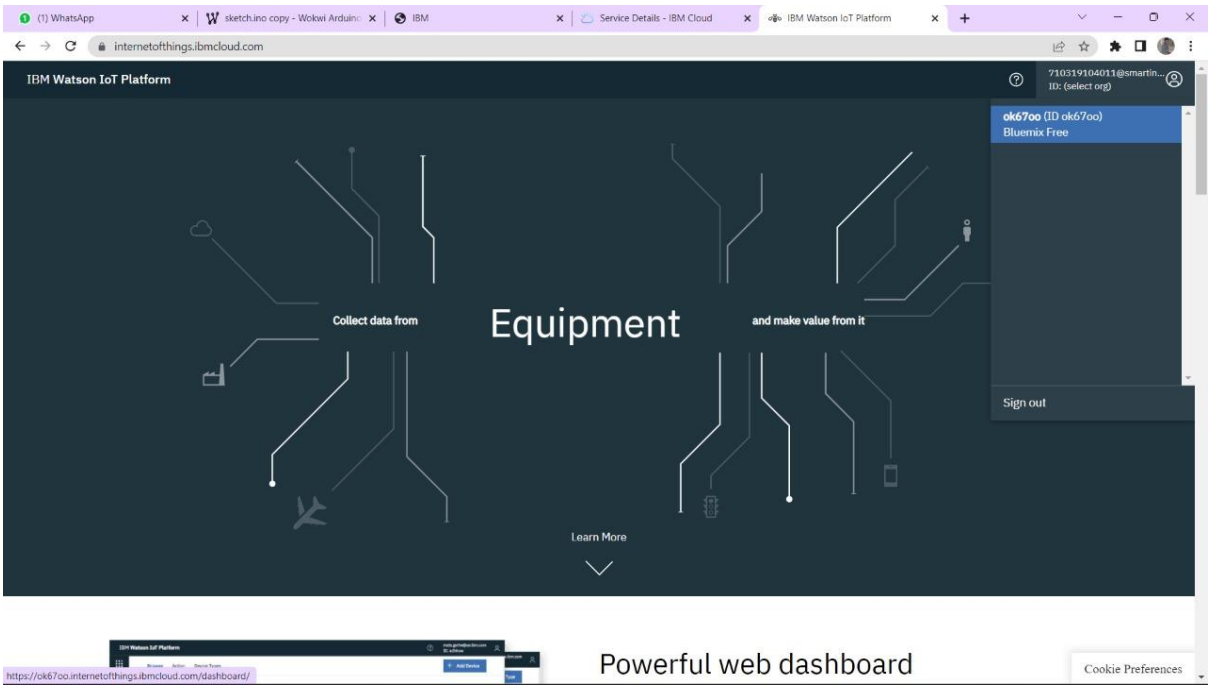


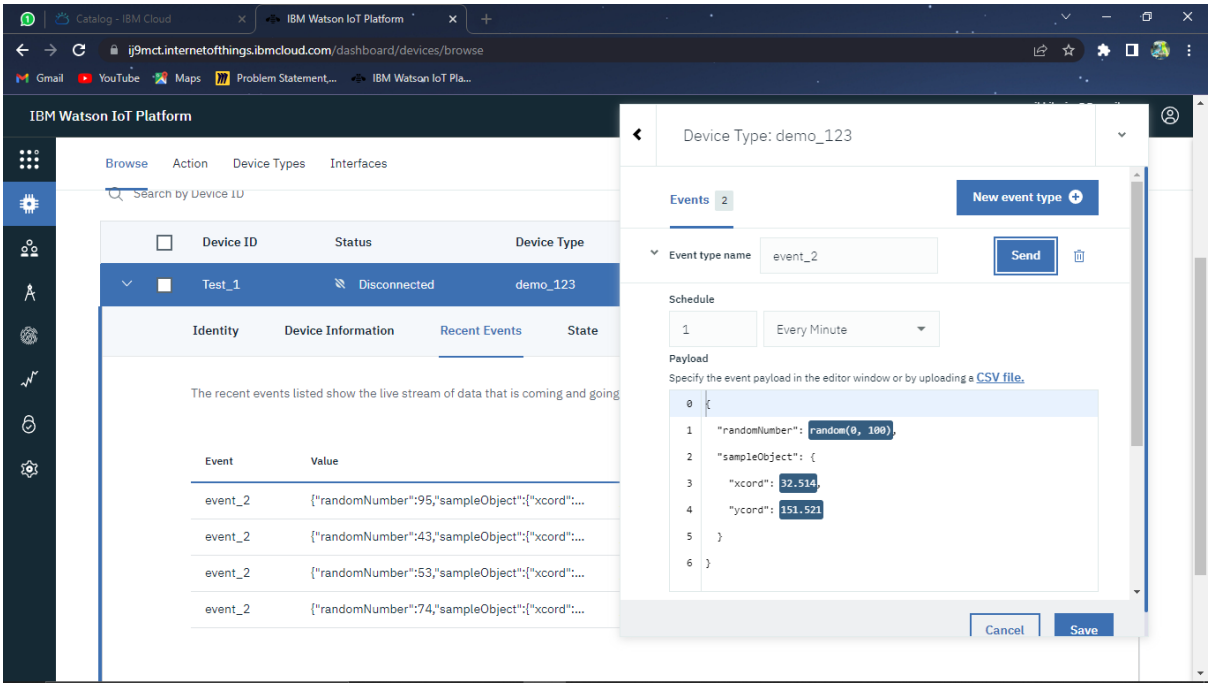
Wokwi link: **https://wokwi.com/projects/348380374077801043**

IBM Cloud



IBM watson IoT platform




Catalog - IBM Cloud
IBM Watson IoT Platform
ij9mct.internetofthings.ibmcloud.com/dashboard/devices/browse
Gmail
YouTube
Maps
Problem Statement...
IBM Watson IoT Pla...
IBM Watson IoT Platform
Browse
Action
Device Types
Interfaces
Search by Device ID
Device ID
Status
Device Type
Test_1
Disconnected
demo_123
Identity
Device Information
Recent Events
State
The recent events listed show the live stream of data that is coming and going
Event
Value
event_2
{"randomNumber":95,"sampleObject":{"xcord":...
event_2
{"randomNumber":43,"sampleObject":{"xcord":...
event_2
{"randomNumber":53,"sampleObject":{"xcord":...
event_2
{"randomNumber":74,"sampleObject":{"xcord":...
Device Type: demo_123
Events 2
New event type
Event type name
event_2
Send
Schedule
1
Every Minute
Payload
Specify the event payload in the editor window or by uploading a CSV file.
{
"randomNumber": random(0, 100),
"sampleObject": {
"xcord": 32.514,
"ycord": 151.521
}
}
Cancel
Save