

ASSIGNMENT- 4

DISTANCE DETECTION USING ULTRASONIC SENSOR

Date	22 October 2022
Team ID	PNT2022TMID11066
Name	PALANIYAPPAN A
Student Roll Number	811519106098
Maximum Marks	2 Marks

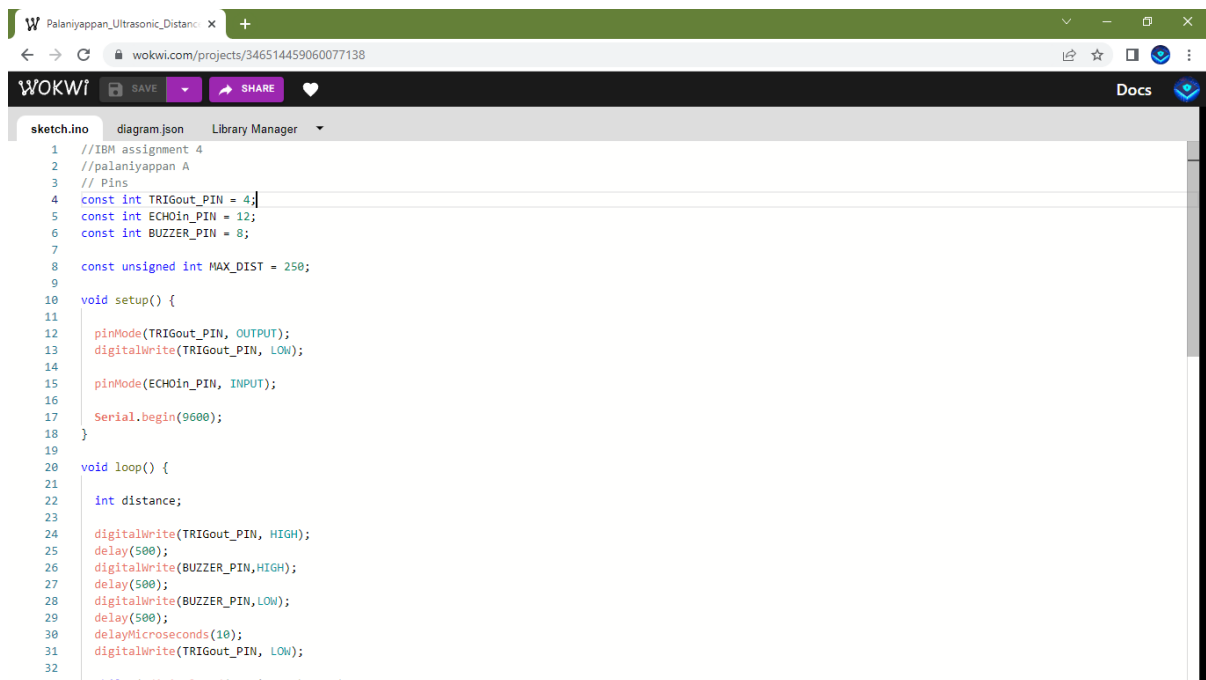
Question1:

Write code and connections in work for ultrasonic sensor. Whenever distance is less than 100 cms send "alert" to ibm cloud and display in device recent events.

WOKWI LINK:

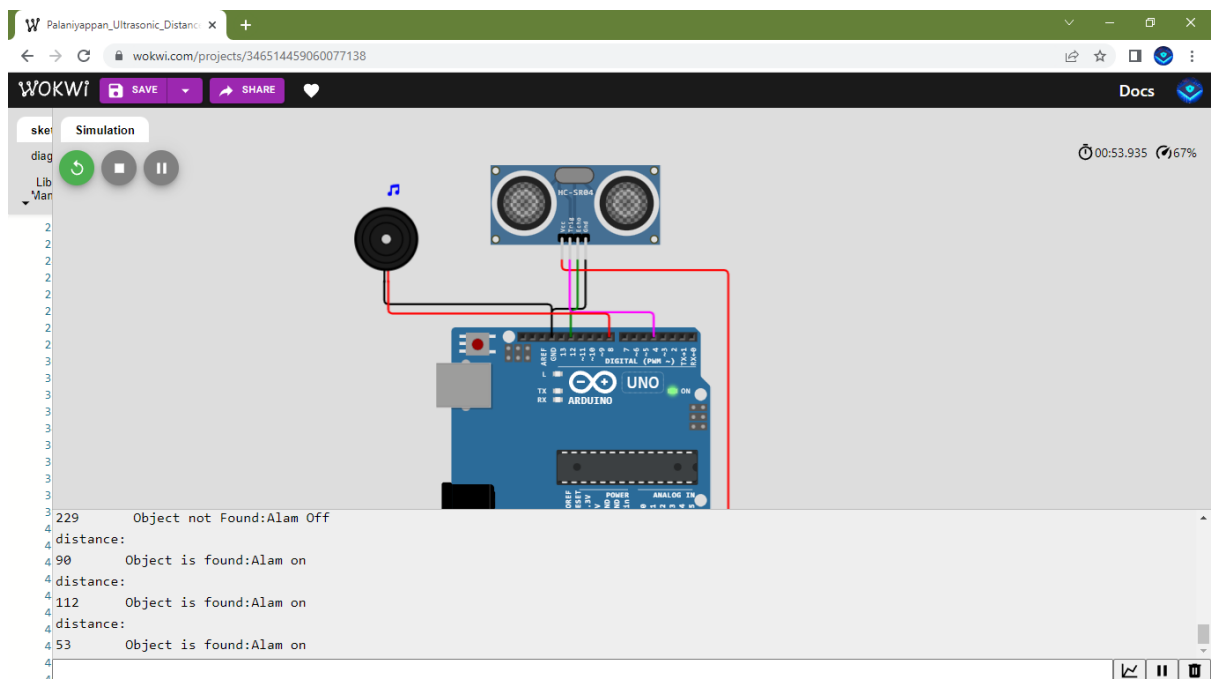
<https://wokwi.com/projects/346514459060077138>

CODE:



```
1 //IBM assignment 4
2 //palaniyappan A
3 // Pins
4 const int TRIGout_PIN = 4;
5 const int ECHOin_PIN = 12;
6 const int BUZZER_PIN = 8;
7
8 const unsigned int MAX_DIST = 250;
9
10 void setup() {
11
12   pinMode(TRIGout_PIN, OUTPUT);
13   digitalWrite(TRIGout_PIN, LOW);
14
15   pinMode(ECHOin_PIN, INPUT);
16
17   Serial.begin(9600);
18 }
19
20 void loop() {
21
22   int distance;
23
24   digitalWrite(TRIGout_PIN, HIGH);
25   delay(500);
26   digitalWrite(BUZZER_PIN, HIGH);
27   delay(500);
28   digitalWrite(BUZZER_PIN, LOW);
29   delay(500);
30   delayMicroseconds(10);
31   digitalWrite(TRIGout_PIN, LOW);
32
33   // distance = (duration * speed of sound) / 2;
```

```
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WOKWI SAVE SHARE
sketch.ino diagram.json Library Manager
22 int distance;
23
24 digitalWrite(TRIGout_PIN, HIGH);
25 delay(500);
26 digitalWrite(BUZZER_PIN,HIGH);
27 delay(500);
28 digitalWrite(BUZZER_PIN,LOW);
29 delay(500);
30 delayMicroseconds(10);
31 digitalWrite(TRIGout_PIN, LOW);
32
33 while ( digitalRead(ECHOin_PIN) == 1);
34 distance = random(0,250);
35 if ( distance <130 )
36 {
37   Serial.println("distance: ");
38   Serial.print(distance);
39   Serial.println("\t Object is found:Alam on");
40 }
41
42 else
43 {
44   Serial.println("distance: ");
45   Serial.print(distance);
46   Serial.println("\t Object not Found:Alam Off");
47 }
48
49 delay(1000);
50 }
```



Output:

IBM Cloud Event:

Whenever distance is less than 130 cm send “alert” to IBM Cloud Event

Device ID: 12345678, Status: Disconnected, Device Type: 1234, Class ID: Device, Date Added: Oct 25, 2022 2:24 PM

The recent events listed show the live stream of data that is coming and going from this device.

Event	Value	Format	Last Received
UltrasoundicSe...	{\"distance\":120,\"Object\":\"No\",\"Alarm\":\"OFF\"}	json	a few seconds ago
UltrasoundicSe...	{\"distance\":183,\"Object\":\"No\",\"Alarm\":\"OFF\"}	json	a minute ago
UltrasoundicSe...	{\"distance\":131,\"Object\":\"No\",\"Alarm\":\"OFF\"}	json	2 minutes ago
UltrasoundicSe...	{\"distance\":129,\"Object\":\"No\",\"Alarm\":\"OFF\"}	json	3 minutes ago
UltrasoundicSe...	{\"distance\":199,\"Object\":\"No\",\"Alarm\":\"OFF\"}	json	4 minutes ago

1 Simulation running

Data sent to the IBM Cloud Device When the Object is found

Device ID: 12345678, Status: Disconnected, Device Type: 1234, Class ID: Device, Date Added: Oct 25, 2022 2:24 PM

The recent events listed show the live stream of data that is coming and going from this device.

Event	Value	Format	Last Received
UltrasoundicSe...	{\"distance\":38,\"Object\":\"Near\",\"Alarm\":\"ON\"}	json	a few seconds ago
UltrasoundicSe...	{\"distance\":2,\"Object\":\"Near\",\"Alarm\":\"ON\"}	json	a minute ago
UltrasoundicSe...	{\"distance\":96,\"Object\":\"Near\",\"Alarm\":\"ON\"}	json	2 minutes ago
UltrasoundicSe...	{\"distance\":120,\"Object\":\"No\",\"Alarm\":\"OFF\"}	json	
UltrasoundicSe...	{\"distance\":183,\"Object\":\"No\",\"Alarm\":\"OFF\"}	json	

1 Simulation running

IBM CLOUD EVENT BOARD OUTPUT:

Data sent to the IBM Cloud Device When the Object is found

Ultrasonic Sensor

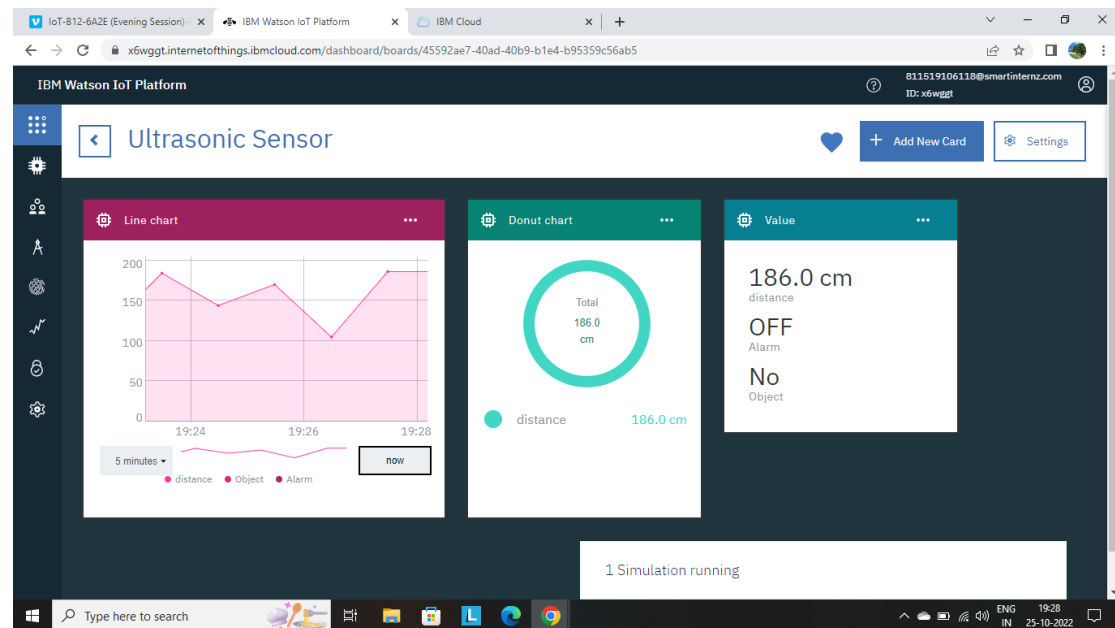
Line chart: distance (0 to 200 cm) over time (19:28 to 19:32). Legend: distance (pink), Object (red), Alarm (blue).

Donut chart: Total 59 cm, distance 59.0 cm.

Value: 59.0 cm distance, ON Alarm, Near Object.

1 Simulation running

Data sent to the IBM Cloud Device When the Object is Not found



WOKWI LINK:

<https://wokwi.com/projects/346514459060077138>