

## ASSIGNMENT-4

### DISTANCE DETECTION USING ULTRASONIC SENSOR

Date	25 October 2022
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Maximum Marks	2 Marks

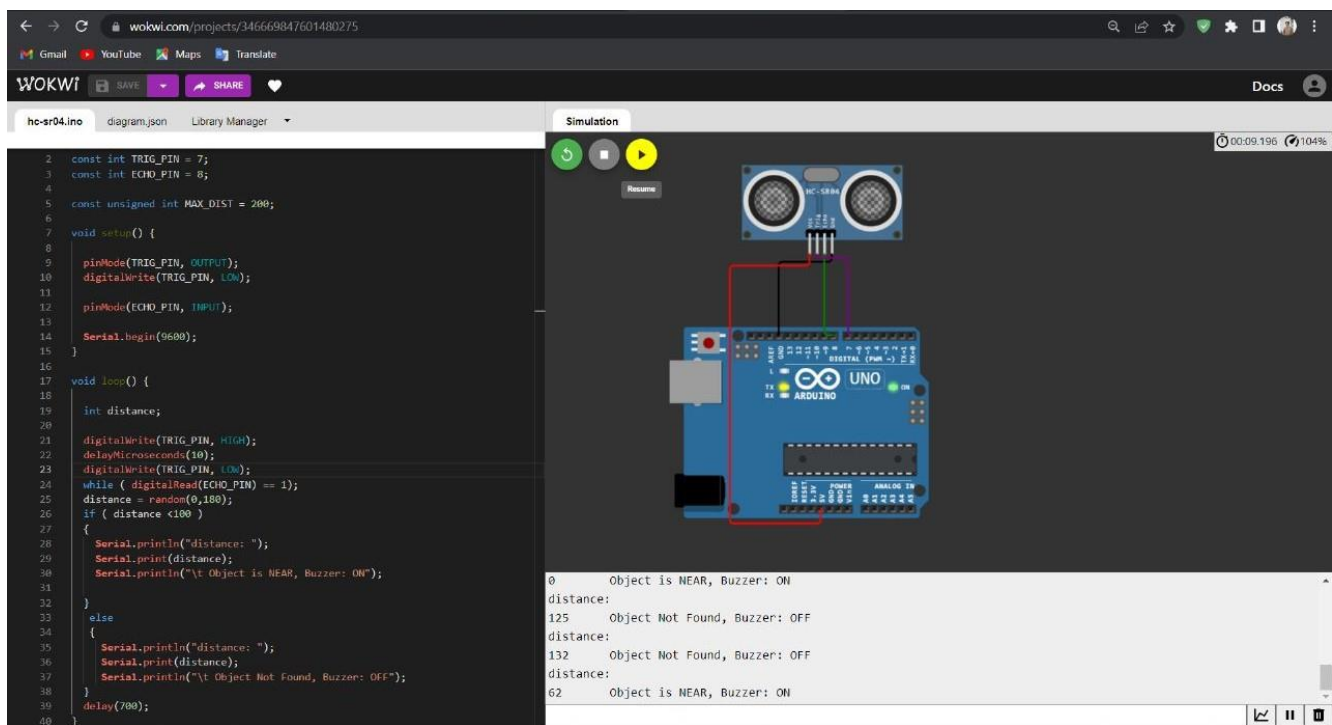
#### Question1 :

Write code and connections in wokwi 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/346504553060893268>

#### CODE :



```
2 const int TRIG_PIN = 7;
3 const int ECHO_PIN = 8;
4
5 const unsigned int MAX_DIST = 200;
6
7 void setup() {
8   pinMode(TRIG_PIN, OUTPUT);
9   digitalWrite(TRIG_PIN, LOW);
10
11   pinMode(ECHO_PIN, INPUT);
12
13   Serial.begin(9600);
14 }
15
16
17 void loop() {
18   int distance;
19
20   digitalWrite(TRIG_PIN, HIGH);
21   delayMicroseconds(10);
22   digitalWrite(TRIG_PIN, LOW);
23   while ( digitalRead(ECHO_PIN) == 1);
24   distance = random(0,180);
25   if ( distance <100 )
26   {
27     Serial.println("distance: ");
28     Serial.print(distance);
29     Serial.println("\t Object is NEAR, Buzzer: ON");
30   }
31   else
32   {
33     Serial.println("distance: ");
34     Serial.print(distance);
35     Serial.println("\t Object Not Found, Buzzer: OFF");
36   }
37   delay(700);
38 }
```

0 Object is NEAR, Buzzer: ON  
distance:  
125 Object Not Found, Buzzer: OFF  
distance:  
132 Object Not Found, Buzzer: OFF  
distance:  
62 Object is NEAR, Buzzer: ON

OUTPUT :

IBM Cloud Event:

**Whenever distance is less than 100 cm send "alert" to IBM cloud Event**

The screenshot shows the IBM Watson IoT Platform dashboard for a device named ESP32\_1. The device is connected and the dashboard displays a table of recent events. The events are triggered by an Ultrasonic sensor and show distance measurements and buzzer status. The events are listed in descending order of time received.

Event	Value	Format	Last Received
UltrasonicSe...	{"distance":161,"Object":"Not Found","Buzzer":"","..."}	json	a few seconds ago
UltrasonicSe...	{"distance":125,"Object":"Not Found","Buzzer":"","..."}	json	a minute ago
UltrasonicSe...	{"distance":182,"Object":"Not Found","Buzzer":"","..."}	json	a minute ago
UltrasonicSe...	{"distance":93,"Object":"Near","Buzzer":"","ON"}	json	2 minutes ago
UltrasonicSe...	{"distance":20,"Object":"Near","Buzzer":"","ON"}	json	3 minutes ago

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2 Simulations running

Data sent to the IBM Cloud Device when the object is near

The screenshot shows the IBM Watson IoT Platform dashboard for a device named ESP32\_1. The device is connected and the dashboard displays a table of recent events. The events are triggered by an Ultrasonic sensor and show distance measurements and buzzer status. The events are listed in descending order of time received.

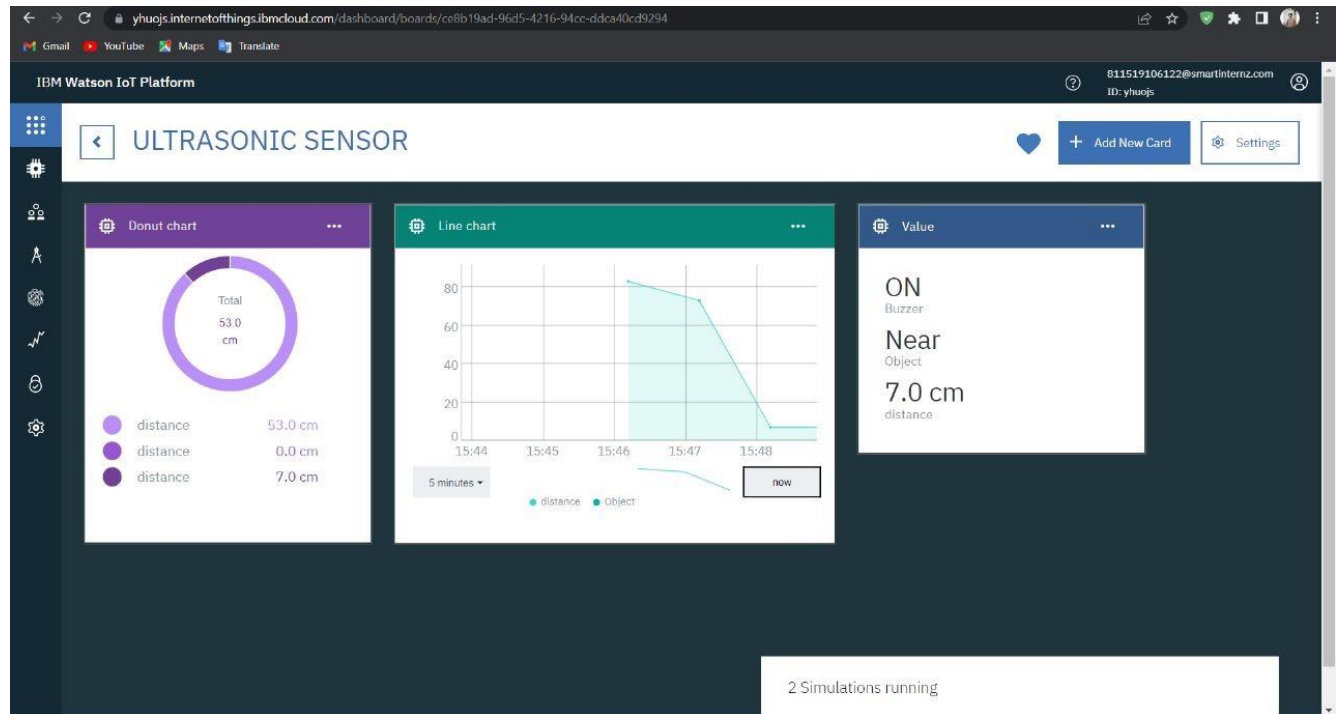
Event	Value	Format	Last Received
UltrasonicSe...	{"distance":48,"Object":"Near","Buzzer":"","ON"}	json	a few seconds ago
UltrasonicSe...	{"distance":27,"Object":"Near","Buzzer":"","ON"}	json	a minute ago
UltrasonicSe...	{"distance":82,"Object":"Near","Buzzer":"","ON"}	json	2 minutes ago
UltrasonicSe...	{"distance":87,"Object":"Near","Buzzer":"","ON"}	json	3 minutes ago
UltrasonicSe...	{"distance":23,"Object":"Near","Buzzer":"","ON"}	json	4 minutes ago

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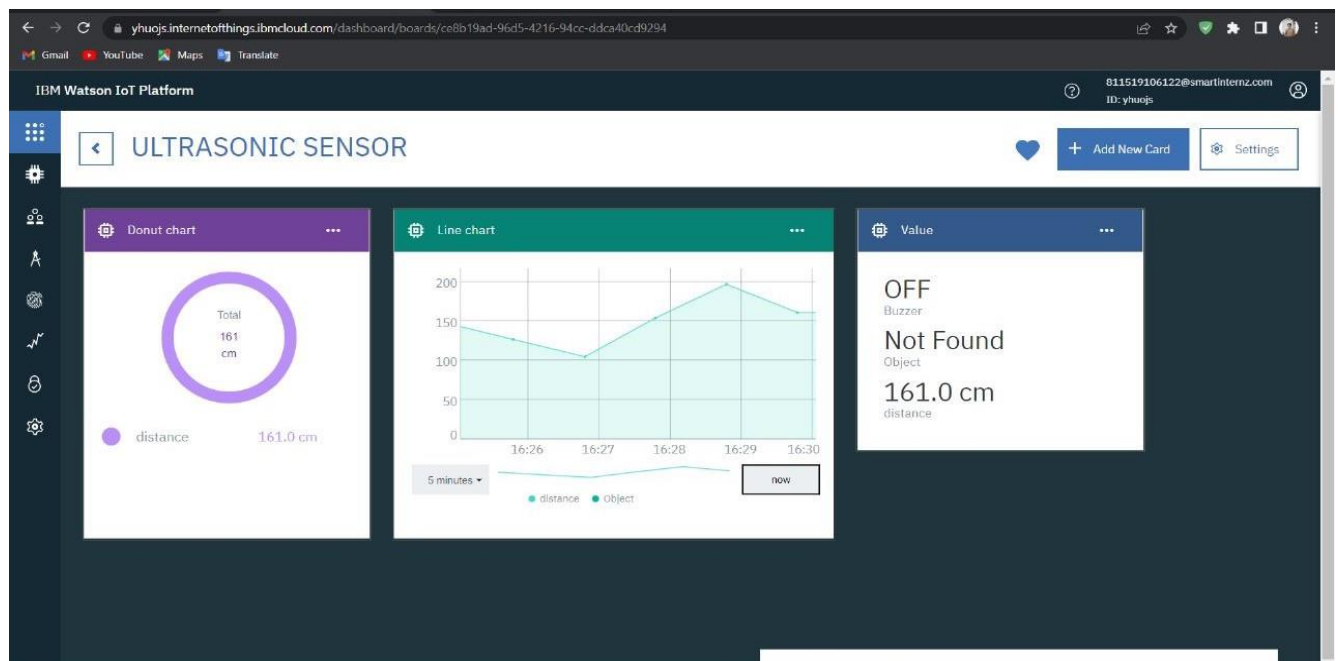
2 Simulations running

## IBM Cloud Event Board Output:

Data sent to the IBM Cloud Device when the object is near



Data sent to the IBM Cloud Device when the object is Not Found



WOKWI LINK :

<https://wokwi.com/projects/346504553060893268>