

Assignment -4
ULTRASONIC SENSOR

Assignment Date	29 October 2022
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Maximum Marks	2 Marks

QUESTION:

Write code and connections in wokwi for the ultrasonic sensor.

Whenever the distance is less than 100 cms send an "alert" to the IBM cloud and display in the device

recent events.

Upload document with wokwi share link and images of IBM cloud

SOLUTION:

```
#define ECHO_PIN 2
#define TRIG_PIN 3
#define organization = "x0cl0i"
#define deviceType = "ultrasonicsensor"
#define deviceId = "ultrasonic_sensor"
#define authMethod = "use-token-auth"
#define authToken = "yfZ@HoxcWNUv3ZePkk"

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("ALERT!!! Object Detected");

}

else

{

Serial.print("Measured distance: ");

Serial.println(readDistanceCM());

}

delay(1000);

}

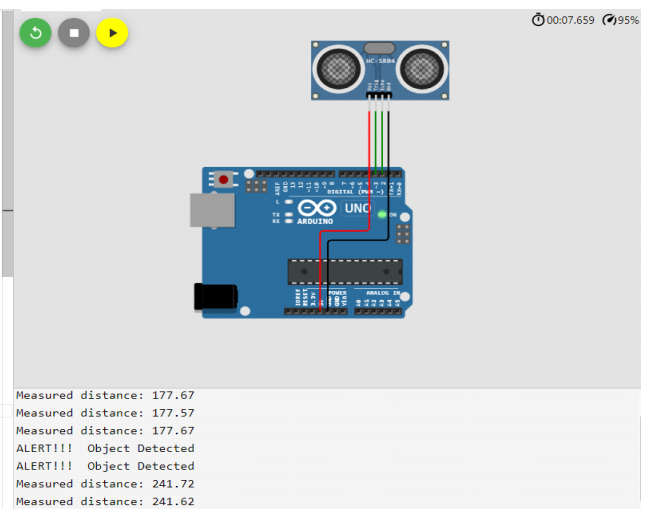
```

SIMULATION OUTPUT :

```

1 #define ECHO_PIN 2
2 #define TRIG_PIN 3
3 #define organization - "x0c10i"
4 #define deviceType - "ultrasonicsensor"
5 #define deviceId - "ultrasonic_sensor"
6 #define authMethod - "use-token-auth"
7 #define authToken - "yfz@HoxcMNUv3ZePkk"
8 void setup()
9 {
10 Serial.begin(9600);
11 pinMode(TRIG_PIN, OUTPUT);
12 pinMode(ECHO_PIN, INPUT);
13 }
14 float readDistanceCM()
15 {
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 {
26 float distance = readDistanceCM();
27 if (distance <= 100)
28 {
29 Serial.println("ALERT!!! Object Detected");
30 }
31 else
32 {
33 Serial.print("Measured distance: ");
34 Serial.println(readDistanceCM());
35 }
36 delay(1000);

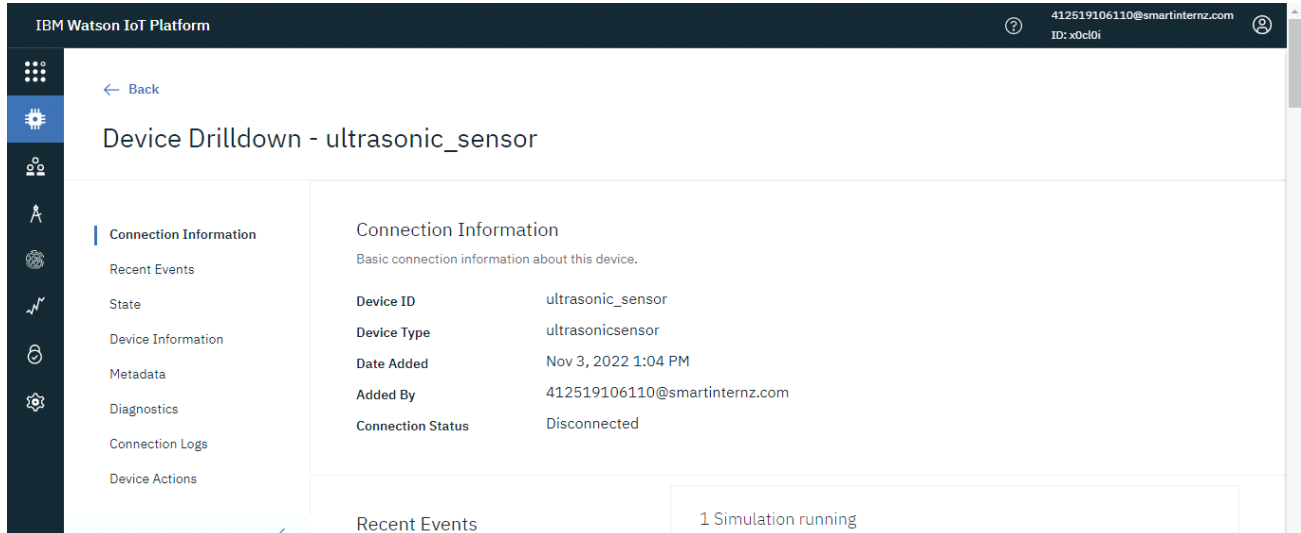
```



WOKWI SHARE LINK:

<https://wokwi.com/projects/347291092185514580>

IBM CLOUD DEVICE DETAILS :

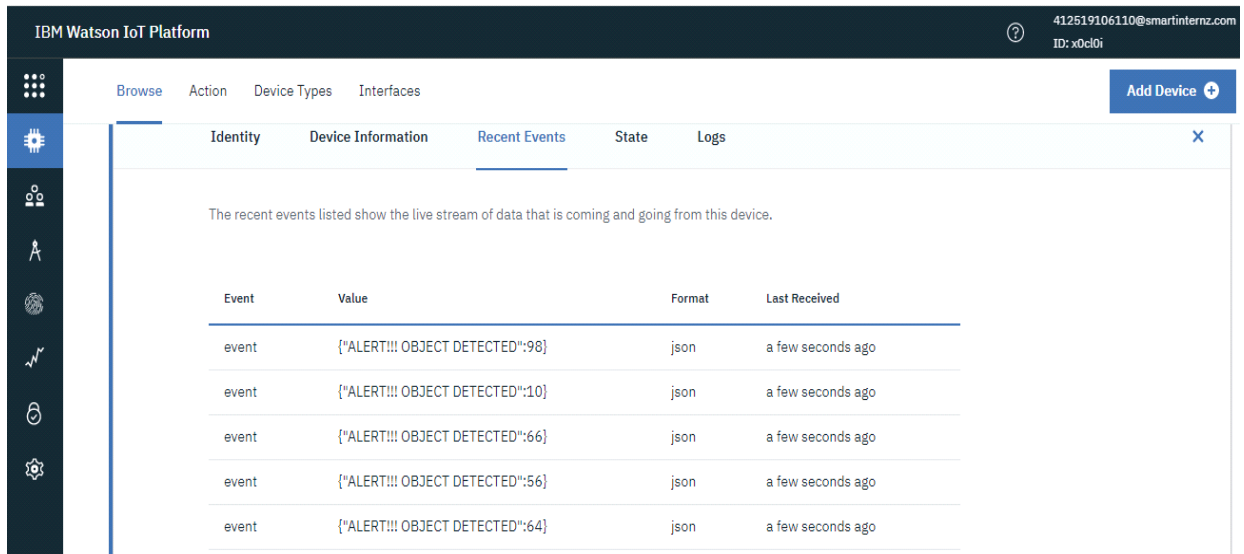


The screenshot shows the IBM Watson IoT Platform interface. The top header displays the platform name and user information. The left sidebar contains navigation icons. The main content area is titled "Device Drilldown - ultrasonic_sensor" and includes a "Back" link. A sidebar on the left lists various tabs: Connection Information, Recent Events, State, Device Information, Metadata, Diagnostics, Connection Logs, and Device Actions. The "Connection Information" tab is selected, showing details about the device's connection status and metadata.

Device ID	ultrasonic_sensor
Device Type	ultrasonicsensor
Date Added	Nov 3, 2022 1:04 PM
Added By	412519106110@smartinternz.com
Connection Status	Disconnected

Recent Events: 1 Simulation running

IBM CLOUD DEVICE RECENT EVENTS:



The screenshot shows the IBM Watson IoT Platform interface, specifically the "Recent Events" tab for the "ultrasonic_sensor" device. The top header displays the platform name and user information. The left sidebar contains navigation icons. The main content area is titled "Recent Events" and includes a "Back" link. A sidebar on the left lists various tabs: Identity, Device Information, Recent Events, State, and Logs. The "Recent Events" tab is selected, showing a list of recent events.

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

Event	Value	Format	Last Received
event	{"ALERT!!! OBJECT DETECTED":98}	json	a few seconds ago
event	{"ALERT!!! OBJECT DETECTED":10}	json	a few seconds ago
event	{"ALERT!!! OBJECT DETECTED":66}	json	a few seconds ago
event	{"ALERT!!! OBJECT DETECTED":56}	json	a few seconds ago
event	{"ALERT!!! OBJECT DETECTED":64}	json	a few seconds ago

LINE CHART OF IBM CLOUD DEVICE:

