

## Assignment -4

### ULTRASONIC SENSOR

Assignment Date	29 October 2022
Student Name	BOOBALAN H
Student Roll Number	412519106022
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 devicerecent events.

Upload document with wokwi share link and images of IBM cloud

#### SOLUTION:

```
#define ECHO_PIN 2

#define TRIG_PIN 3
#define organization = "1kdqj0"
#define deviceType = "DEVICE_BOOBALAN"
#define deviceId = "SEC19EC190"
#define authMethod = "use-token-auth"
#define authToken = "6l0X&kn@E4d6QvMdym"
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);

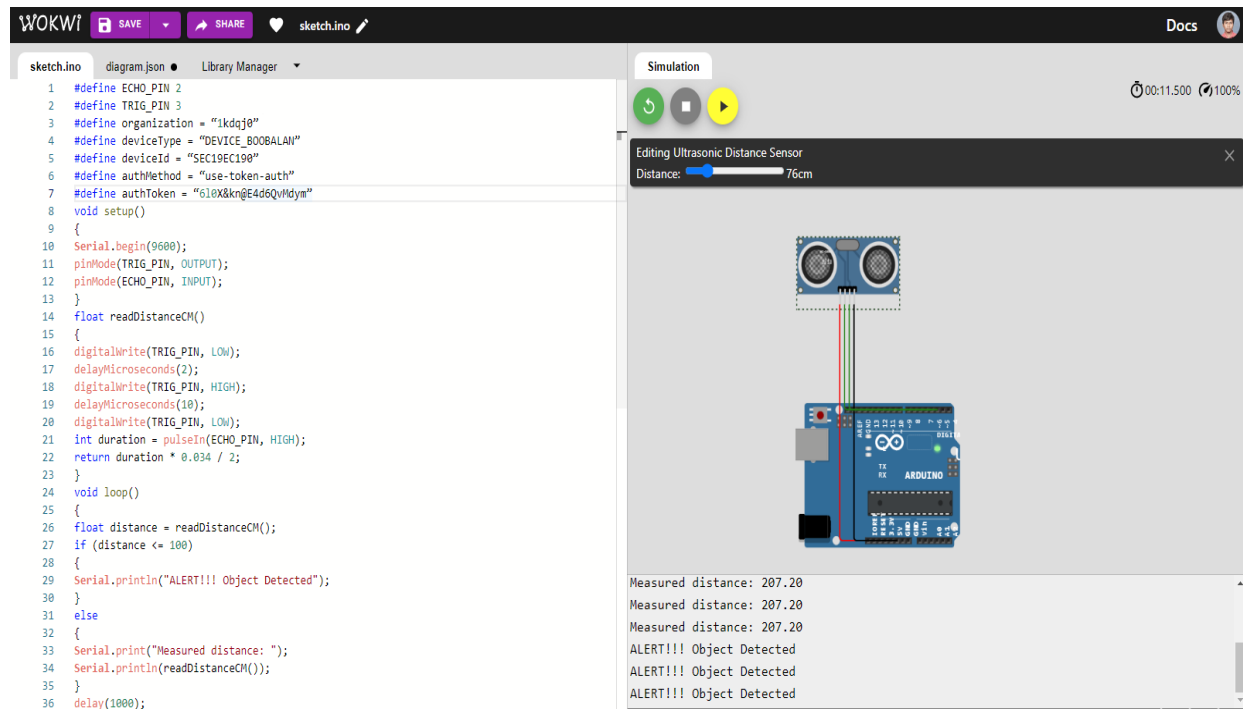
digitalWrite(TRIG_PIN,
LOW);

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 :



The screenshot displays the Wokwi IDE interface. On the left, the sketch.ino file contains the following code:

```
1 #define ECHO_PIN 2
2 #define TRIG_PIN 3
3 #define organization = "ikdqj0"
4 #define deviceType = "DEVICE_BOOBALAN"
5 #define deviceId = "SEC19EC190"
6 #define authMethod = "use-token-auth"
7 #define authToken = "61oX&knqE4d6QvIdym"
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);
```


On the right, the Simulation window shows an Ultrasonic Distance Sensor module connected to an Arduino Uno. A slider for the sensor's distance is set to 76cm. Below the simulation, the serial monitor displays the following output:

```
Measured distance: 207.20
Measured distance: 207.20
Measured distance: 207.20
ALERT!!! Object Detected
ALERT!!! Object Detected
ALERT!!! Object Detected
```

## WOKWI SHARE LINK:

<https://wokwi.com/projects/348276850068292179>

### IBM CLOUD DEVICE DETAILS :

<input type="checkbox"/>	Device ID	Status	Device Type	Class ID	Date Added	Descriptive Location
▼ <input type="checkbox"/>	SEC19EC190	 Disconnected	DEVICE_BOOBALAN	Device	Nov 14, 2022 9:50 AM	
<div><div>Identity</div><div>Device Information</div><div>Recent Events</div><div>State</div><div>Logs</div></div>						
Device ID		SEC19EC190				
Device Type		DEVICE_BOOBALAN				
Date Added		Nov 14, 2022 9:50 AM				
Added By		sec19ec190@sairamtap.edu.in				
Connection Status		Disconnected				

Items per page 50 ▼ | 1–1 of 1 item

## IBM CLOUD DEVICE RECENT EVENTS:

Browse   Action   Device Types   Interfaces

Search by Device ID

<input type="checkbox"/>	Device ID	Status	Device Type	Class ID	Date Added	Descriptive Location	Added By
▼ <input type="checkbox"/>	SEC19EC190	Disconnected	DEVICE_BOOBALAN	Device	Nov 14, 2022 9:50 AM		sec19ec190@sairamtap.edu.in

Identity
Device Information
Recent Events
State
Logs

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

Event	Value	Format	Last Received
event_1	{"ALERT!!! Object Detected":25}	json	a few seconds ago
event_1	{"ALERT!!! Object Detected":96}	json	a few seconds ago
event_1	{"ALERT!!! Object Detected":80}	json	a few seconds ago
event_1	{"ALERT!!! Object Detected":2}	json	a few seconds ago
event_1	{"ALERT!!! Object Detected":11}	json	a few seconds ago

## LINE CHART OF IBM CLOUD DEVICE:

