

**Assignment -4**  
**ULTRASONIC SENSOR**

Assignment Date	29 October 2022
Student Name	SATHISH V
Student Roll Number	412519106135
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 = "9itocz"
#define deviceType = "devicetype_sathishvar"
#define deviceId = "deviceid_sat678910"
#define authMethod = "use-token-auth"
#define authToken = "Fm65S@fU@o7jkim@Xu"
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 :

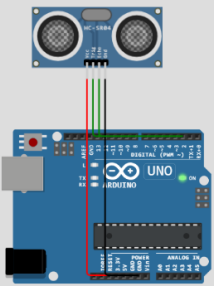
WOKWI SAVE SHARE

sketch.ino • diagram.json • Library Manager

```
1 #define ECHO_PIN 2
2 #define TRIG_PIN 3
3 #define organization = "9itocz"
4 #define deviceType = "devicetype_sathishvar"
5 #define deviceId = "deviceid_sat678910"
6 #define authMethod = "use-token-auth"
7 #define authToken = "Fm655@fUg07jkin@Xu"
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);
37 }
```

Simulation

01:14.820 100%









Measured distance: 134.13  
Measured distance: 134.13  
ALERT!!! Object Detected  
ALERT!!! Object Detected  
ALERT!!! Object Detected  
ALERT!!! Object Detected  
ALERT!!! Object Detected

**WOKWI SHARE LINK:**

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

### IBM CLOUD DEVICE DETAILS :

	Device ID	Status	Device Type	Class ID	Date Added	Descriptive Location	Added By
	 deviceid_sat678910	 Disconnected	devicetype_sathishvar	Device	Nov 14, 2022 9:47 AM		sec19ec129@sairamtap.edu.in 
<div><div>Identity</div><div>Device Information</div><div>Recent Events</div><div>State</div><div>Logs</div></div> <div></div>							
Device ID		deviceid_sat678910					
Device Type		devicetype_sathishvar					
Date Added		Nov 14, 2022 9:47 AM					
Added By		sec19ec129@sairamtap.edu.in					
Connection Status		Disconnected					

### IBM CLOUD DEVICE RECENT EVENTS:

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 ":"93"}	json	a few seconds ago
event_1	{"ALERT OBJECT DETECTED ":"25"}	json	a few seconds ago
event_1	{"ALERT OBJECT DETECTED ":"68"}	json	a few seconds ago
event_1	{"ALERT OBJECT DETECTED ":"79"}	json	a few seconds ago
event_1	{"ALERT OBJECT DETECTED ":"82"}	json	a few seconds ago

## LINE CHART OF IBM CLOUD DEVICE:

### < DISTANCE

