

Assignment -4
ULTRASONIC SENSOR

| | |
|---------------------|-----------------|
| Assignment Date | 29 October 2022 |
| Student Name | SATHISHKUMAR K |
| Student Roll Number | 412519106136 |
| 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

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

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

