

Assignment -4
ULTRASONIC SENSOR

Assignment Date	29 October 2022
Student Name	Arthi V
Student Roll Number	412519106013
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);

}

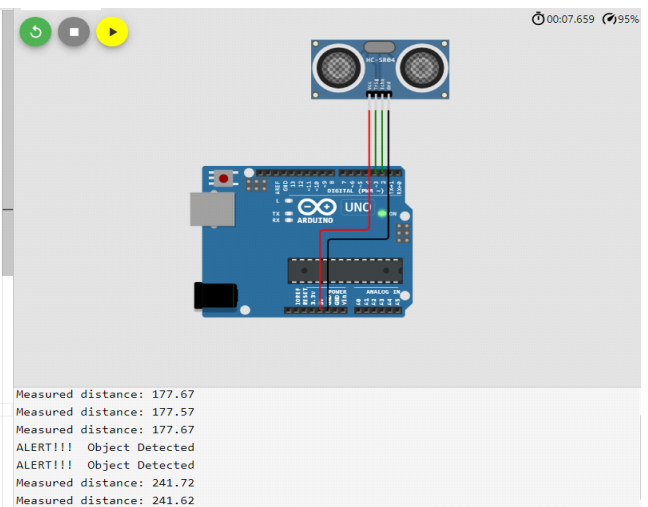
```

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@HoxcMUV3ZePkK"
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 displays the IBM Watson IoT Platform interface. The top navigation bar includes the platform name, a help icon, and user information (412519106110@smartinternz.com, ID: x0cl0i). The left sidebar contains icons for various functions. The main content area is titled 'Device Drilldown - ultrasonic_sensor' and features a 'Back' button. A sidebar on the left lists navigation options: Connection Information, Recent Events, State, Device Information, Metadata, Diagnostics, Connection Logs, and Device Actions. The 'Connection Information' section is active, showing details for the 'ultrasonic_sensor' device, including its ID, type, date added, added by, and connection status (Disconnected). Below this, a 'Recent Events' section shows '1 Simulation running'.

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

IBM CLOUD DEVICE RECENT EVENTS:

The screenshot shows the 'Recent Events' tab for the 'ultrasonic_sensor' device. The interface includes a top navigation bar with 'Browse', 'Action', 'Device Types', and 'Interfaces' tabs, and an 'Add Device' button. The 'Recent Events' section displays a table of events, each with an 'Event' type, a 'Value' (JSON string), a 'Format' (json), and a 'Last Received' timestamp (a few seconds ago). The events are listed in descending order of time.

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:

