

## ASSIGNMENT-4

### B7-1A3E THILLAI RAJAN A

Write code and connections in wokwi for ultrasonic sensor. Whenever distance is less than 100cms, send “alert” to ibm cloud and display in device recent events.

#### Code;

```
#define ECHO_PIN 2
#define TRIG_PIN 3

void setup() {
  Serial.begin(115200);
  pinMode(LED_BUILTIN, OUTPUT);
  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();

  bool isNearby = distance < 100;
```

```

digitalWrite(LED_BUILTIN, isNearby);

Serial.print("Measured distance: ");
Serial.println(readDistanceCM());
if (distance<100)
    Serial.print("alert");
Serial.println();

delay(100);
}

```

## OUTPUT;

The screenshot displays the Wokwi Arduino IDE interface. On the left, the code for `hc-sr04.ino` is shown, which defines pins for an HC-SR04 ultrasonic sensor and an LED. The `readDistanceCM()` function sends a pulse to the TRIG pin and reads the duration of the echo on the ECHO pin. The `loop()` function calculates the distance and turns on the LED if the distance is less than 100cm. On the right, the simulation window shows the sensor connected to an Arduino Uno. The LED is turned on, indicating that the distance is less than 100cm. The output window shows the serial output: "Measured distance: 73.87" followed by "alert".

```

1
2 #define ECHO_PIN 2
3 #define TRIG_PIN 3
4
5 void setup() {
6   Serial.begin(115200);
7   pinMode(LED_BUILTIN, OUTPUT);
8   pinMode(TRIG_PIN, OUTPUT);
9   pinMode(ECHO_PIN, INPUT);
10 }
11
12 float readDistanceCM() {
13   digitalWrite(TRIG_PIN, LOW);
14   delayMicroseconds(2);
15   digitalWrite(TRIG_PIN, HIGH);
16   delayMicroseconds(10);
17   digitalWrite(TRIG_PIN, LOW);
18   int duration = pulseIn(ECHO_PIN, HIGH);
19   return duration * 0.034 / 2;
20 }
21
22 void loop() {
23   float distance = readDistanceCM();
24
25   bool isNearby = distance < 100;
26   digitalWrite(LED_BUILTIN, isNearby);
27
28   Serial.print("Measured distance: ");
29   Serial.println(readDistanceCM());
30   if (distance<100)
31     Serial.print("alert");

```

Simulation output:

```

alert
Measured distance: 73.87
alert
Measured distance: 73.87
alert
Measured distance: 73.87
alert

```

