

TEAM ID-PNT2022TMID02748

ASSIGNMENT - 4

Write Code and connections in wokwi for ultrasonic sensor. whatever distance is less than 100 cms send "Alert" to ibm cloud and display in device recent events.

CODE:

```
const int TRIG_PIN    = 6; // Arduino pin connected to Ultrasonic Sensor's TRIG pin
const int ECHO_PIN    = 7; // Arduino pin connected to Ultrasonic Sensor's ECHO pin
const int BUZZER_PIN  = 3; // Arduino pin connected to Piezo Buzzer's pin
const int DISTANCE_THRESHOLD = 50; // centimeters

// variables will change:
float duration_us, distance_cm;

void setup() {
    Serial.begin(9600);          // initialize serial port
    pinMode(TRIG_PIN, OUTPUT);   // set arduino pin to output mode
    pinMode(ECHO_PIN, INPUT);    // set arduino pin to input mode
    pinMode(BUZZER_PIN, OUTPUT); // set arduino pin to output mode
}

void loop() {
    // generate 10-microsecond pulse to TRIG pin
    digitalWrite(TRIG_PIN, HIGH);
    delayMicroseconds(10);
    digitalWrite(TRIG_PIN, LOW);

    // measure duration of pulse from ECHO pin
    duration_us = pulseIn(ECHO_PIN, HIGH);
    // calculate the distance
    distance_cm = 0.017 * duration_us;

    if(distance_cm < DISTANCE_THRESHOLD)
    {
        tone(BUZZER_PIN, 1000);
        digitalWrite(BUZZER_PIN, HIGH);
    }

    // turn on Piezo Buzzer
    else
        digitalWrite(BUZZER_PIN, LOW); // turn off Piezo Buzzer
        noTone(BUZZER_PIN);
    // print the value to Serial Monitor
    Serial.print("distance: ");
    Serial.print(distance_cm);
```

```

Serial.println(" cm");

delay(500);
}

```

WOKWI SAVE SHARE Docs SIGN IN

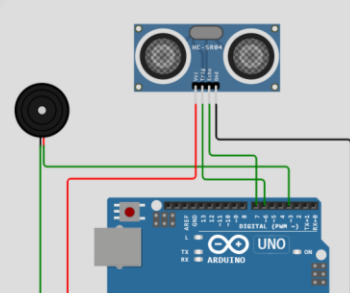
sketch.ino diagram.json Library Manager

```

16 void loop() {
17   // generate 10-microsecond pulse to TRIG pin
18   digitalWrite(TRIG_PIN, HIGH);
19   delayMicroseconds(10);
20   digitalWrite(TRIG_PIN, LOW);
21
22   // measure duration of pulse from ECHO pin
23   duration_us = pulseIn(ECHO_PIN, HIGH);
24   // calculate the distance
25   distance_cm = 0.017 * duration_us;
26
27   if(distance_cm < DISTANCE_THRESHOLD)
28   {
29     tone(BUZZER_PIN, 1000);
30     digitalWrite(BUZZER_PIN, HIGH);
31   }
32
33   // turn on Piezo Buzzer
34   else
35     digitalWrite(BUZZER_PIN, LOW); // turn off Piezo Buzzer
36     noTone(BUZZER_PIN);
37   // print the value to Serial Monitor
38   Serial.print("distance: ");
39   Serial.print(distance_cm);
40   Serial.println(" cm");
41
42   delay(500);
43 }
44
45

```

Simulation



```

distance: 19.91 cm
distance: 19.91 cm
distance: 19.86 cm
distance: 19.91 cm
distance: 19.91 cm
distance: 19.91 cm
distance: 19.91 cm

```