

**TEAM ID : PNT2022TMID43421**

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#### **Assignment 4 :**

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.

#### **Program**

```
const int TRIG_PIN=7;
const int ECHO_PIN=8;

const unsigned int MAX_DIST=23200;

void setup(){

    pinMode(TRIG_PIN,OUTPUT);
    digitalWrite(TRIG_PIN,LOW);
    pinMode(ECHO_PIN,INPUT);
    Serial.begin(9600);
}

void loop() {
    unsigned long t1;
    unsigned long t2;
    unsigned long pulse_width; float cm;
    float inches;

    digitalWrite(TRIG_PIN,HIGH); delayMicroseconds(10);
    digitalWrite(TRIG_PIN,LOW);

    while(digitalRead(ECHO_PIN)==0);

    t1= micros();
    while(digitalRead(ECHO_PIN)==1); t2= micros();
```

```

pulse_width=t2-t1;
cm=pulse_width/ 58 ;
inches=pulse_width/148.0;
if (pulse_width>MAX_DIST){
  Serial.println("Outofrange");
}
else{
  Serial.println("*****");
  Serial.print("TheMeasuredDistanceincm:");
  Serial.println(cm);

  if( cm < 100 ){

    Serial.println("Alert!!");

  }
  Serial.print("*****");
}
delay(1000);
}

```

## Output:

1. If the distance is less than 100 cms ,it alerts.



```

10 // The Trigger pin will tell the sensor to range find

14 //pulses coming back from the distance sensor
15 pinMode(ECHO_PIN, INPUT );

18 }
19 void loop() {
20   unsigned long t1;
21   unsigned long t2;
22   unsigned long pulse_width;
23   float cm;

```

The Mea en red Dr stance in etc: 2 68.00  
 \*\*\*\*\*Out of range

TheMeasuredDistanceincm:197.00

TheMeasuredDistanceincm:2.00  
 Alert!!



```

10 // The Trigger pin will tell the sensor to range find
12 digitalWrite(TRIG_PIN, LOW);

15 pinMode(ECHO_PIN, INPUT );

```

ee

```

21 unsigned long t2;
22 unsigned long pulse_width;

```

TheMeasuredDistanceincm:2.00  
 Alert!!

31°C  
 Cloudy



0.2 KBps  
 0.0 KBps

ENG IN

12:21  
 28-10-2022

WOKWI

sketch.ino diagram.json Library Manager

```
1 //Pins
2 const int TRIG_PIN = 7;
3 const int ECHO_PIN = 8;
4
5 //Anything over 400 cm (23200 us pulse) is "out of range"
6 const unsigned int MAX_DIST = 23200;
7
8 void setup(){
9
10 // The Trigger pin will tell the sensor to range find
11 pinMode(TRIG_PIN, OUTPUT);
12 digitalWrite(TRIG_PIN, LOW);
13 //Set Echo pin as input to measure the duration of
14 //pulses coming back from the distance sensor
15 pinMode(ECHO_PIN, INPUT );
16 // We'll use the serial monitor to view the sensor output
17 Serial.begin(9600);
18 }
19
20 void loop() {
21   unsigned long t1;
22   unsigned long t2;
23   unsigned long pulse_width;
24   float cm;
25   float inches;
```

Simulation

00:44.723 97%

The Measured Distance in cm: 91.00  
Alert!!  
The Measured Distance in cm: 124.00

3.2 KBps  
0.1 KBps

31°C Cloudy

12:25  
28-10-2022

Link: <https://wokwi.com/projects/346743469024215636>