## **ASSIGNMENT-04**

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.

## CODE:

```
const int TRIG_PIN = 7;
const int ECHO_PIN = 8;
const unsigned int MAX_DIST = 23200;
void setup()
{
Mode(TRIG_PIN, OUTPUT);
digital Write(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("Out of range");
Else
Serial.println("*****************);
Serial.print("The Measured Distance in cm: ");
Serial.println(cm);
if( cm < 100 )
while(true)
{
Serial.println("Alert!!");
}
Serial.print("*************************);
}
Delay(1000);
```

## **OUTPUT:**

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

```
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Library Manager
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           const int TRIG PIN = 7;
           const int ECHO_PIN = 8;
           // Anything over 400 cm (23200 us pulse) is "out of range"
           const unsigned int MAX_DIST = 23200;
           void setup() {
            // The Trigger pin will tell the sensor to range find
pinMode(TRIG_PIN, OUTPUT);
digitalWrite(TRIG_PIN, LOW);
                                                                                                                              OOU UNO
            //Set Echo pin as input to measure the duration of
//pulses coming back from the distance sensor
pinMode(ECHO_PIN, INPUT);
            // We'll use the serial monitor to view the sensor output
Serial.begin(9600);
     19
20
21
                                                                                                                              22
23
           void loop() {
             unsigned long t1;
                                                                                                ***********
             unsigned long t2;
unsigned long pulse_width;
                                                                                                The Measured Distance in cm : 84.14
             float cm;
                                                                                                Alert!!
             float inches;
                                                                                                                                                                                // Hold the trigger pin high for at least 10 us
```

2. If the distance is more than 100 cms, it won't alert.

```
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                                                                                            Simulation
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         const int TRIG_PIN = 7;
        const int ECHO_PIN = 8;
        // Anything over 400 cm (23200 us pulse) is "out of range"
        const unsigned int MAX_DIST = 23200;
        void setup() {
           // The Trigger pin will tell the sensor to range find
           pinMode(TRIG_PIN, OUTPUT);
digitalWrite(TRIG_PIN, LOW);
   11
                                                                                                                     ONU (OC)
           //Set Echo pin as input to measure the duration of //pulses coming back from the distance sensor
   14
   15
           pinMode(ECHO_PIN, INPUT);
   17
           // We'll use the serial monitor to view the sensor output
   19
           Serial.begin(9600);
                                                                                                                    NO POWER ANALOG IN
   22
         void loop() {
   23
           unsigned long t1;
   25
           unsigned long t2;
                                                                                         The Measured Distance in cm : 227.10
           unsigned long pulse_width;
                                                                                         ************
   27
                                                                                                                                           Activate Windows
           float inches:
                                                                                                                                           Go to Settings to activate Windows
```

## 3. Simulation and code execution







