

Assignment-4

Team ID: PNT2022TMID52039

Name: PRASHANTH VIKRAM .J

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

Solution:

```
//Pins
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
Pin Mode(TRIG_PIN, OUTPUT);
digital Write(TRIG_PIN, LOW);

//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);
}
void loop() {
unsigned long t1
unsigned long t2;
    unsigned long pulse_width;
    float cm;
    float inches;
    // Hold the trigger pin high for at least 10 us
    digitalWrite(TRIG_PIN, HIGH);
    delayMicroseconds(10);
    digitalWrite(TRIG_PIN, LOW);

    // Wait for pulse on echo pin
    while (digitalRead( ECHO_PIN )==0 );

    // Measure how long the echo pin was held high (pulse width)
    // Note: the micros() counter will overflow after-70 min
    t1= micros ();
    while (digitalRead(ECHO_PIN) == 1);
    t2= micros ();
    pulse_width = t2-t1;

    // Calculate distance in centimeters and inches. The constants
```

```

//are found in the datasheet, and calculated from the assumed speed
// of sound in air at sea level (- 340m/s)
cm=pulse_Width / 58 ;
inches = pulse_width/148.0;

// Print out results
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!!");
        //}
    }

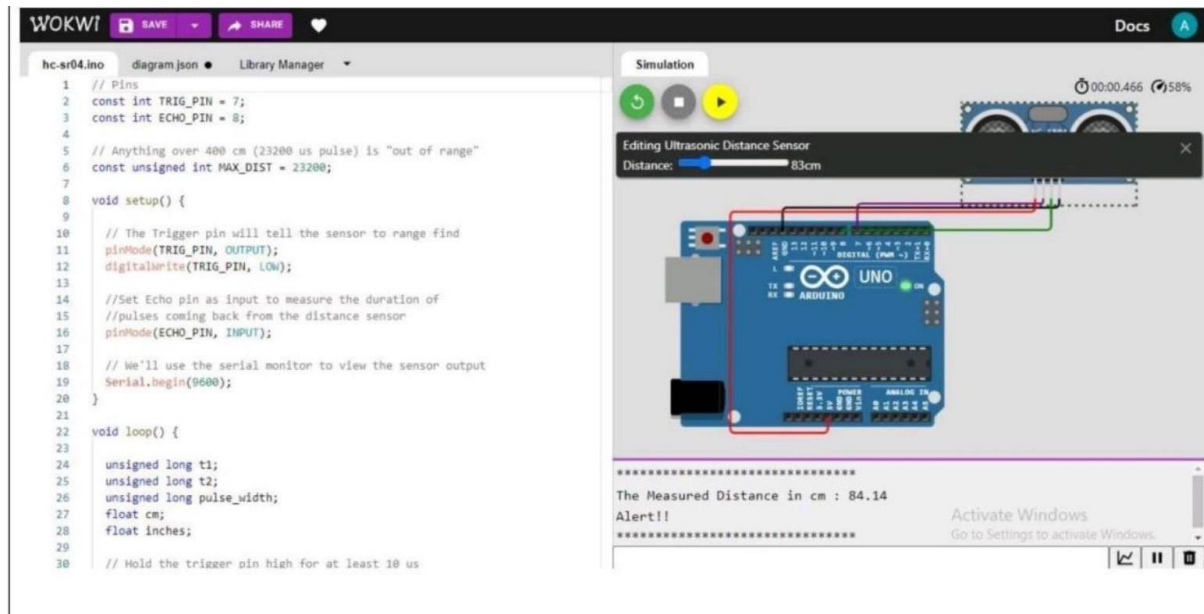
Serial.print("*****");
}

//wait at least 1000ms before next measurement
Delay(1000);
}

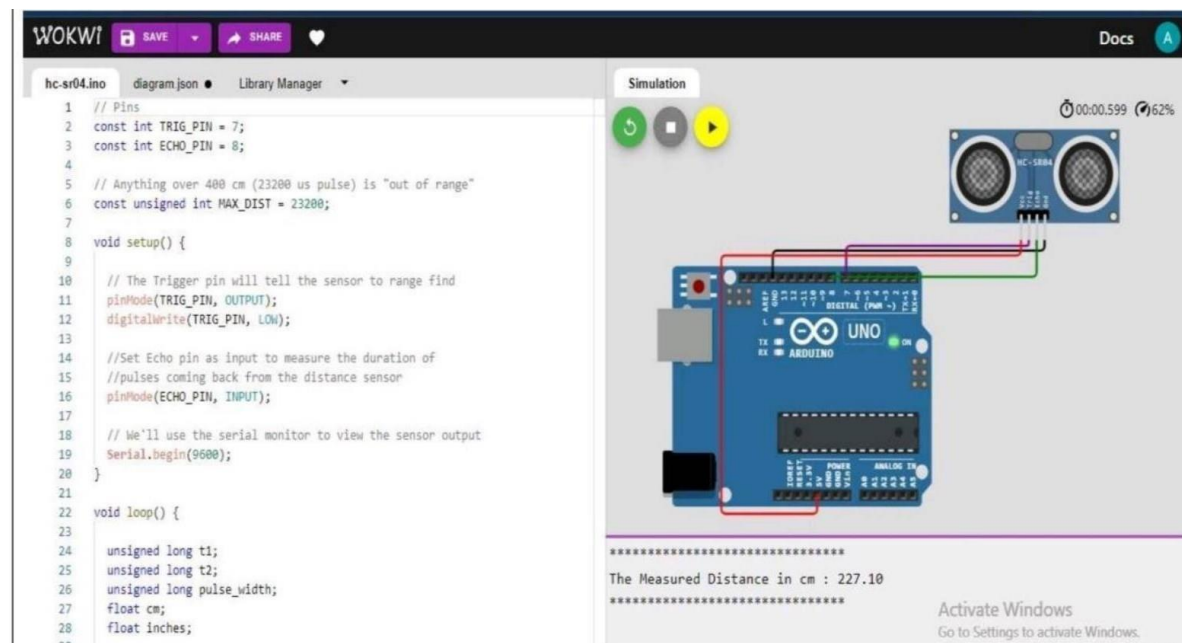
```

Output:

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



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



3.Simulation and code execution

