

Assignment-4

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 devicerecent events.

Solution:

n:

```
//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
mint1= 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("*****");

}

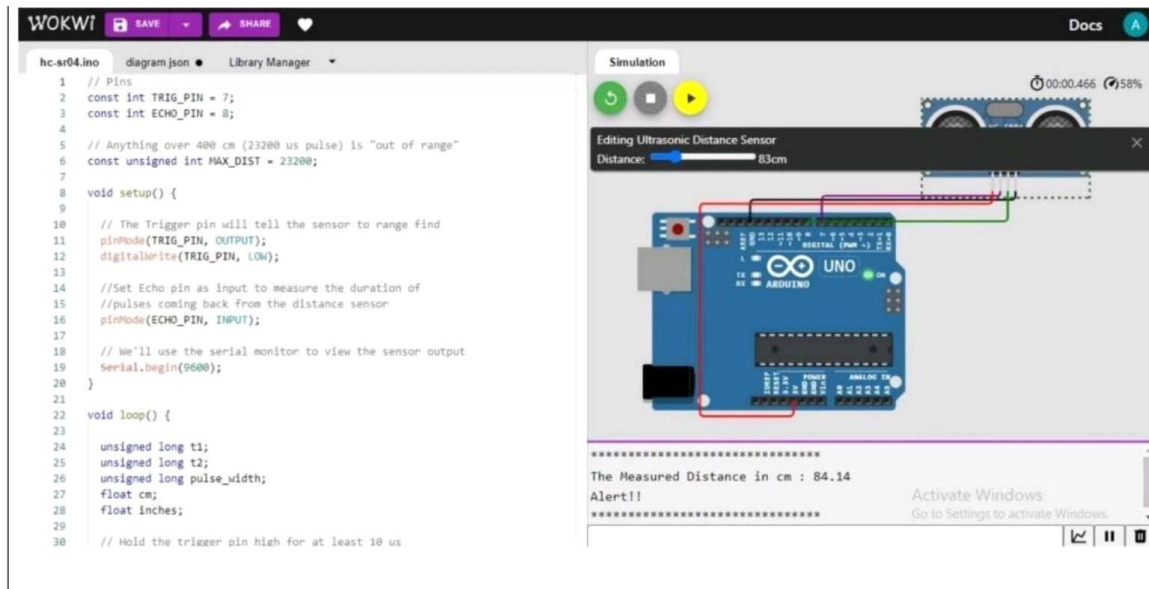
//wait at least 1000ms before next
measurementDelay(1000);

}

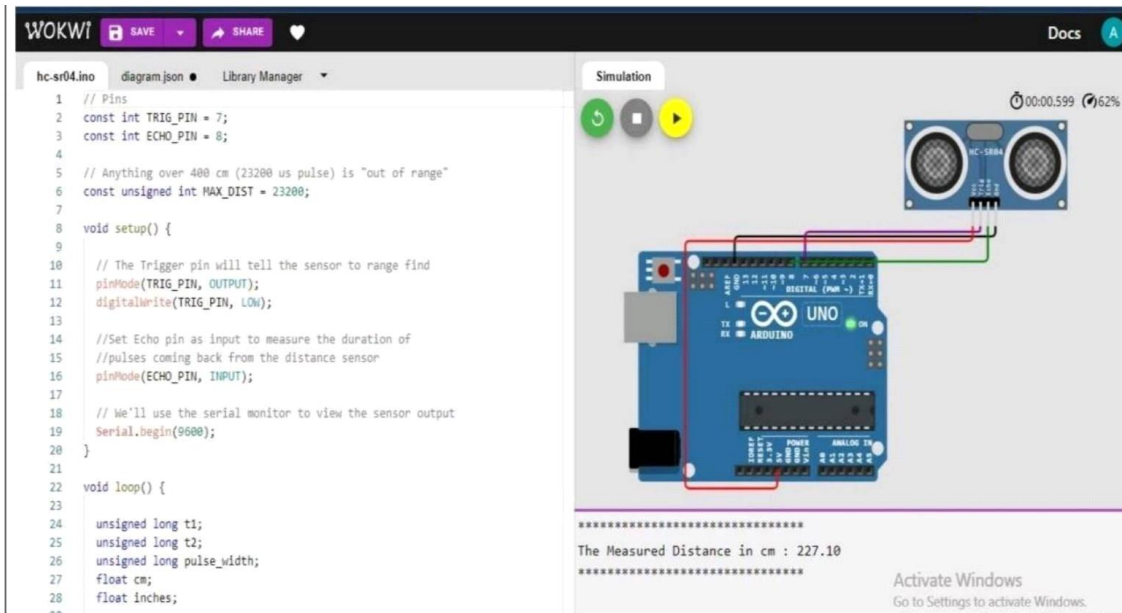
```

Output:

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



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



• Simulation and code execution

