

ASSIGNMENT 4

Assignment Date	15 October 2022
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Maximum Marks	2 Marks

Write Code and connections in wok Wi for ultrasonic sensor. Whatever distance is less than 100 cms send “Alert” to ibm cloud a 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);

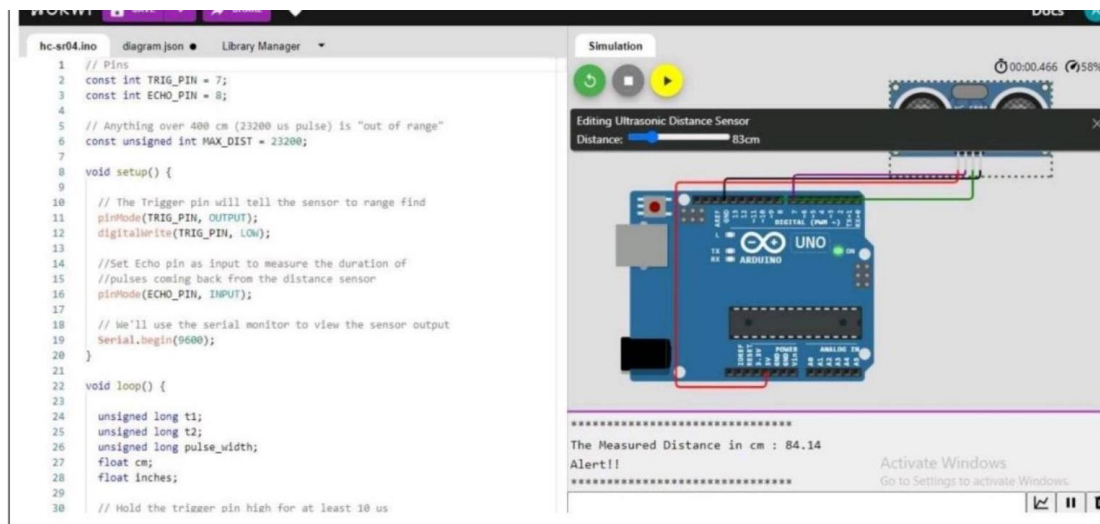
if (cm < 100) {
    //while(true){
        Serial.println("Alert!!");
    //}
}
Serial.print("*****");
}

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

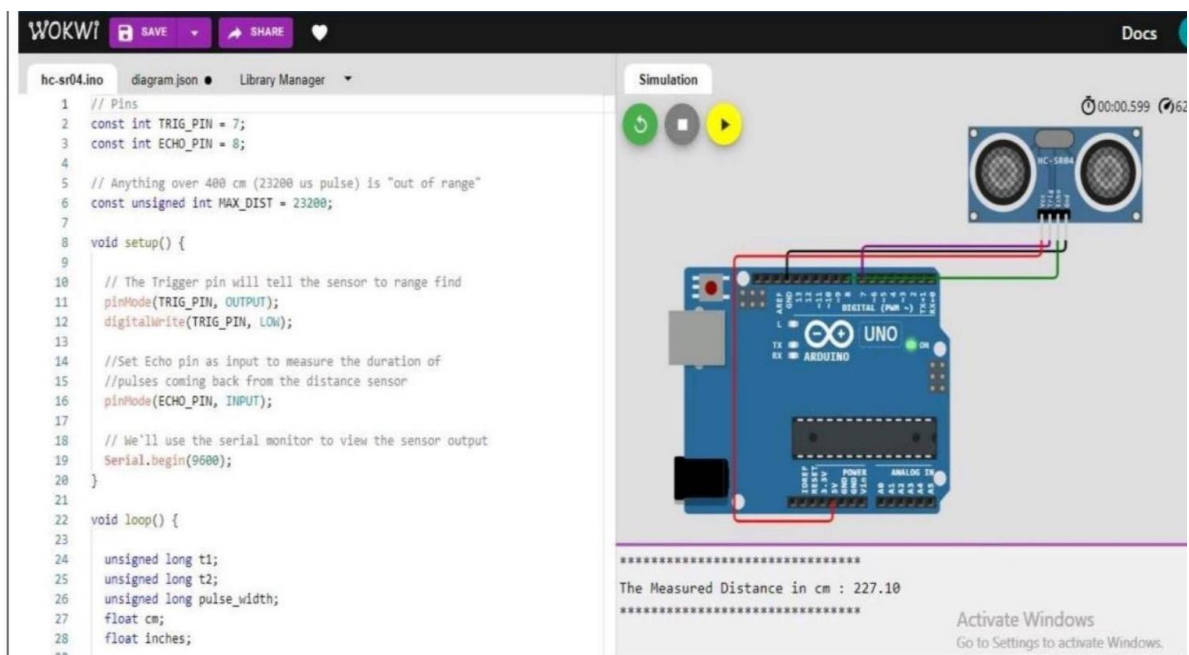
```

Output:

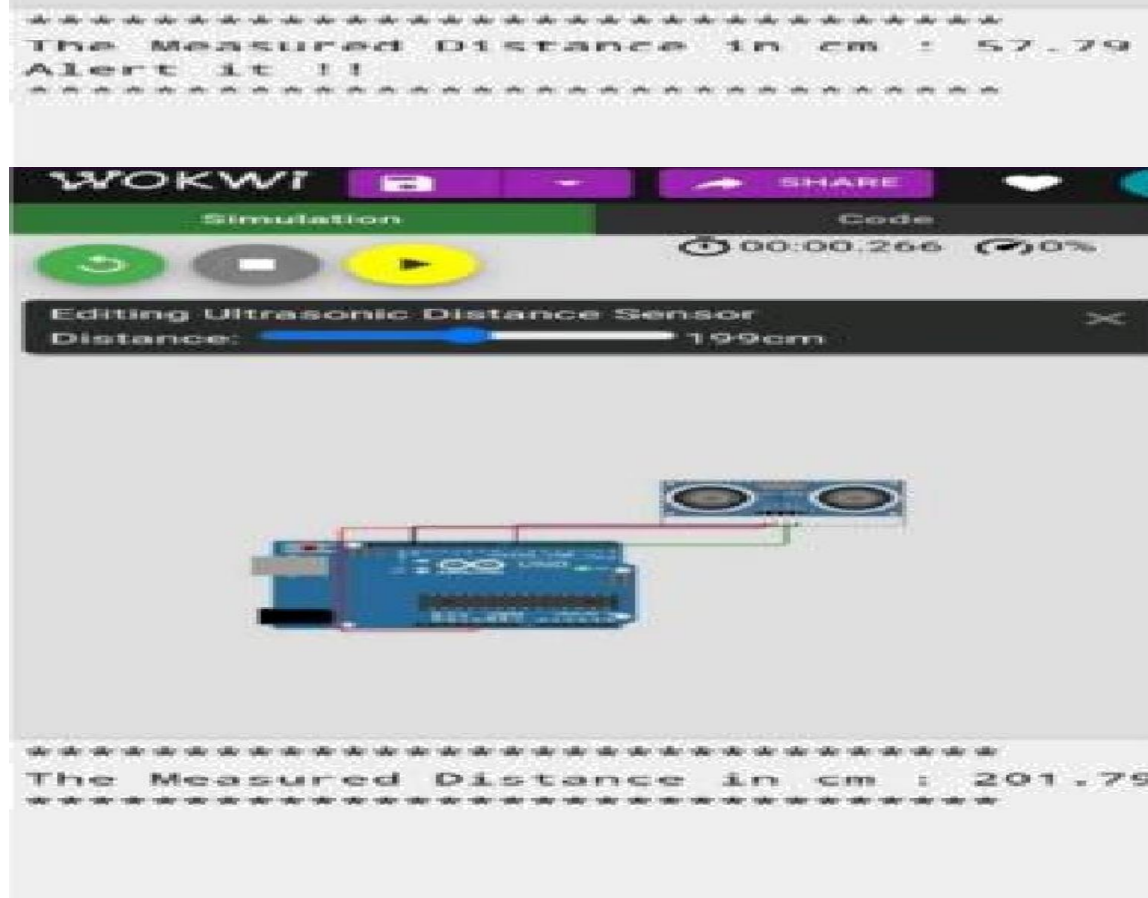
1.If the distance is less than 100 cms ,it alerts.



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



3.Simulation and code execution





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