

ASSIGNMENT 4:

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("*****");

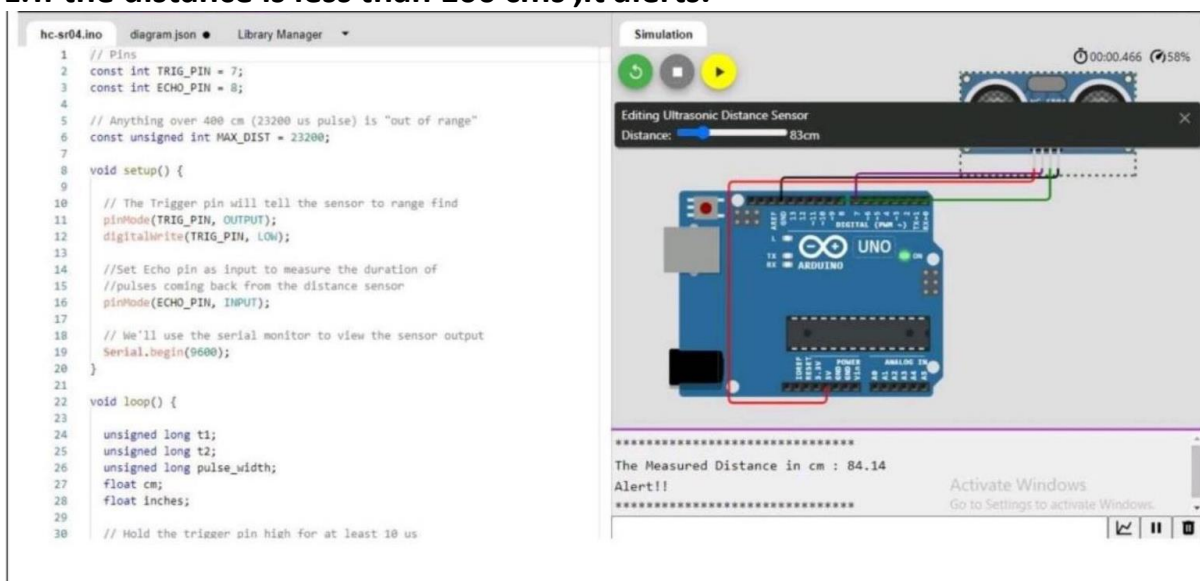
}

Delay(1000);
}

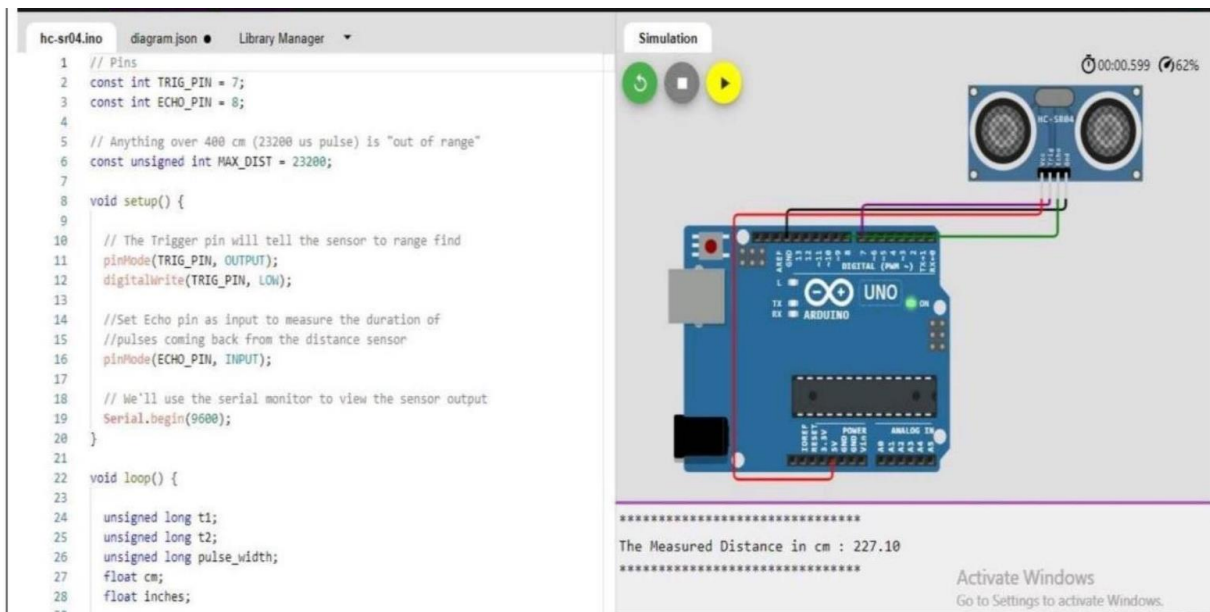
```

Output:

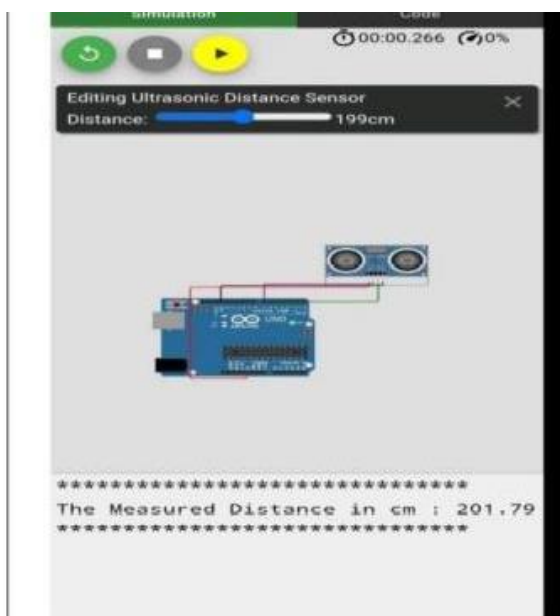
1. If the distance is less than 100 cms ,it alerts.



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



3.Simulation and code execution





```

1 // Pin
2 const int TRIG_PIN = 12;
3 const int ECHO_PIN = 11;
4
5 // Anything over 400 cm (13120 in inches) is "out of range"
6 const unsigned int MAX_DIST = 400;
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
14 // Set the pin as input to measure the duration of
15 // pulses coming back from the distance sensor
16 pinMode(ECHO_PIN, INPUT);
17
18 // We'll use the serial monitor to view the sensor output
19 Serial.begin(9600);
20
21 }
22
23 void loop() {
24
25   unsigned long t1;
26   unsigned long t2;
27   unsigned long pulse_width;
28   float cm;
29   float inches;
30
31 // Hold the trigger pin high for at least 10 us
32 digitalWrite(TRIG_PIN, HIGH);
33 delayMicroseconds(10);
34 digitalWrite(TRIG_PIN, LOW);
35
36 // Wait for pulse on echo pin
37 while (digitalRead(ECHO_PIN) == 0 );
38
39 // Measure how long the echo pin was held high (pulse width)
40 // Note: the microcontroller will overflow after ~18 min
41 t1 = micros();
42 while ( digitalRead(ECHO_PIN) == 1);
43 t2 = micros();
44 pulse_width = t2 - t1;
45
46 // Calculate distance in centimeters and inches. The constants
47 // are found in the datasheet, and calculated from the assumed speed
48 cm = pulse_width / 58.0;
49 inches = pulse_width / 148.0;
50
51 // Print our results
52 if ( pulse_width < MAX_DIST ) {
53   Serial.println("Not out of range");
54 } else {
55   Serial.println("*****");
56   Serial.println("The Measured Distance is cm : ");
57   Serial.println(cm);
58
59   if (true) {
60     Serial.println("Alert at 17");
61     // }
62   }
63   Serial.println("*****");
64 }
65
66 // Wait at least 100ms before next measurement
67 delay(100);
68 }

```