

```
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("*****");

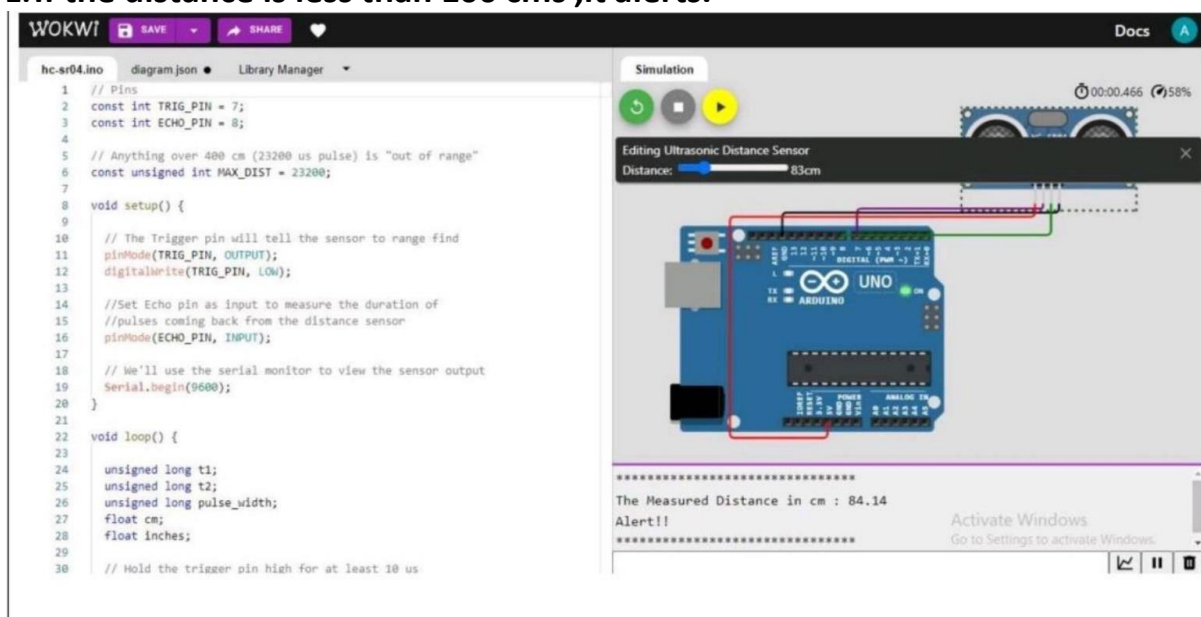
}

Delay(1000);
}

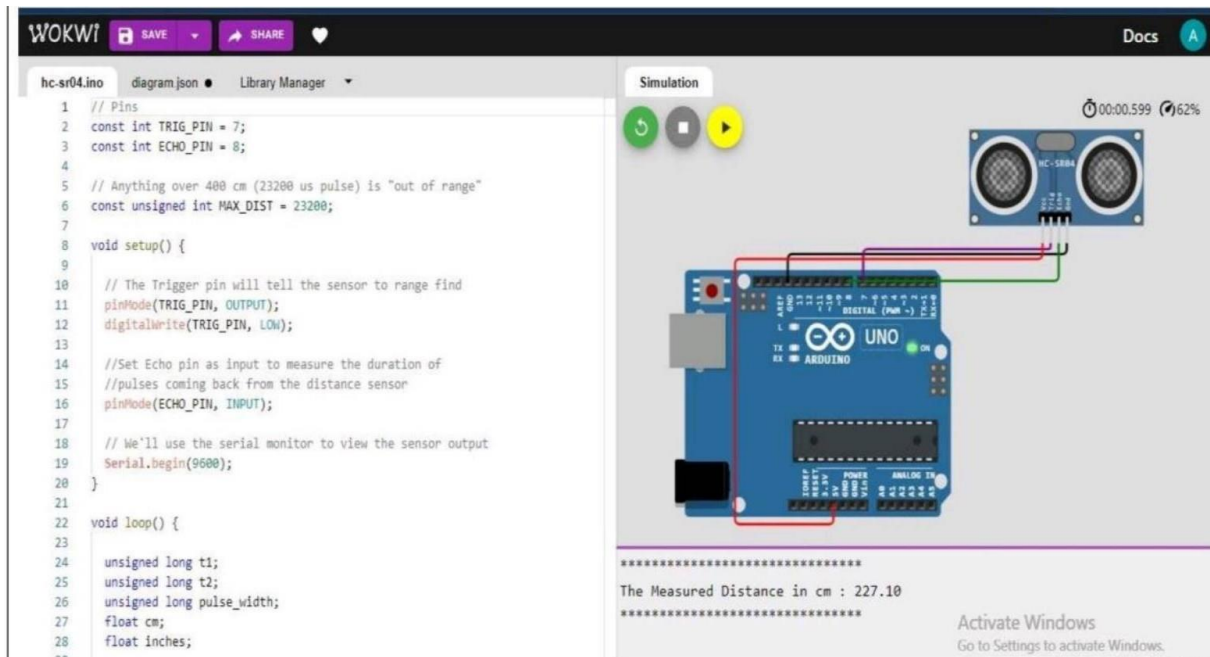
```

## 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



The screenshot shows the Wokwi IDE interface. On the left, the code for `hc-sr04.ino` is displayed. The code sets up an Arduino Uno with an HC-SR04 ultrasonic sensor. The `setup()` function configures the trigger pin as an output and the echo pin as an input. The `loop()` function measures the distance and prints it to the serial monitor. The simulation on the right shows the Arduino Uno connected to the HC-SR04 sensor. The serial monitor output shows: "\*\*\*\*\* The Measured Distance in cm : 227.10 \*\*\*\*\*".

```
1 // Pins
2 const int TRIG_PIN = 7;
3 const int ECHO_PIN = 8;
4
5 // Anything over 400 cm (23200 us pulse) is "out of range"
6 const unsigned int MAX_DIST = 23200;
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 Echo 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 void loop() {
23
24 unsigned long t1;
25 unsigned long t2;
26 unsigned long pulse_width;
27 float cm;
28 float inches;
29
30 }
```

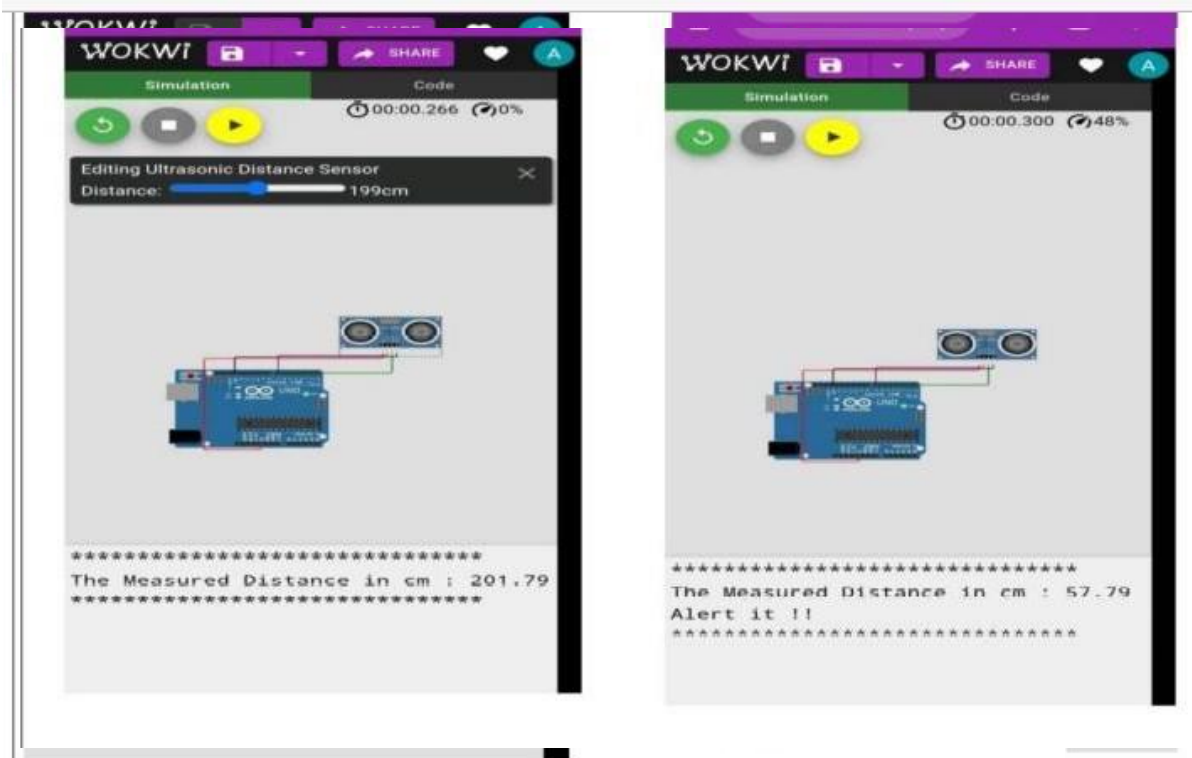
Simulation

00:00.599 62%

\*\*\*\*\*  
The Measured Distance in cm : 227.10  
\*\*\*\*\*

Activate Windows  
Go to Settings to activate Windows.

3.Simulation and code execution



The two screenshots show the Wokwi IDE simulation at different points in time. The left screenshot shows a distance of 199cm and a measurement of 201.79cm. The right screenshot shows a distance of 57.79cm and an alert message "Alert it !!".

Simulation

00:00.266 0%

Editing Ultrasonic Distance Sensor  
Distance: 199cm

\*\*\*\*\*  
The Measured Distance in cm : 201.79  
\*\*\*\*\*

Simulation

00:00.300 48%

\*\*\*\*\*  
The Measured Distance in cm : 57.79  
Alert it !!  
\*\*\*\*\*