**ASSIGNMENT – 4**

| | |
|---|---|
| Date | 24 November 2022 |
| Team ID | PNT2022TMID17466 |
| Project Name | Smart Farmer-IoT Enabled Smart Farming Application |
| Marks | 2 Marks |

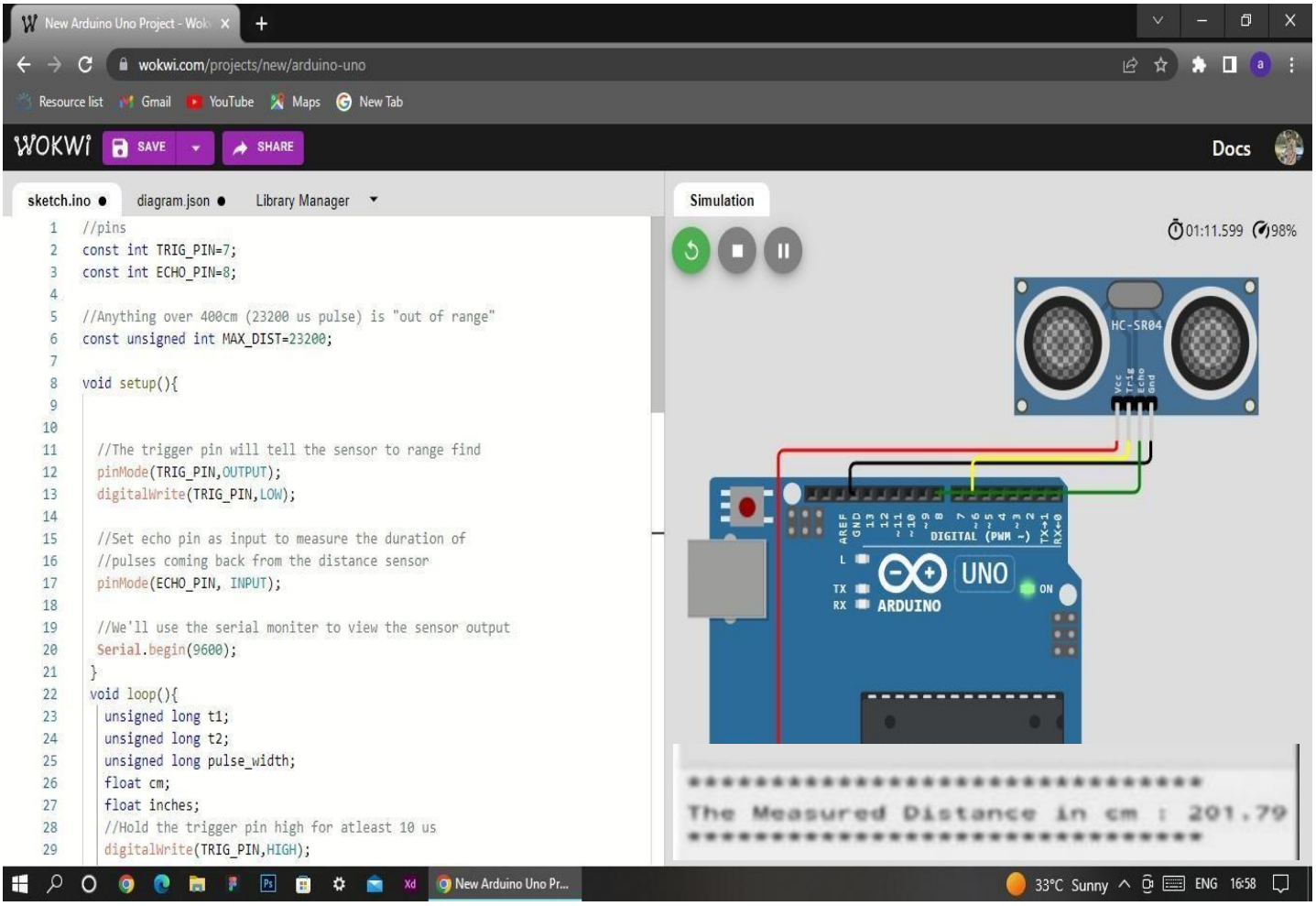
**Solution:**

```
 //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:


New Arduino Uno Project - Wok
wokwi.com/projects/new/arduino-uno
Resource list
Gmail
YouTube
Maps
New Tab
WOKWI
SAVE
SHARE
Docs
sketch.ino
diagram.json
Library Manager
1 //pins
2 const int TRIG_PIN=7;
3 const int ECHO_PIN=8;
4
5 //Anything over 400cm (23200 us pulse) is "out of range"
6 const unsigned int MAX_DIST=23200;
7
8 void setup(){
9
10
11 //The trigger pin will tell the sensor to range find
12 pinMode(TRIG_PIN,OUTPUT);
13 digitalWrite(TRIG_PIN,LOW);
14
15 //Set echo pin as input to measure the duration of
16 //pulses coming back from the distance sensor
17 pinMode(ECHO_PIN, INPUT);
18
19 //We'll use the serial moniter to view the sensor output
20 Serial.begin(9600);
21 }
22 void loop(){
23 unsigned long t1;
24 unsigned long t2;
25 unsigned long pulse_width;
26 float cm;
27 float inches;
28 //Hold the trigger pin high for atleast 10 us
29 digitalWrite(TRIG_PIN,HIGH);
Simulation
01:11.599
98%
HC-SR04
Vcc
Trig
Echo
Gnd
DIGITAL (PWM ~)
UNO
ARDUINO
ON
TX
RX
The Measured Distance in cm : 201.79
New Arduino Uno Pr...
33°C Sunny
ENG
16:58