

Codes

```
#include <Wire.h>
#include <SseedOLED.h>
#include <DHT.h>
#include <SI114X.h>
#include <Arduino.h>

#define DHTPIN A1
#define DHTTYPE DHT11
SI114X SI1145 = SI114X();
DHT dht(DHTPIN, DHTTYPE);
int sensorPin = A0;
int sensorValue, vis, ir, uv;
int t, h;
void setup()
{
  Wire.begin();
  SseedOled.init(); // initialize SEEED OLED display
  pinMode(4, OUTPUT);
  Serial.begin(9600);
}

void loop()
{
  vis = SI1145.ReadVisible(); //Read out Humidity value from Sensor
  ir = SI1145.ReadIR(); //Read out Temperature value from Sensor
  uv = SI1145.ReadUV(); //Read out Humidity value from Sensor
  sensorValue = analogRead(sensorPin); //read out the moisture value from sensor
  sensorValue = map(sensorValue, 0, 500, 0, 100); //map the moisture value to
percentage
  h = dht.readHumidity(); //Read out Humidity value from Sensor
  t = dht.readTemperature(); //Read out Temperature value from Sensor

  Serial.print("V");
  Serial.println(vis);
  Serial.print("I");
  Serial.println(ir);
  Serial.print("U");
  Serial.println(uv);
  Serial.print("M");
  Serial.println(sensorValue);
```

```
Serial.print("T");  
Serial.println(t);  
Serial.print("H");  
Serial.println(h);
```

```
if (Serial.read() == 'W')           //if processing sends a W water the plant  
{  
    digitalWrite(4, HIGH);          //the pump will turn on  
    SseeedOled.setPageMode(); // Set addressing mode to Page Mode  
    SseeedOled.clearDisplay();  
    SseeedOled.setTextXY(2, 0);  
    SseeedOled.putString("Watering in");  
    SseeedOled.setTextXY(3, 0);  
    SseeedOled.putString("progress ...");  
    delay(9000);  
    digitalWrite(4, LOW);  
}  
else  
{  
    digitalWrite(4, LOW);  
}
```

```
const unsigned long fiveMinutes = 5 * 60 * 1000UL; // variable initialization for  
watering loop  
static unsigned long lastSampleTime = 0 - fiveMinutes; // initialize such that a reading is  
due the first time through loop()  
unsigned long now = millis();
```

```
if (now - lastSampleTime >= fiveMinutes) //check the moisture value every 5 minutes  
{  
    lastSampleTime += fiveMinutes;  
    if (sensorValue <= 65) //if the moisture value falls below a certain threshold  
    {  
        digitalWrite(4, HIGH); //the pump will turn on  
        SseeedOled.setPageMode(); // Set addressing mode to Page Mode  
        SseeedOled.clearDisplay();  
        SseeedOled.setTextXY(2, 0);  
        SseeedOled.putString("Watering in");  
        SseeedOled.setTextXY(3, 0);  
        SseeedOled.putString("progress ...");  
        delay(9000);  
        digitalWrite(4, LOW);  
    }  
    else
```

```

    {
        digitalWrite(4, LOW);
    }
}
oled();
}

```

void oled() //controls all the outputs for the oled screen

```

{
    SeeedOled.setPageMode(); // Set addressing mode to Page Mode
    SeeedOled.clearDisplay();
    SeeedOled.setTextXY(2, 0);
    SeeedOled.putString("MoistureValue:");
    SeeedOled.setTextXY(4, 0);
    SeeedOled.putNumber(sensorValue); //Read out Moisture value from Sensor and Show
it on the Screen
    SeeedOled.setTextXY(4, 2);
    SeeedOled.putString("%");
    delay(3000);
    SeeedOled.setPageMode(); // Set addressing mode to Page Mode
    SeeedOled.clearDisplay();
    SeeedOled.setTextXY(0, 0);
    SeeedOled.putString("Temperature:");
    SeeedOled.setTextXY(2, 0);
    SeeedOled.putNumber(t);
    SeeedOled.setTextXY(2, 2);
    SeeedOled.putString("°C");
    SeeedOled.setTextXY(4, 0);
    SeeedOled.putString("Humidity:");
    SeeedOled.setTextXY(6, 0);
    SeeedOled.putNumber(h);
    SeeedOled.setTextXY(6, 2);
    SeeedOled.putString("%");
    delay(3000);
    SeeedOled.setPageMode(); // Set addressing mode to Page Mode
    SeeedOled.clearDisplay();
    SeeedOled.setTextXY(0, 0);
    SeeedOled.putString("Visibility:");
    SeeedOled.setTextXY(1, 0);
    SeeedOled.putNumber(vis);
    SeeedOled.setTextXY(1, 2);
    SeeedOled.setTextXY(2, 0);
    SeeedOled.putString("Infrared:");
    SeeedOled.setTextXY(3, 0);
}

```

```
SeeedOled.putNumber(ir);  
SeeedOled.setTextXY(4, 0);  
SeeedOled.putString("UV-Value:");  
SeeedOled.setTextXY(5, 0);  
SeeedOled.putNumber(vis);  
delay(3000);  
}
```