#include <Wire.h>

#include <Adafruit\_GFX.h>

#include <Adafruit\_SSD1306.h>

#define SCREEN\_WIDTH 128 // OLED display width, in pixels

#define SCREEN\_HEIGHT 64 // OLED display height, in pixels

// Declaration for an SSD1306 display connected to I2C (SDA, SCL pins)

Adafruit\_SSD1306 display(SCREEN\_WIDTH, SCREEN\_HEIGHT, &Wire, -1);

// Define pin for relay

con

st int relayPin = 7; // Change to your relay pin

// Define pin for soil moisture sensor

const int soilMoisturePin = A0;

// Define threshold for watering

const int moistureThreshold = 700; // Change the threshold

void setup() {

// Initialize relay pin

pinMode(relayPin, OUTPUT);

// Initialize serial communication

Serial.begin(9600);

// Initialize the OLED display

if (!display.begin(SSD1306\_SWITCHCAPVCC, 0x3C)) { // Address 0x3C for 128x64

Serial.println(F("SSD1306 allocation failed"));

for (;;); // Don't proceed, loop forever

}

display.display();

delay(2000); // Pause for 2 seconds

// Clear the buffer

display.clearDisplay();

display.setTextSize(1);

display.setTextColor(SSD1306\_WHITE);

display.setCursor(0, 0);

display.print("SMART PLANT WATERING SYSTEM");

display.display();

}

void loop() {

// Read soil moisture level

int moistureLevel = analogRead(soilMoisturePin);

// Clear previous moisture level display

display.fillRect(0, 16, SCREEN\_WIDTH, 16, SSD1306\_BLACK);

display.setCursor(0, 16);

display.print("Dryness Level: ");

display.print(moistureLevel);

// Print moisture level to Serial Monitor

Serial.print("Dryness Level: ");

Serial.println(moistureLevel);

// Check if soil moisture is above threshold

if (moistureLevel < moistureThreshold) {

// Turn on motor

digitalWrite(relayPin, HIGH);

// Display status on OLED

display.fillRect(0, 32, SCREEN\_WIDTH, 16, SSD1306\_BLACK);

display.setCursor(0, 32);

display.print("Motor off & No Watering...");

// Print to Serial Monitor

Serial.println("Motor off & No Watering...");

} else {

// Turn off motor

digitalWrite(relayPin, LOW);

// Display status on OLED

display.fillRect(0, 32, SCREEN\_WIDTH, 16, SSD1306\_BLACK);

display.setCursor(0, 32);

display.print("Motor on & Watering");

// Print to Serial Monitor

Serial.println("Motor on & Watering");

}

// Update the display

display.display();

delay(1000); // Delay for stability

}