

```

void setup() {
  pinMode(pumpPin, OUTPUT);
  pinMode(redLed, OUTPUT);
  pinMode(yellowLed, OUTPUT);
  pinMode(greenLed, OUTPUT);
  Serial.begin(9600); // For debugging and monitoring sensor values
}

void loop() {
  int sensorValue = analogRead(sensorPin); // Read the soil moisture sensor
value
  Serial.print("Soil Moisture Reading: ");
  Serial.println(sensorValue); // Output the sensor value for debugging

  // Check soil conditions
  if (sensorValue > dryThreshold) { // Soil is dry
    Serial.println("Soil is DRY. Activating pump and RED LED.");
    digitalWrite(pumpPin, LOW); // Turn on the water pump
    digitalWrite(redLed, HIGH); // Turn on the red LED
    digitalWrite(yellowLed, LOW); // Turn off yellow LED
    digitalWrite(greenLed, LOW); // Turn off green LED
  } else if (sensorValue <= dryThreshold && sensorValue > moistThreshold) { //
Soil is approaching dryness
    Serial.println("Soil is MOIST. Turning on YELLOW LED.");
    digitalWrite(pumpPin, HIGH); // Turn off the water pump
    digitalWrite(redLed, LOW); // Turn off the red LED
    digitalWrite(yellowLed, HIGH); // Turn on yellow LED
    digitalWrite(greenLed, LOW); // Turn off green LED
  } else if (sensorValue <= moistThreshold) { // Soil is sufficiently moist
    Serial.println("Soil is WET. Turning on GREEN LED.");
    digitalWrite(pumpPin, HIGH); // Turn off the water pump
    digitalWrite(redLed, LOW); // Turn off the red LED
    digitalWrite(yellowLed, LOW); // Turn off yellow LED
    digitalWrite(greenLed, HIGH); // Turn on green LED
  } else {
    Serial.println("ERROR: Undefined sensor value range.");
  }

  delay(1000); // Delay for 1 second before taking the next reading
}

```