

Soil Moisture Sensor Arduino Project

Soil Moisture sensors are used to detect/sense the moisture in soil and used the sensed data to control the other devices.

For Example:- Soil Moisture Sensor is placed with a plant. When soil have some moisture the sensor collects the data that soil has xyz unit of moisture and if the soil is dry sensor detects that the soil has no moisture having abc unit of dryness. Assume that you connected a water_pump and it on when the soil have dryness . So, when the sensor detects the dryness than the water pump actuvate and water the plant.

So, here is Project Details Given Below:-

--Things You Need --

Soil Moisture Sensor

Arduino UNO

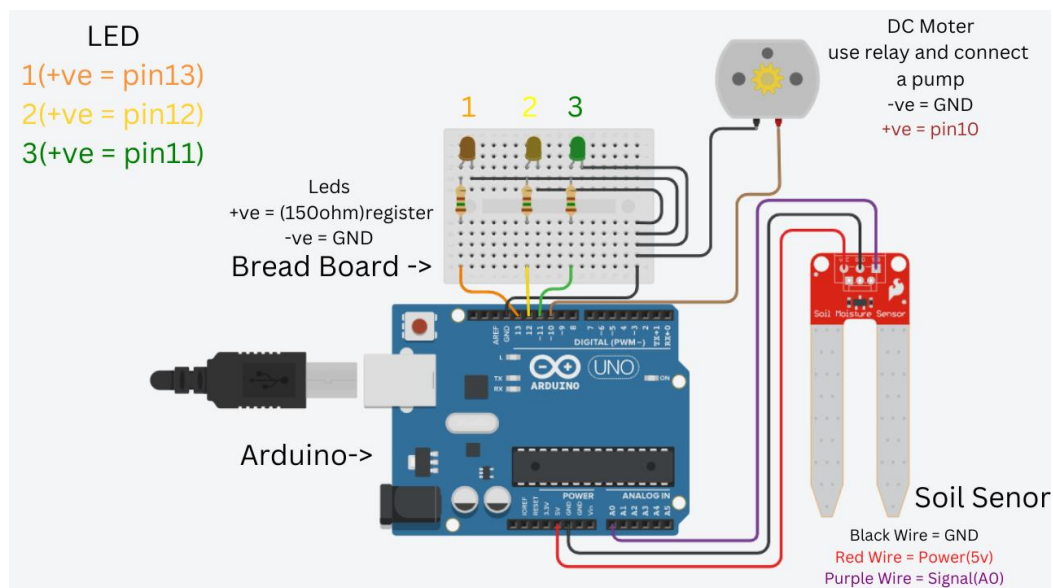
Some Leds/Mini DC Water pump(in this project I used a DC moter)

Bread Board

Jumper Wires

And some Programming Skills(C++/ C/ Etc.)

--Connection Diagram—



Soil Moisture Sensor:-

- Black Wire Connects with GND(ground) of Arduino.
- Red Wire Connects with (5V) of Arduino.
- Purple Wire Connects with A0(analog 0) of Arduino.

LEDs Connection:-

- Cathode(-ve Terminal) of each led connects with GND of Arduino.
- Connect 150ohm register with Anode(+ve) of each led.
- Connect register of 1st (orange led) with pin 13 of Arduino.
- Connect register of 2nd (yellow led) with pin 12 of Arduino.
- Connect register of 3rd (green led) with pin 11 of Arduino.
- Connect the Black Wire(-ve Terminal) of DC Moter with GND of Arduino.
- Connect the Brown Wire(+ve Terminal) of DC Moter with pin 10 of Arduino.

Note:- you can connect DC water pump same as we connet DC moter here.

--Time to Upload our code in Arduino—

I suggest you to read the code and try to understand how it works.

```
//This Code operates Three leds and 1 DC moter by sensing the
//data from soil moisture sensor.
#define soilSensor1 A0

#define greenLED3 11
#define yellowLED2 12
#define orangeLED1 13
#define moter 10

// int goodMoisture = 300;

void setup() {
  pinMode(greenLED3, OUTPUT);
  pinMode(yellowLED2, OUTPUT);
  pinMode(orangeLED1, OUTPUT);
  pinMode(moter, OUTPUT);

  Serial.begin(9600);
```

```

}

void loop() {
  int sensorValue1 = analogRead(soilSensor1);

  Serial.println("Sensor 1 = ");
  Serial.println(sensorValue1);

  if (sensorValue1 > 800 ){
    digitalWrite(greenLED3, HIGH);
    digitalWrite(yellowLED2, LOW);
    digitalWrite(orangeLED1, LOW);
    digitalWrite(moter, HIGH);
  }
  if (sensorValue1 > 300 && sensorValue1 < 800){
    digitalWrite(greenLED3, LOW);
    digitalWrite(yellowLED2, HIGH);
    digitalWrite(moter, LOW);
    digitalWrite(orangeLED1, LOW);
  }
  if(sensorValue1 <350){
    digitalWrite(greenLED3, LOW);
    digitalWrite(orangeLED1, HIGH);
    digitalWrite(yellowLED2, LOW);
    digitalWrite(moter, LOW);
  }

  delay(1000);
}

```

For Uploading the Code in Arduino you need to select board in Arduino IDE

Software follow the step to do so....

Open Arduino IDE software write/paste code than click on

Tools > Board > Arduino AVR Boards > Arduino UNO

Select Port :-

Tools > Port > Select the port in which Arduino is connected.

Now, Click on upload code and you are ready to go....