Soil Moisture

The soil moisture sensor measures soil moisture grace to the changes in electrical conductivity of the earth (soil resistance increases with drought).

The electrical resistance is measured between the two electrodes of the sensor. A comparator activates a digital output when a adjustable threshold is exceeded.

How does it work?

The soil moisture sensor consists of two probes that measure the volume of water in the soil. The two probes allow the electric current to pass through the soil and according to its resistance, measures the moisture level of the soil. When there is more water, the soil conducts more electricity, which means that the resistance will be less. So the moisture level will be higher. Dry soil reduces conductivity. So, when there is less water, the soil conducts less electricity, which means it has more resistance.

So the moisture level will be lower in the soil.

Teacher's Signature .....

Interfacing Soil Moisture Sensor and Arduino

Waveshare Soil Moisture Sensor

It has a detection length of 38 mm and a working voltage of 2V-5V. It has a fork like design, which makes it easy to insert into the soil. The analog output voltage boosts along with the soil moisture level increases.

Hardware Requirement

Soil Moisture Sensor
Arduino Uno
Jumper wires
LED

Using this sensor is quite easy. You connect the AO pin to any analog pin. If your sensor has a DO pin, you can connect it to any digital pin

If soil moisture is less, then a LED should glow.

Code

Aim. Write a program for designing a system using arduino to monitor soil moisture of a plant on an IDE.

```
int sensorPin = A0;
int sensorValue;
int limit = 300;
void setup () {
  Serial.begin (9600);
  pinMode (13, OUTPUT);
}
void loop () {
  sensorValue = analogRead (sensorPin);
  Serial.println ("Analog Value : ");
  Serial.println (sensorValue);
  if (sensorValue < limit) {
  digitalWrite (13, HIGH);
  }
  else {
  digitalWrite (13, LOW);
  }
  delay (1000);
}
```