PROJECT 5

Soil Moisture Sensor

INTRODUCTION:-

1. This sensor measures the volumetric content of water inside the soil and gives us the moisture level as output. The sensor is equipped with both analog and digital output.

2. Understanding of soil Moisture Sensor

The soil moisture sensor consists of two probes which are used to measure the volumetric content of water. The two probes allow the current to pass through the soil and then it gets the resistance value to measure the moisture value.

When there is more water, the soil will conduct more electricity which means that there will be less resistance. Therefore, the moisture level will be higher. Dry soil conducts electricity poorly, so when there will be less water, then the soil will conduct less electricity which means that there will be more resistance. Therefore, the moisture level will be lower.

COMPONENTS:-

1. WEMOS
2. Soil Moisture Sensor

APPLICATION:-

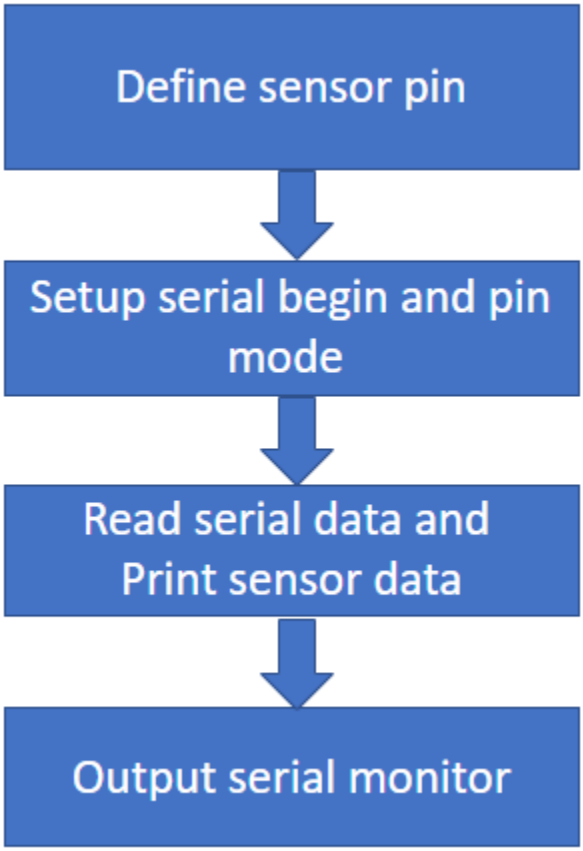
Soil moisture sensors are used in numerous research applications, e.g. in agricultural science and horticulture including irrigation planning, climate research, or environmental science including solute transport studies and as auxiliary sensors for soil respiration measurements.

OBJECTIVES:-

Soil moisture sensors measure the water content in the soil and can be used to estimate the amount of stored water in the soil

horizon. Soil moisture sensors do not measure water in the soil directly. Instead, they measure changes in some other soil property that is related to water content in a predictable way.

FLOW CHART :-



PROGRAMMING:-

```
int sensor_pin = 36;
int value ;
void setup()
{
  Serial.begin(9600);
  Serial.println("Reading");
  delay(2000);
}

void loop()
{

  value= analogRead(sensor_pin);
  value = map(value,550,0,0,100);
  Serial.print("Moisture : ");
  Serial.print(value);
  Serial.println("%");

  delay(1000);
}
```

HARDWARE CONNECTION:-

1. Connect Soil moisture Pin to Wemos
2. Connect pin GND to GND
3. Connect Pin 5V to 5V
4. Connect pin D0 to D1(pin 36)
5.

CURCUIT DIAGRAM :-