

A presentation on Sensors

Topic: Rain Sensor and soil moisture Sensor

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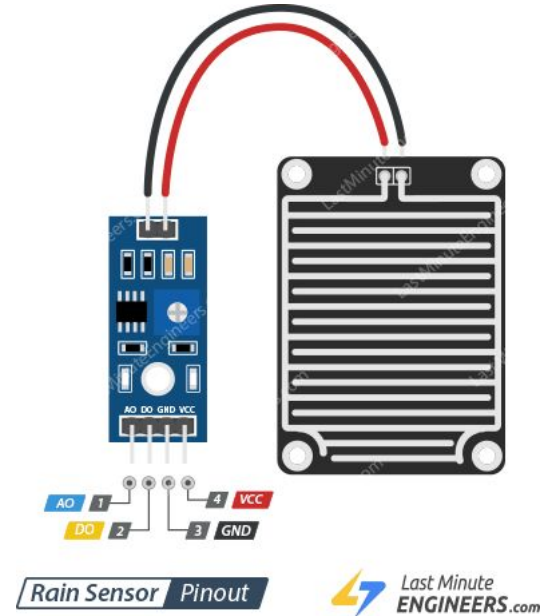
Overview

- ❖ Introduction
- ❖ Working Principle
- ❖ Pinout Configuration
- ❖ Applications
- ❖ Advantages
- ❖ Conclusion



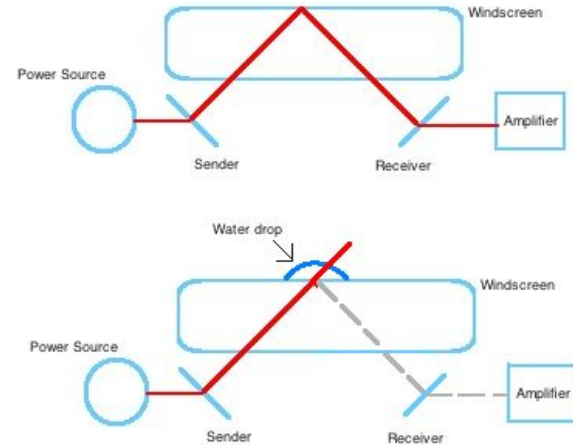
Introduction

- ★ Rain Sensor is the Magic Behind Automated Weather Detection.
- ★ It Is also Known as Rain Switch.
- ★ A rain sensor or rain switch is a switching device activated by rainfall.



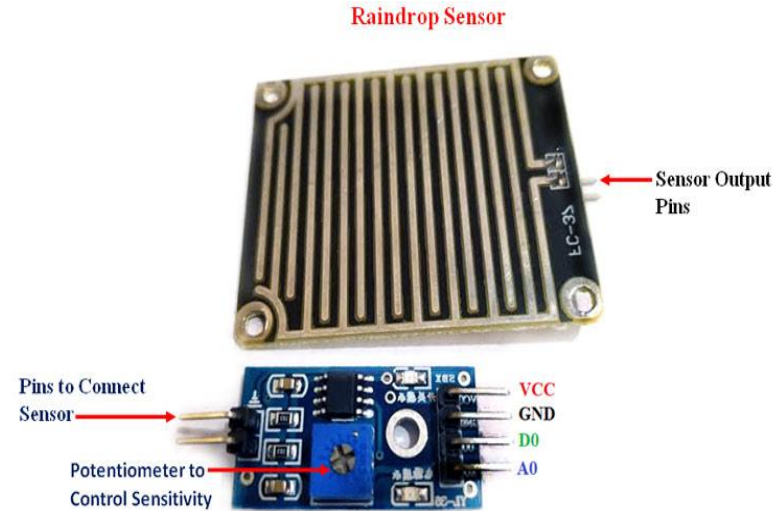
Working Principle

- ❑ Rain sensors with pinout detect raindrops through conductive pins
- ❑ Conductive path between pins creates electrical signal
- ❑ Electrical signal activates devices like motors or relays
- ❑ Adjustable sensitivity and delay timers are available in some sensors.



Pinout Configuration

Pin	Description
Vcc	Used For Power Supply
GND	Used for Grounding
D0	Digital pin to get digital output
A0	Analog pin to get analog output



Applications

- Automotive
- Home automation
- Industrial
- windshield wipers in cars



Automotive to industrial to home automation



Automatically close windows

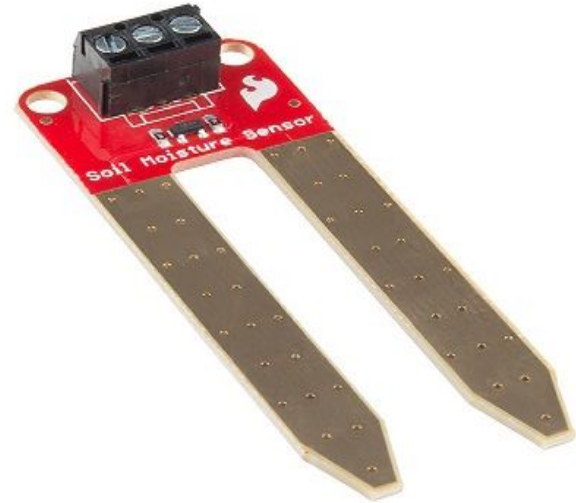
Advantages

- ❑ Customizable sensitivity and delay settings allow for precise control.
- ❑ Standardized pinout configuration makes integration easier.
- ❑ Multiple conductive pins increase reliability and accuracy.



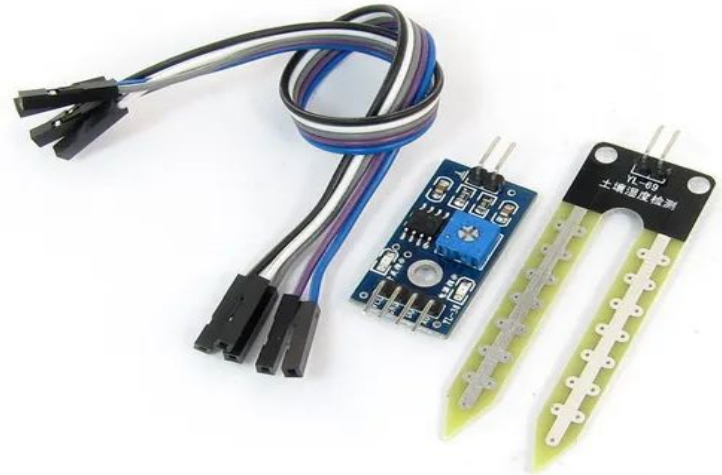
SOIL MOISTURE SENSOR

- ★ Used to measure the amount the water in soil
- ★ Measure the volumetric water content not directly with the help of some other rules of soil like :
 - * Dielectric constant
 - * electrical resistance
 - * interaction with neutrons



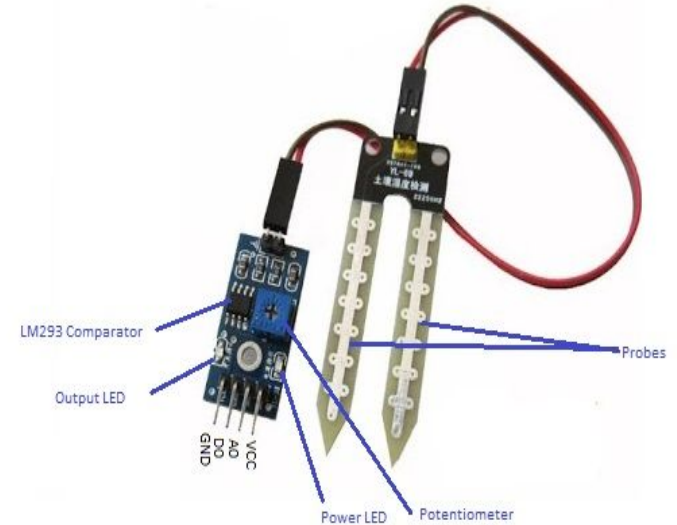
Types of Soil Moisture Sensor

- Tensiometers
- Gypsum blocks
- Capacitance sensors



Working principle of Soil Moisture Sensor

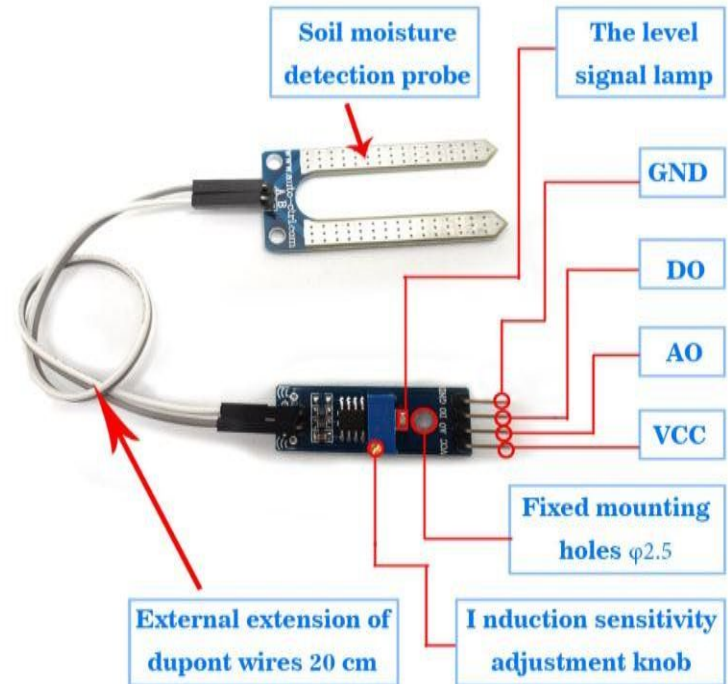
- Changes in the electrical properties of the soil
- Tensiometer sensor measures the negative pressure that develops in the soil as water is drawn
- A capacitance sensor measures the electrical capacitance between two metallic probes inserted into the soil



Pinout of Soil Moisture Sensor

PIN	Description
Vcc	Used for power supply, typically with +5V
A0	Analog Out Pin for Analog Output
D0	Digital Out Pin for Digital Output.
GND	Power Supply Ground

Sensor Probe	
+	Voltage Supply
-	-ve pin



Some Applications

- ❖ Agriculture
- ❖ Landscape Irrigation
- ❖ Research
- ❖ Simple Sensor for Gardener



Thank You