MPCA MINI PROJECT

Project Title :

Automatic Plant Watering System Using Arduino UNO and Soil Sensor

Introduction :

Plants require adequate moisture for growth, but manual watering can be inefficient. An automatic plant watering system helps maintain optimal soil moisture by detecting dryness and activating a water pump.

Basic Operation :

This system uses a soil moisture sensor to measure soil dryness. If the moisture level falls below a set threshold, the Arduino UNO activates a water pump to irrigate the plant until the desired moisture level is restored.

Working Principle

1. The soil moisture sensor continuously checks the soil's moisture content.
2. The sensor sends data to the Arduino UNO.
3. If the moisture level is below the predefined threshold, the Arduino UNO triggers a relay module that turns on the water pump.
4. The pump irrigates the soil until the moisture reaches the required level.
5. Once the desired moisture level is detected, the pump is turned off, conserving water.

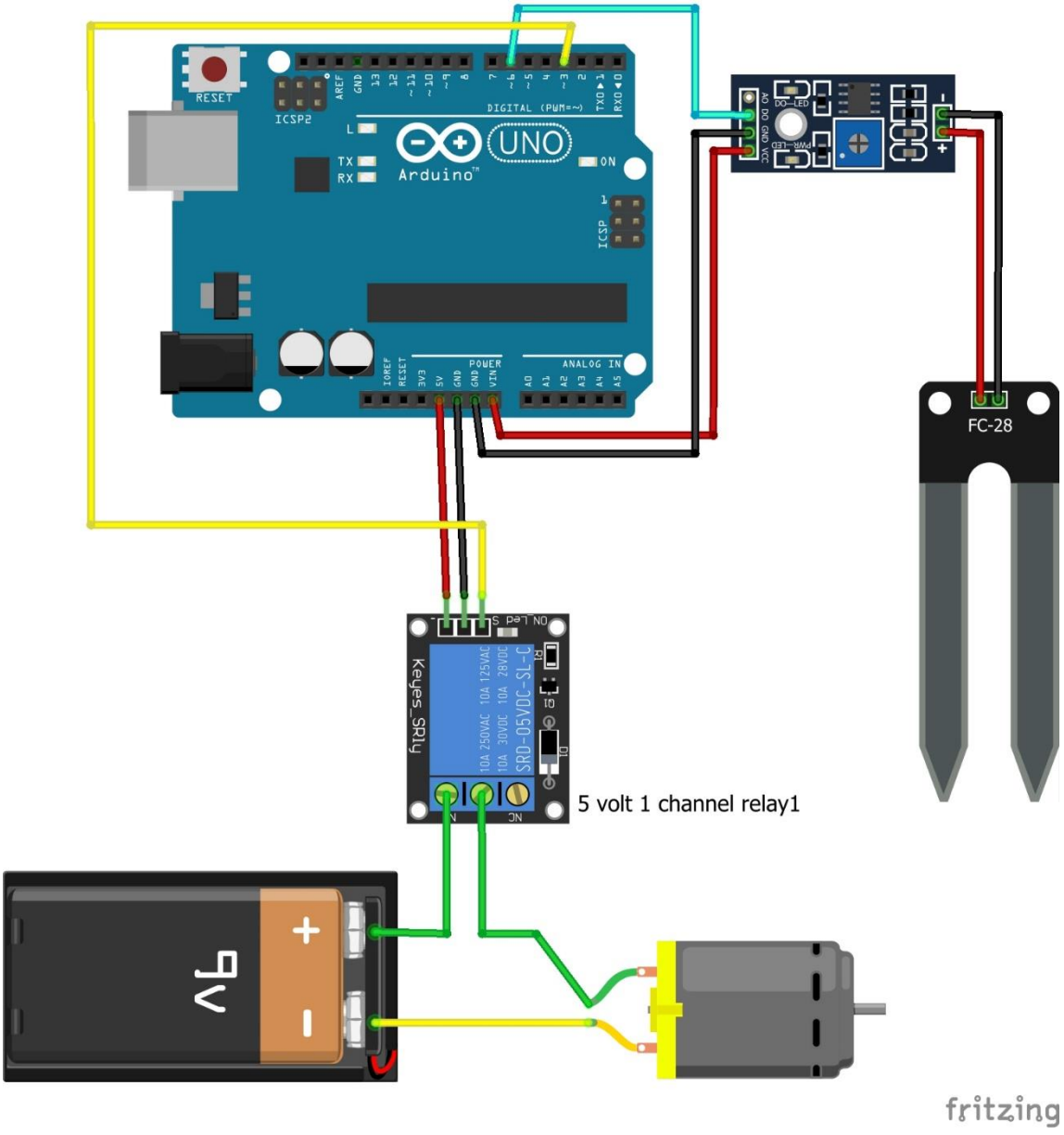
Materials Required

- Arduino UNO
- Soil moisture sensor
- Water pump (5V or 12V based on requirement)
- Relay module
- Jumper wires
- 9V or 12V power supply

Uses and Applications

- Home gardens and indoor plants
- Agricultural automation
- Greenhouse irrigation
- Reducing water wastage and labor effort

CIRCUIT DIAGRAM :



#CODE[JAVA]:

```
int water; //random variable
void setup() {
  pinMode(3,OUTPUT); //output pin for relay board, this will sent
signal to the relay
  pinMode(6,INPUT); //input pin coming from soil sensor
}

void loop() {
  water = digitalRead(6);  // reading the coming signal from the soil
sensor
  if(water == HIGH) // if water level is full then cut the relay
  {
  digitalWrite(3,LOW); // low is to cut the relay
  }
  else
  {
  digitalWrite(3,HIGH); //high to continue proving signal and water
supply
  }
  delay(400);
}
```