CSE 316
Microprocessors, Microcontrollers, and Embedded Systems Sessional

Automated Watering System for Gardening

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Project Overview

We have implemented an automated watering system for plant based on soil moisture. In this project,we have constantly measured the soil moisture through a sensor.When the value of moisture goes below a certain threshold value, we have automatically turned on the dc motor.After the moisture level is suitable enough for the plant,the motor is turned off.

Components Used

1. ATMEGA32

2. USBASP

3. MOTOR DRIVER (L298N)

4. 16x2 LCD DISPLAY

5. GROVE SOIL MOISTURE SENSOR

6. 12V DC Motor

7. 12V Battery
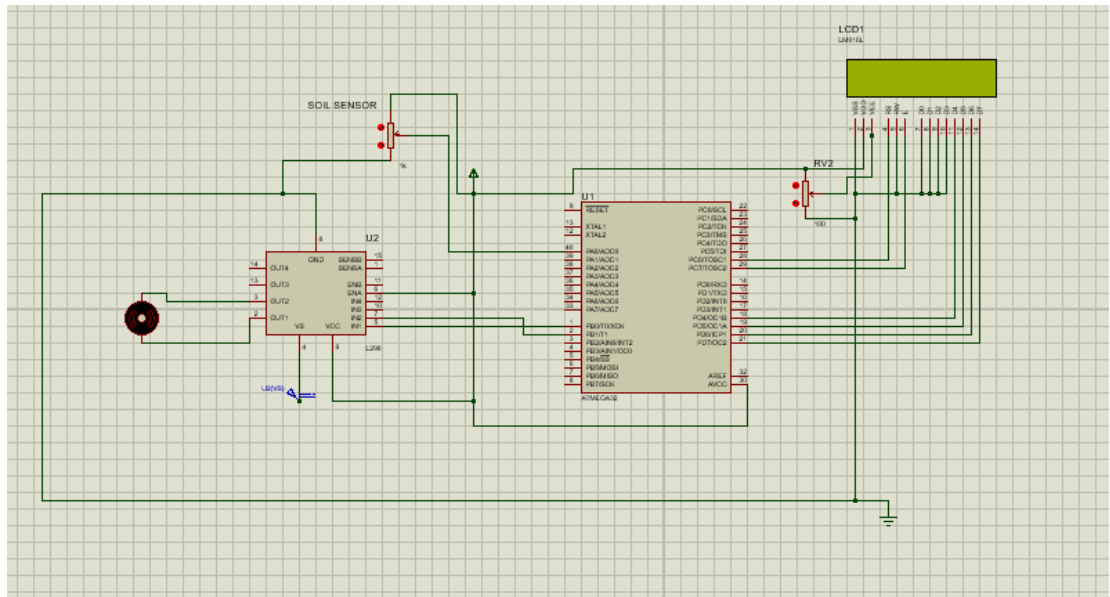
8. WIRES

9. RESISTORS

Circuit Diagram

Figure 1: Caption

Sensors Used

Groove Soil Moisture Sensor

Soil moisture sensors measure the volumetric water content in soil. Basically, the sensor provides a voltage value depending on the moisture percentage of the soil in which the sensor is kept.
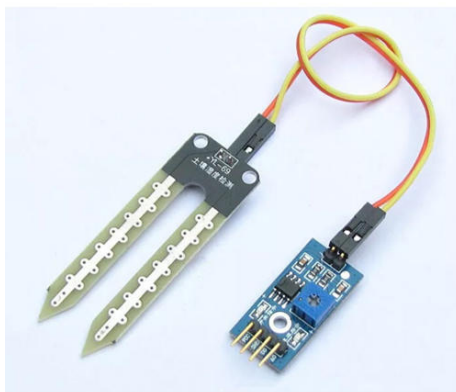

Figure 2: Groove Soil Moisture Sensor

We have taken the analogue output of soil moisture sensor as the input to the atmega32.

L298N Motor Driver

Motor driver is used to drive the motor to water the plant when the output of the soil moisture sensor is below a threshold value. Otherwise, it does not turn the motor on.
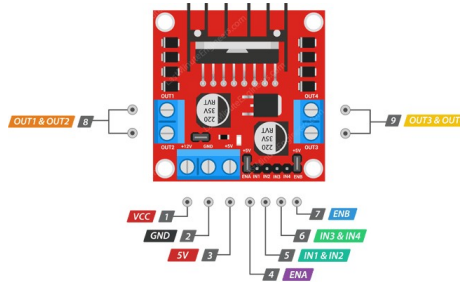

Figure 3: L298N Motor Driver

We have used external 12V DC battery to drive the motor through this motor driver.

Difficulties faced

- We faced issues to upload the code to atmega32 through USBASP using extremeBurner. Later, we managed to solve the issue by reconnecting atmega32 to USBASP and using AVRPAL.

- We faced difficulties while driving the motor using motor driver as this component requires higher voltage than other components.We needed 5V for motor driver and 12V for driving the motor.