

1. Title Page

Project Title: SMART PLANT WATERING SYSTEM USING INTEGRATED CHIP
Automatic Plant Watering System using Soil Moisture and Water Level Sensor

Submitted by:

NAME : [K.Ravikumar(25BEC0414),

S.Sreenath(25BEC0409)

, D.Ramachandran(25BEC0415)]

Department of Electronics and Communication Engineering
[Vellore institute of technology,vellore]

Under the Guidance of:
[Jaffino G]

2. Abstract

This project presents an **Automatic Plant Watering System** designed to reduce human effort in irrigation by using sensors to monitor soil moisture and water availability. The system automatically activates a water pump when the soil becomes dry and turns it off when sufficient moisture is detected. Additionally, a water level sensor ensures that the motor operates only when water is available in the tank, thus preventing dry-run conditions. This setup helps in conserving water and maintaining healthy plant growth with minimal manual intervention.

3. Introduction

In today's busy lifestyle, many people find it difficult to regularly water their plants. This problem can be solved by automation. The proposed system uses a **soil moisture sensor** to detect the moisture content of the soil and a **water level sensor** to check the water availability in the tank. When the soil becomes dry and water is present in the tank, the system automatically turns on the **DC motor pump** to water the plant. Once the required moisture level is reached, the motor turns off. This project demonstrates the application of embedded systems and sensors in smart irrigation technology.

4. Objective

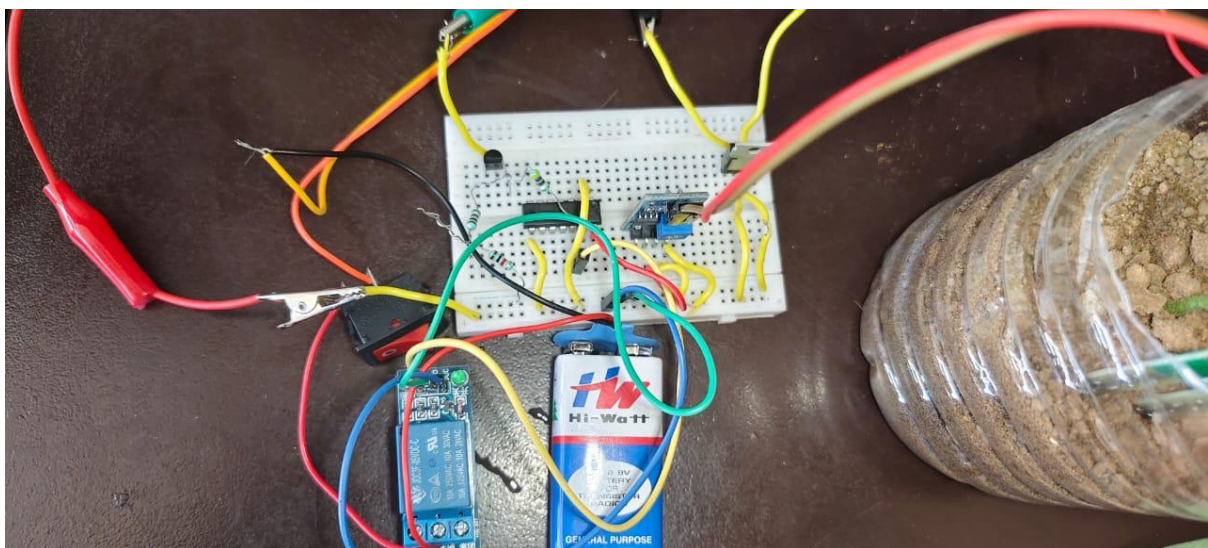
- To design a system that automatically waters plants when soil moisture is low.
 - To ensure the motor operates only when water is available in the tank.
 - To reduce manual effort and water wastage.
 - To promote smart irrigation methods using sensor technology.
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5. Results

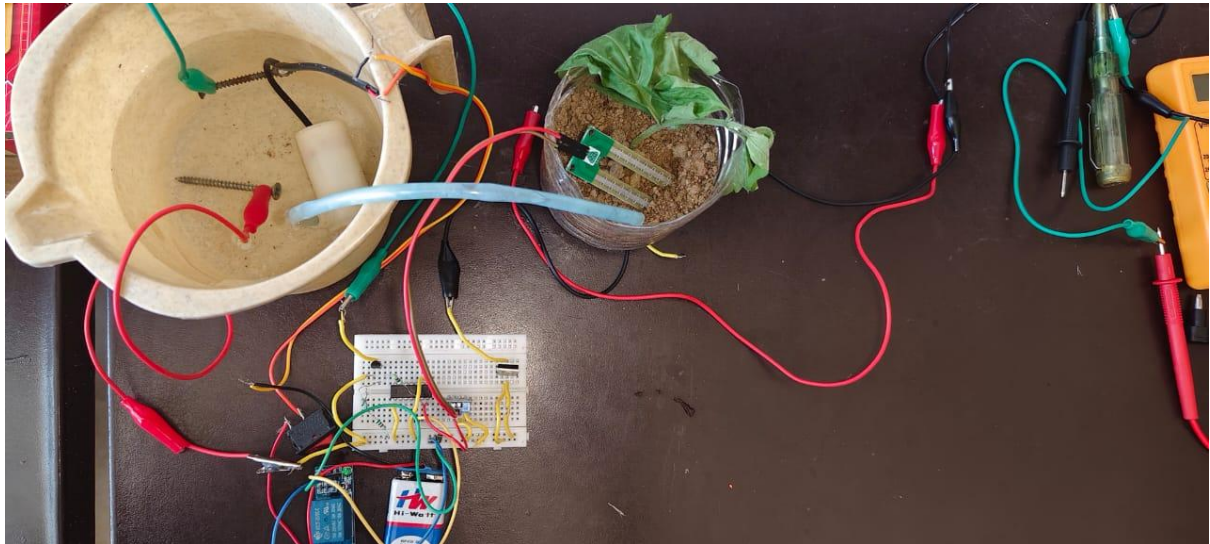
The prototype was successfully implemented and tested.

- When the **soil was dry**, the **motor automatically started**, and water was pumped to the plant.
 - When the **soil became wet**, the **motor stopped automatically**.
 - When the **water tank was empty**, the system prevented the motor from running.
- This confirms that the system effectively combines both soil moisture and water level sensors to provide an efficient automatic watering mechanism.

CIRCUIT:



COMPLETE SETUP:



FINAL RESULT:

Motor will pump the water when sand is in dry condition and also if water present in tank. if water is not sufficient in the tank the motor will not run.



6. Conclusion

The **Automatic Plant Watering System** is a simple yet effective solution for plant maintenance. It ensures that plants receive adequate water while preventing wastage. The project demonstrates the integration of sensors and automation in real-life applications. Future improvements may include using IoT connectivity for remote monitoring and control through a mobile application.