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Automated Water Gardener Project Report

Introduction:

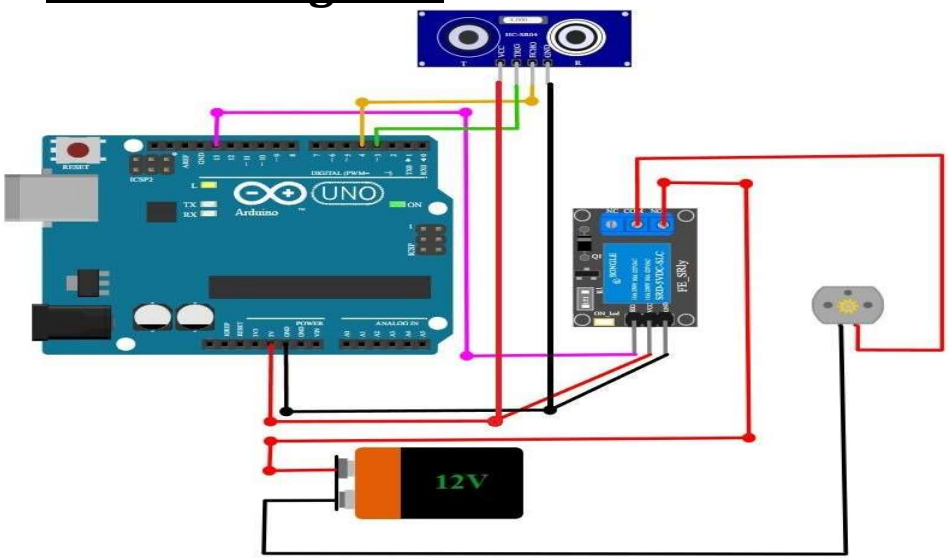
The Automated Water Gardener project utilizing Arduino presents a system designed to facilitate efficient and timely irrigation in gardens or plant nurseries. The project's primary goal is to automate the process of watering plants at specific times, ensuring optimal growth and health while minimizing manual intervention.

Explanation:

The system consists of an Arduino micro controller, a water pump, and an ultrasonic sensor. The ultrasonic sensor monitors the water level or other relevant parameters. The Arduino activates the water pump at scheduled intervals, ensuring a consistent and timely supply of water to plants.

The ultrasonic sensor continuously monitors the water level in the tank. When the scheduled watering time arrives, the Arduino activates the water pump to deliver the required amount of water to the plants. This cyclic process repeats according to the programmed schedule, optimizing the watering cycles for consistent and efficient plant care.

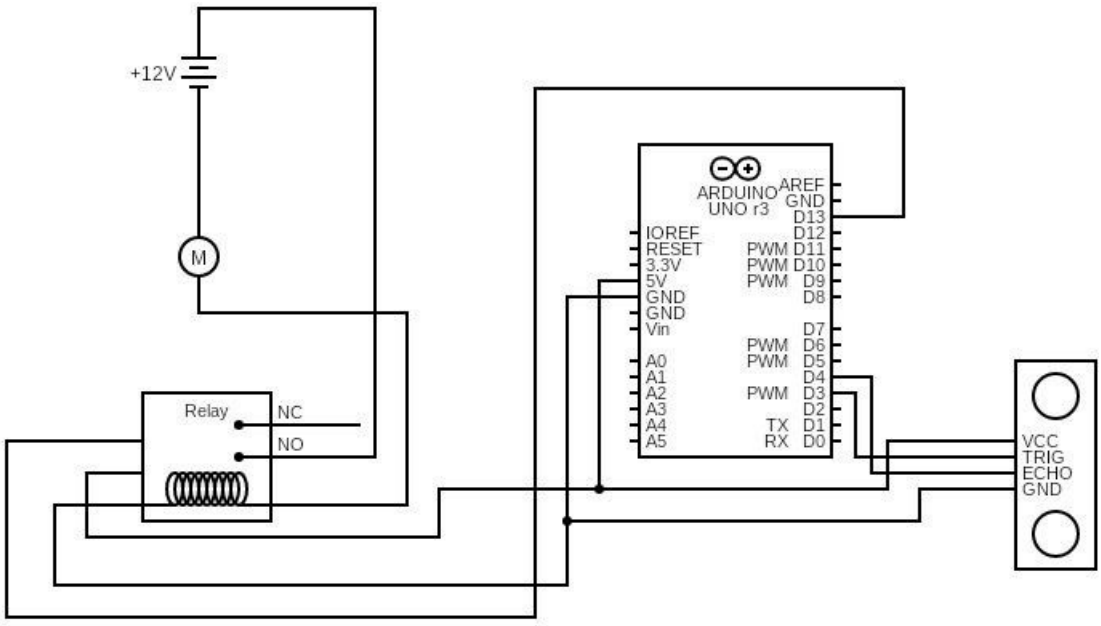
Circuit Diagram:



Components List With Cost:

Components	Cost (in pkr)
5V Relay Module	450
Arduino UNO	2000
12V Water Pump	450
Ultrasonic Sensor	400

Visual Diagram:



Picture Of The Project:

Users And Applications:

- Commercial Greenhouses:

  Commercial greenhouse operations that need an efficient and scheduled watering system for large-scale plant cultivation.
- Vertical Farming Environments:

  Vertical farming setups seeking precise and automated watering solutions to optimize plant growth in limited space.
- Sustainable Agriculture:

  Projects or initiatives focusing on sustainable agriculture practices, utilizing technology to conserve water and promote efficient plant care.
- Botanical Gardens:

  Large botanical gardens with diverse plant species can utilize the system to automate watering routines and maintain optimal conditions for various plants.

Conclusion:

The Automated Water Gardener project utilizing Arduino exemplifies an innovative and practical solution for automated garden irrigation. By leveraging technology to regulate watering schedules based on predefined time settings, this system streamlines gardening practices, ensuring optimal plant care and resource utilization. This project stands as a testament to the convergence of technology and agriculture, offering a sustainable and efficient approach to nurturing gardens and crops.

References:

https://github.com/advish10/Water-Level

https://forum.arduino.cc/t/underwater-ultrasonic-sensor/1083676

https://www.youtube.com/watch?v=b5GgpAN53r4