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Autonomous and Sustainable Watering System

Objective

This system should monitor home grown plants. It will be able to water the plants appropriately based off its species. It will also monitor the weather and take rainfall into consideration.

Electrical Engineering Goals

- Create a conditioning circuit for the temperature sensor and moisture sensor
- Create a circuit that allows the system to communicate with the internet
- Create a solar power system
- Create a circuit for the water pump and measure how much water is being used

Computer Engineering Goals

- Be able to keep a database of common house plants
- Run a script that checks the weather
- Be able to notify the user of any issues with growth
- Use imaging processing to determine the type of plant and health

This central system should be no larger than 20cm³ and be weather resistant. The temperature sensor and moisture sensor should be attached to the main unit and use a wire that measures about 0.5m. The solar panel should have a cable with a length of 2m for convenient placement. The water reservoir should be modular so the user can choose its size. If image processing is added, the camera should come with its own stand.

Scope

Basic Goals- The system will have temperature and moisture sensing and will be powered by solar. The system will keep a database of plants and water based off species of which the user chooses. The system will connect to the internet and make decisions based off the weather. The interface will just be on the system

Advanced Goals- The system will be able to send to the user's phone notifications about facts or potential hazards their plants have encountered. The system will use basic imaging processing to identify if the plants are turning yellow/brown and notify the user.

Reach Goals- The system will take pictures of the plants and identify the species. It will also be able to monitor several different plants at once.