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CPE 301 Final Project
Group 41

Project Links

- [Github Repository](#)
- [Video Link](#)

Design Overview

The goal of this project was to create a system within the specifications of the assignment. This system functions as a swamp cooler, by using a fan to blow air across the water, therefore, cooling the air where the fan is directed. We utilized the following components in our system: temperature sensor, DC motor, LCD display, water sensor, power module, Arduino, potentiometers, as well as LEDs.

This system has four states

Running
Idle
Error
Disabled

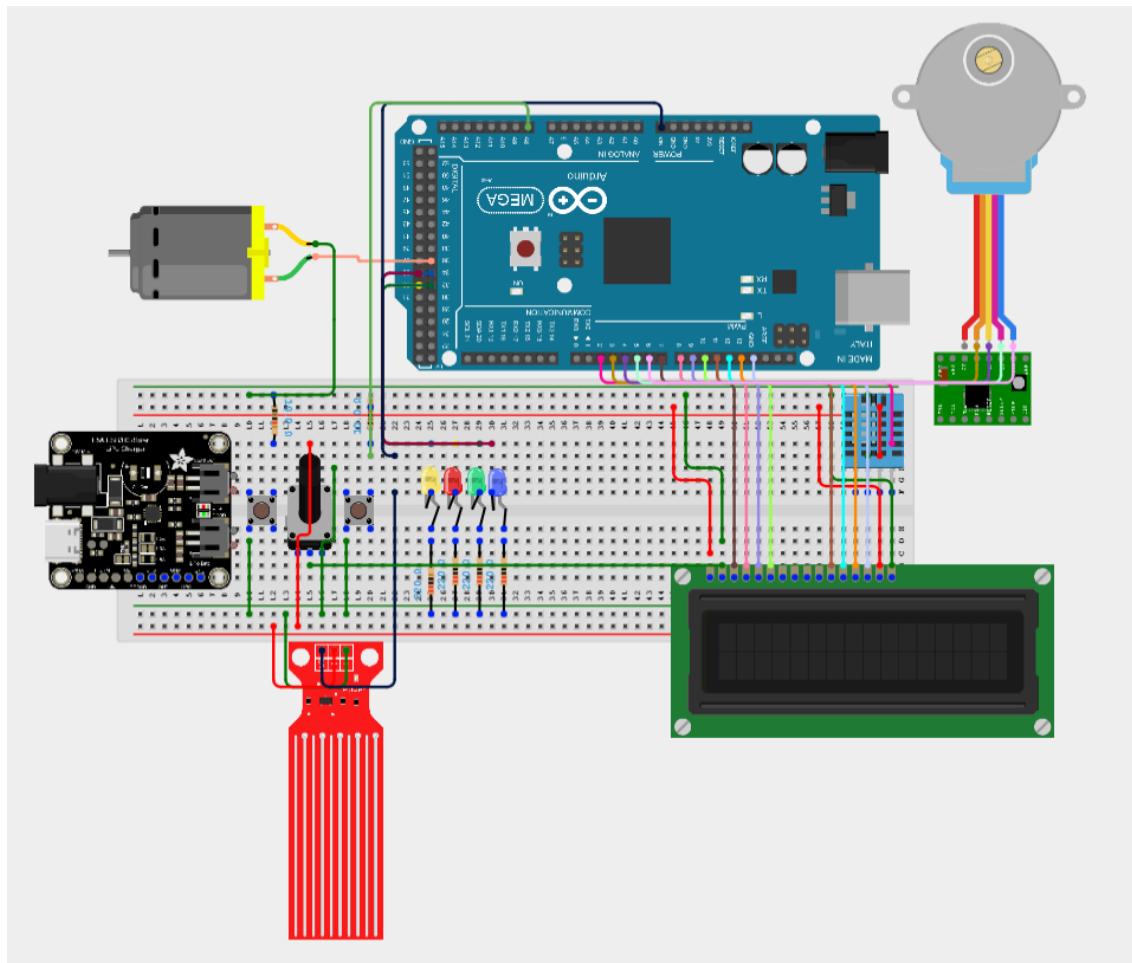
Running - This state in our system indicates that the water sensor is submerged and the water level and temperature are high enough to run the fan. The system actively prints the temperature, as well as humidity. This state is indicated by the blue LED and will continue to loop until other conditions arise, such as low water level or low temperature, or the user wishes to disable the system.

Idle - This state in our system indicates that the temperature surrounding our system is at a point where the fan does not need to run. This state is represented by a green LED, and the system will print the temperature and humidity as well as report other details until the temperature is at a point where the cooler needs to be engaged again.

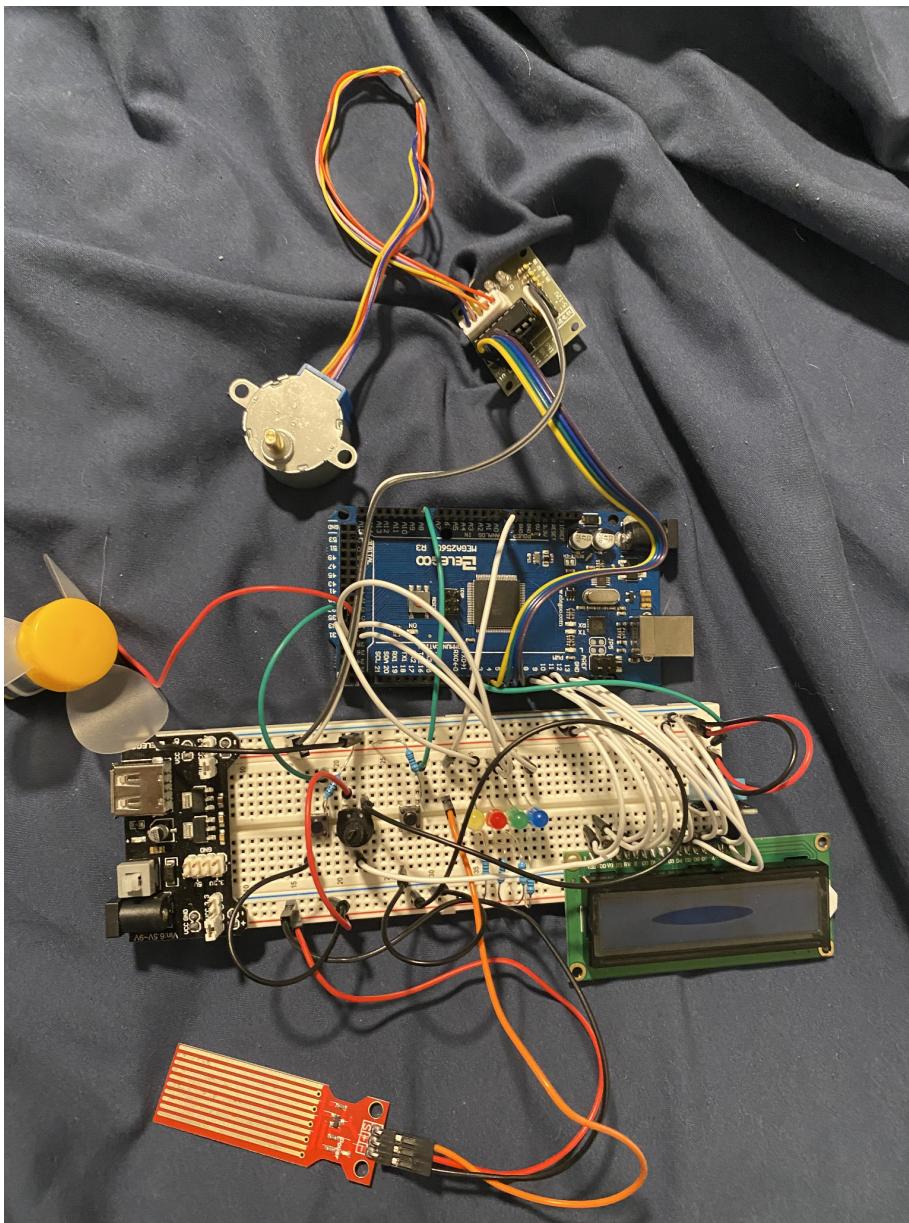
Error - This state in our system indicates that there is a condition outside the parameters of the system which is not being met. These conditions include low water level/ no water level, and the system will record when it has been moved to an error state, as well as the humidity, temperature, and water level that were last recorded. This state is indicated by the red LED, and until the conditions to run are met again, the system will stay in the error state which the user will be notified through a printed message “Error State.”

Disabled - This state in our system is initiated through the push of a button that activates the ISR in our system. After the interrupt, the system will illuminate a yellow LED to indicate its state, and the system will no longer function as long as it is in the disabled state. The LCD display will turn off, as well as print to the user the time, date, and system conditions that were last recorded, notifying them that they are in the “Disabled State.”

System Schematic



System Images



- Data Sheets/References
 - [SG90 Stepper Motor Data Sheet](#)
 - [Arduino Data Sheet](#)
 - [Water Sensor](#)
 - [Clock](#)
 - [Temperature Sensor](#)
 - [LCD](#)
 - [LED](#)
 - [PT-15 Potentiometer](#)
 - [Breadboard Power Supply](#)