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CPE 301
5/9/2025

Final Project: Swamp Cooler

Project Description:

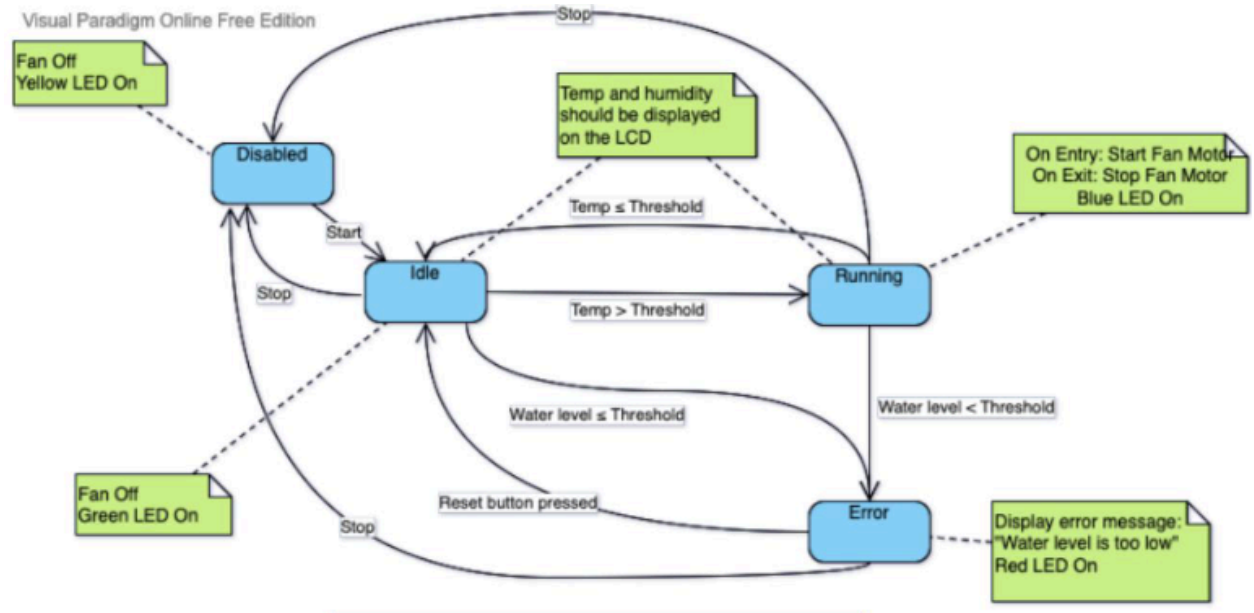
In this project we are tasked with building a cooler using the Arduino 2560 and sensors provided in the Arduino kit. This swamp cooler will monitor water levels and print an alert when the level is too low, monitor and display the current air temperature and humidity on an LCD screen, start and stop a fan motor as needed when the temperature falls out of a specified range, allow a user to use a control to adjust the angle of an output vent from the system, allow a user to enable or disable the system using an on/off button, and record the time and date every time the motor is turned on or off. All of this information will be transmitted to a host computer.

Component Details:

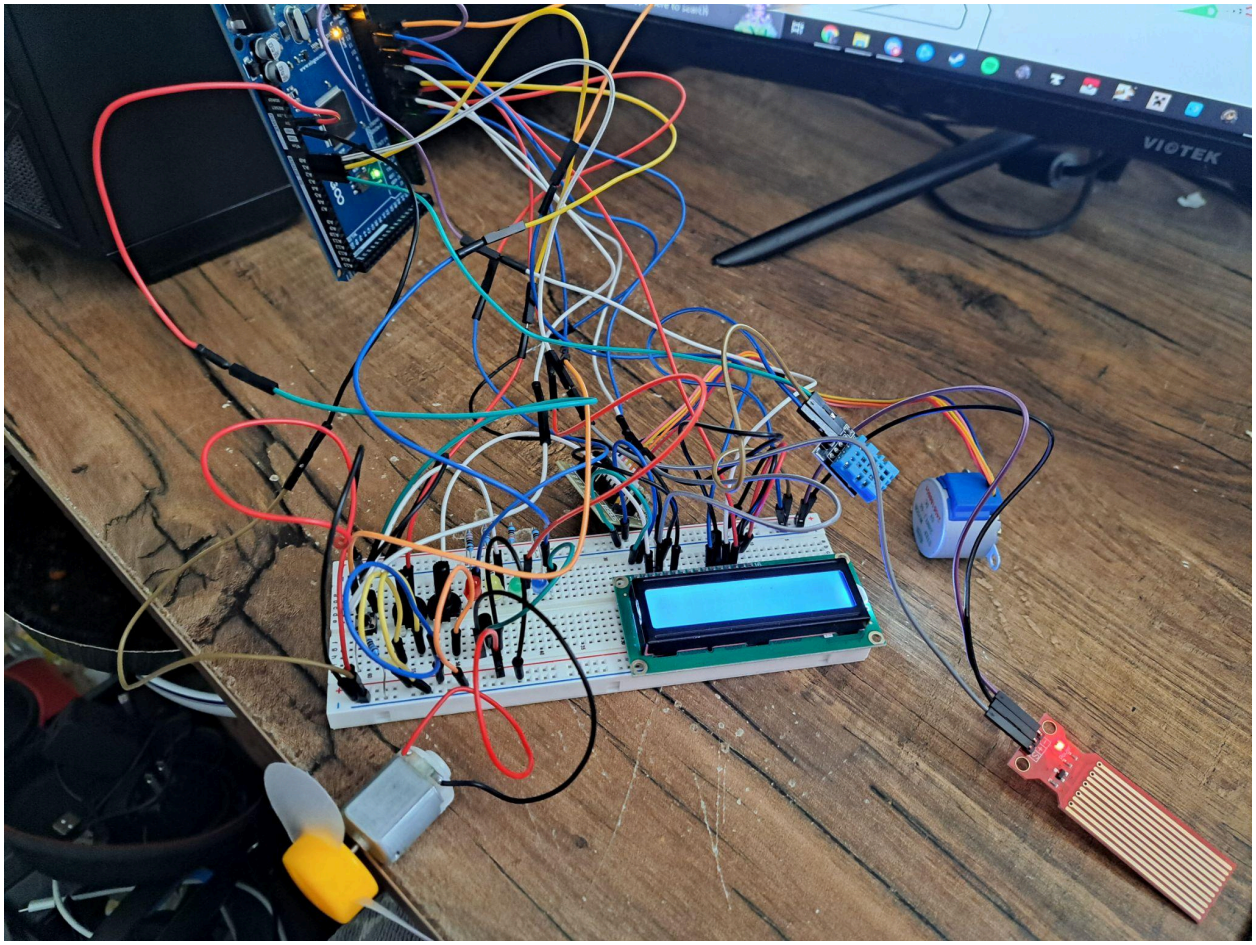
The components used in this project are:

- A water level sensor, used to monitor the water threshold to display when a refill is needed.
- A stepper motor which is used to control vent direction.
- An LCD display which is used to display data about the cooler's operation.
- A real-time clock module is used for event reporting.
- A temperature/humidity sensor is used for temperature and humidity readings.
- A kit motor and fan blades are used for the fan motor.

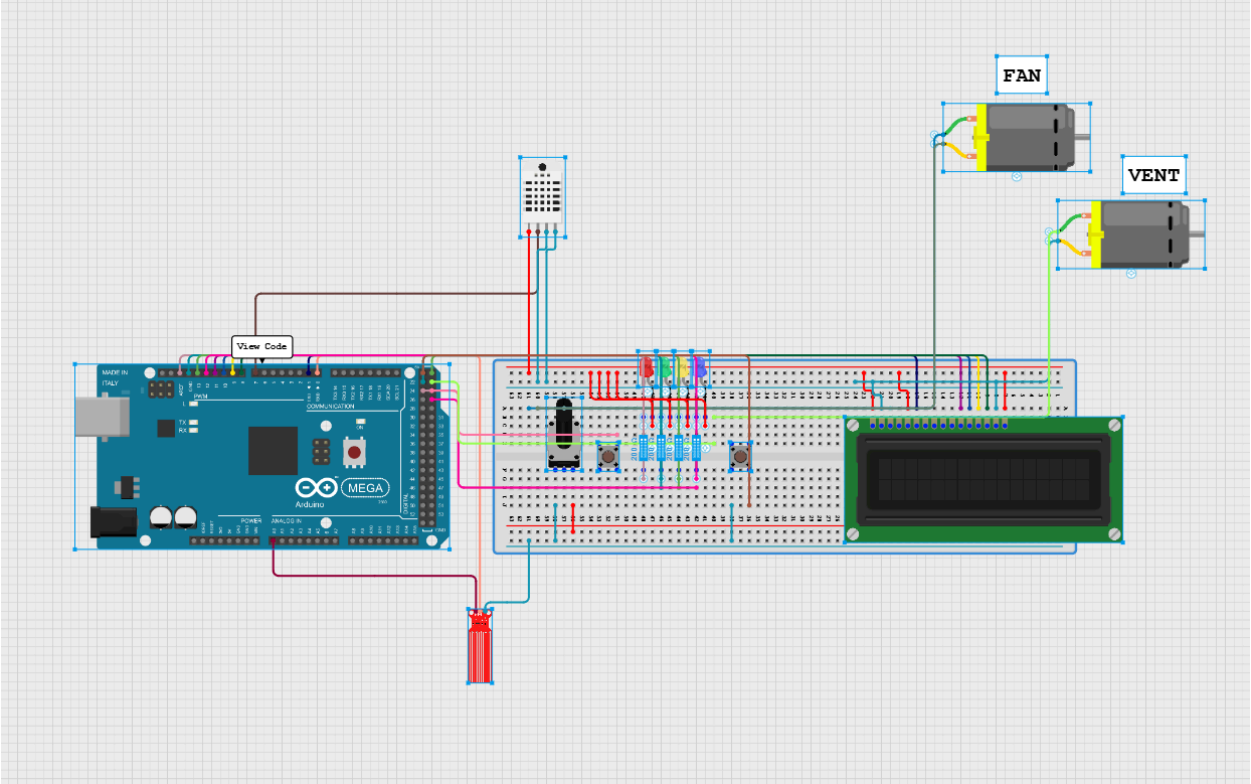
The states of the cooler are laid out in this diagram:



Circuit Image:



Schematic Diagram:



System Demonstration:

Unfortunately, I couldn't get the code to work with my circuit. My best guess is that I programmed incorrect pins for some of my components, which in turn caused them to not work together properly. Running some tests with simpler code, I was able to get each component to work properly, but getting them to work together in the same system, I wasn't able to do. Here is a link to my demonstration video:
https://www.youtube.com/watch?v=G7g-mRFnR-k

Github Repository

https://github.com/Max-Austin/CPE-301-Final-Project