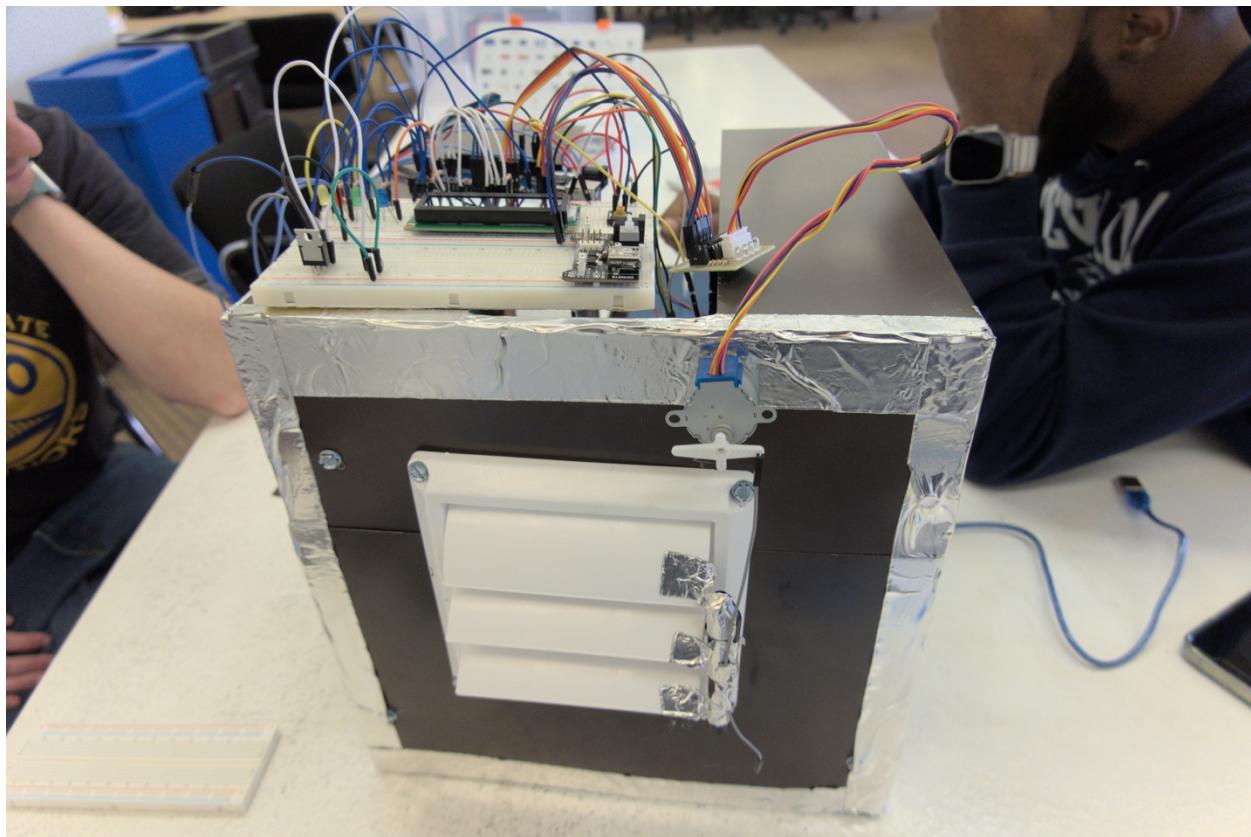


Final Project

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Final Project Outline



Team Name:

The Overachievers

Team Members:

Spencer Carter

Kenneth Matthews

Khang Vo

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Overview:

In this project, we have decided to build the full swamp cooler enclosure and put some of the necessary parts in their proper locations. We did have some troubles with certain parts breaking at inconvenient times, such as the buttons and the power supplies. In the video, you will see us jumping the button to get access to certain readings.

Water Level:

- What was used was the Water Level Detection Sensor Module 1PC. This is connected to the Arduino such that the sensor will read when the water level is low, and then push that to the LCD screen. The comment will be read as, "Water Level Low" on the LCD screen.



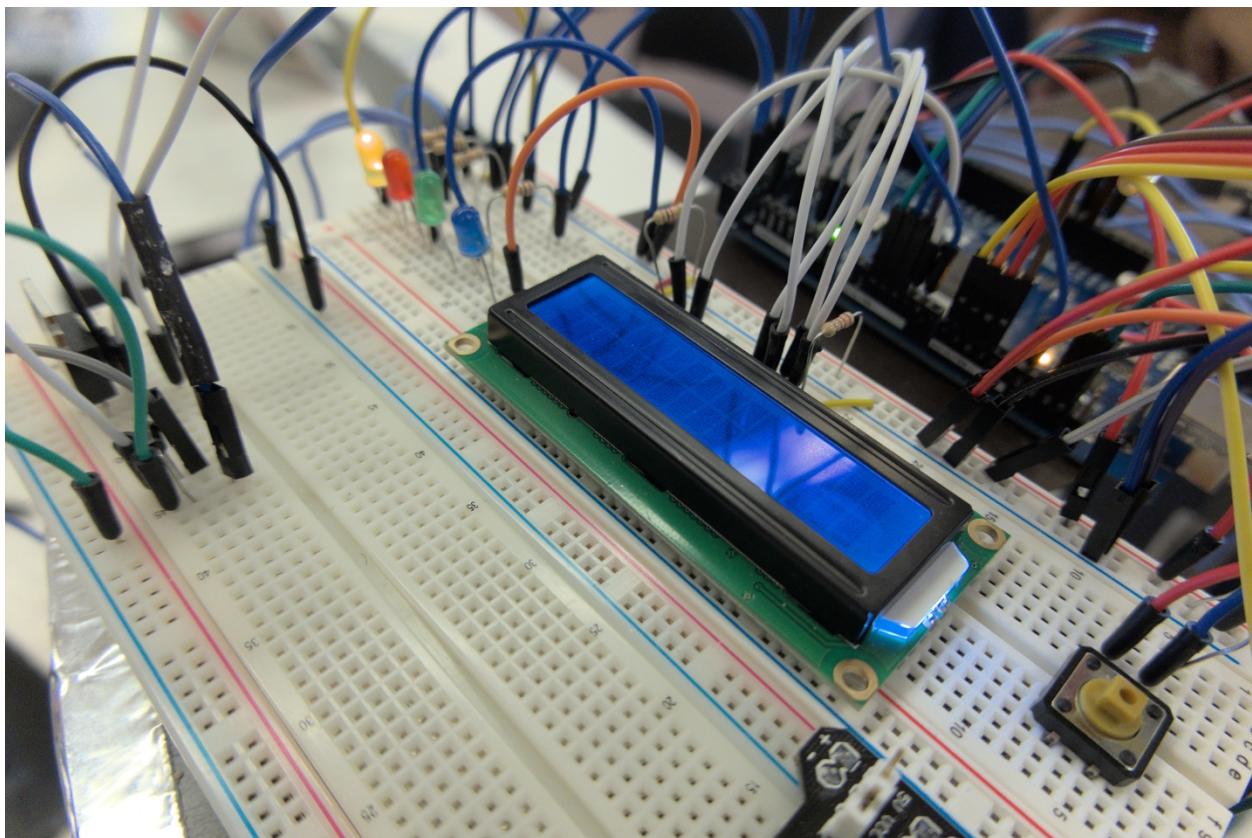
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LCD Screen and Lights:

- For the LCD we are using the LCD1602 Module. On this screen, It will display the messages:
 - o Temperature: C
 - o Humidity
 - o Water Level Low (When Water Level is Low)]
 - o Error
- As for the light states:
 - o Yellow: This will signify the total disabled state
 - o Red: This will signify the Error state
 - o Green: This will signify the Idle State
 - o Blue: This will signify the Running state

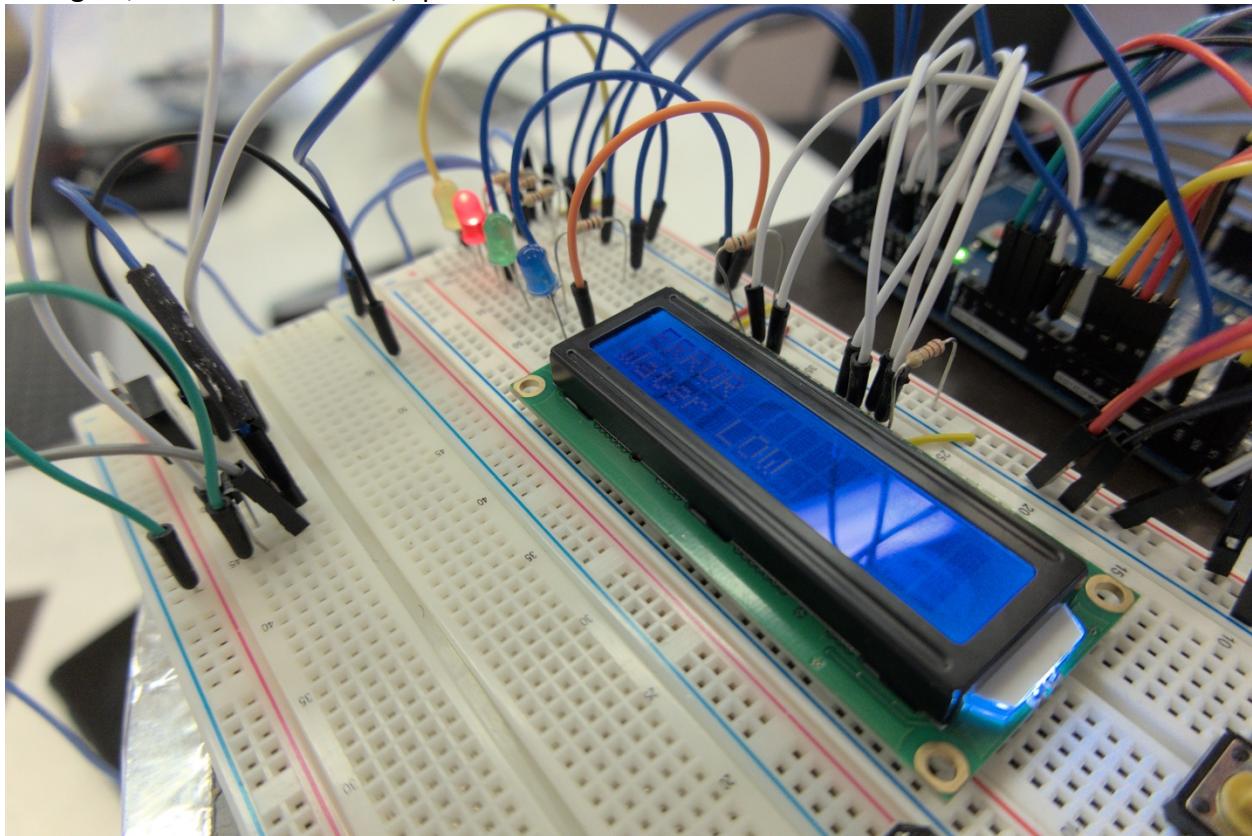


A photo of the Yellow Light signifying the disabled State

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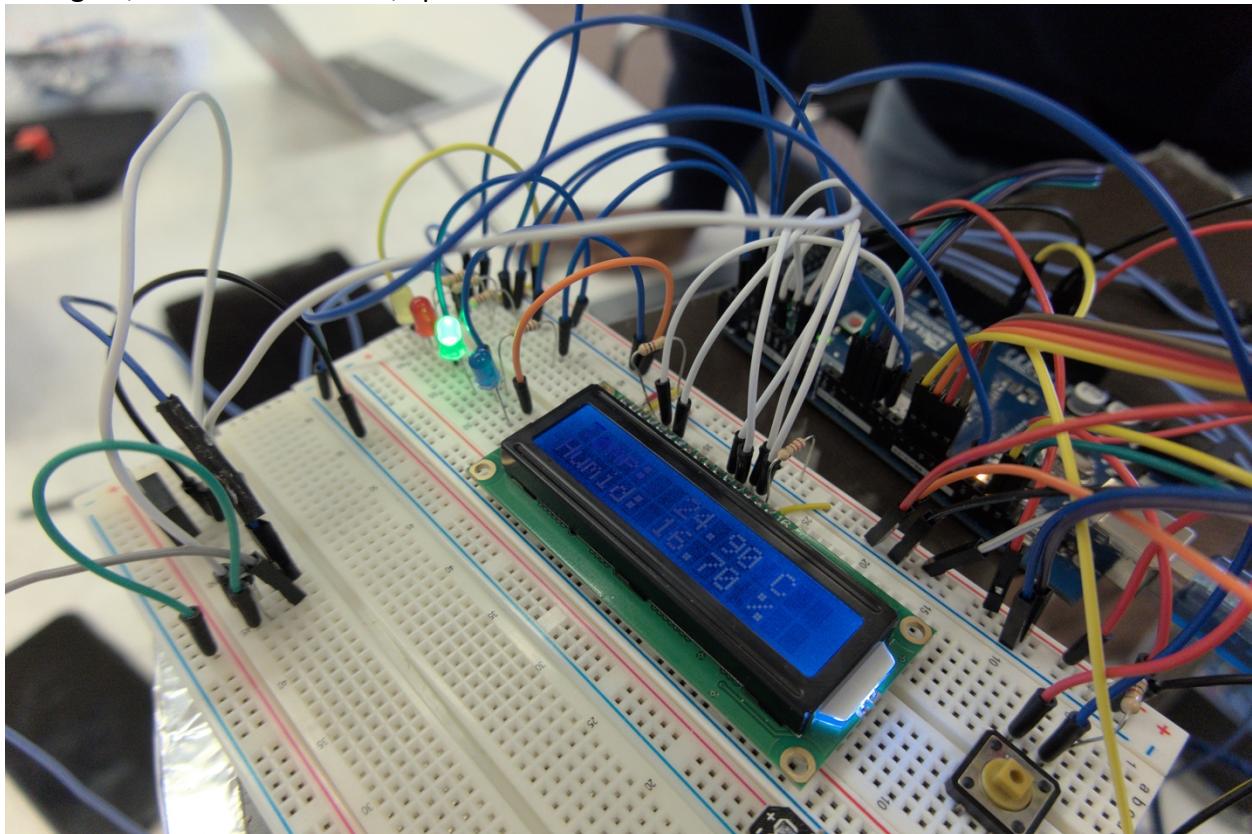


A photo of the Red Light Signifying the Error State

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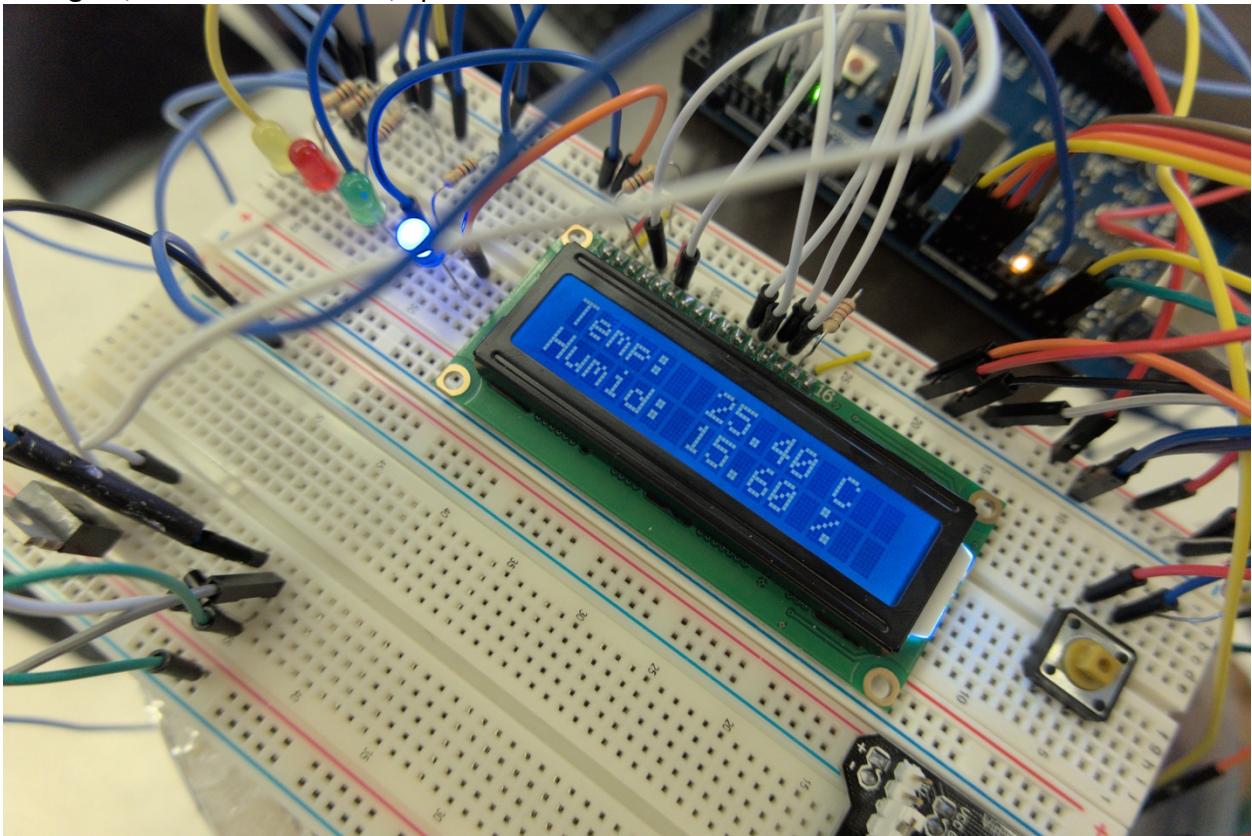


A Photo of the Green Light Signifying the Idle State

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A photo of the Blue Light signifying the Running State

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Fan:

- The fan we are using is the Fan with Blade with a 3-6V Motor. This will be functional when the temperature gauge is reading a higher temperature than 25 degrees Celcius. The fan is located on the Swamp cooler pushing the cool air out the vent.



A photo of the Fan in position

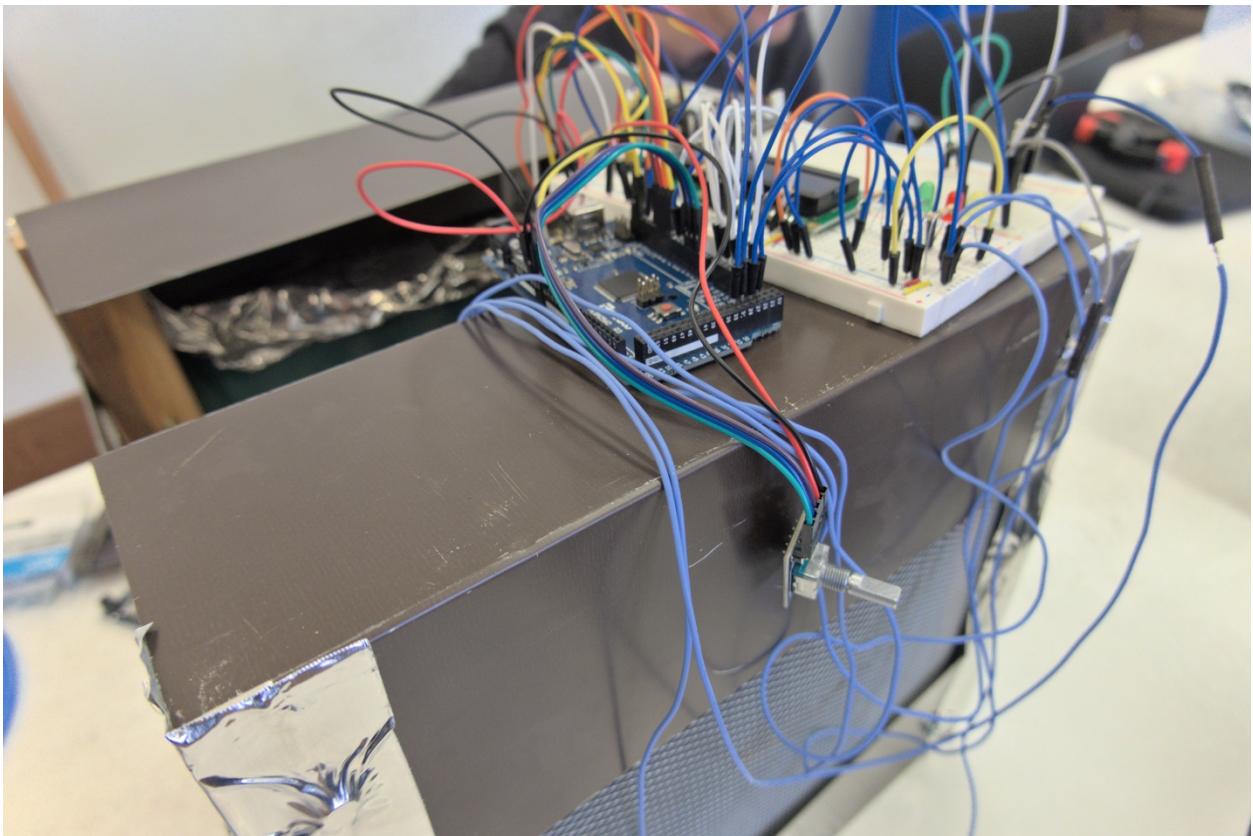
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Stepper Motor with Rotary Encoder:

- The stepper motor we have is being controlled by the rotary controller. The idea of this function is that the stepper motor will control the vent and move it up and down as desired. Every time the rotary controller is moving (either Clockwise or Counterclockwise), it will show the position on the serial monitor in Arduino. This will be running off the 5 Volt functionality that is connected to a wall outlet.

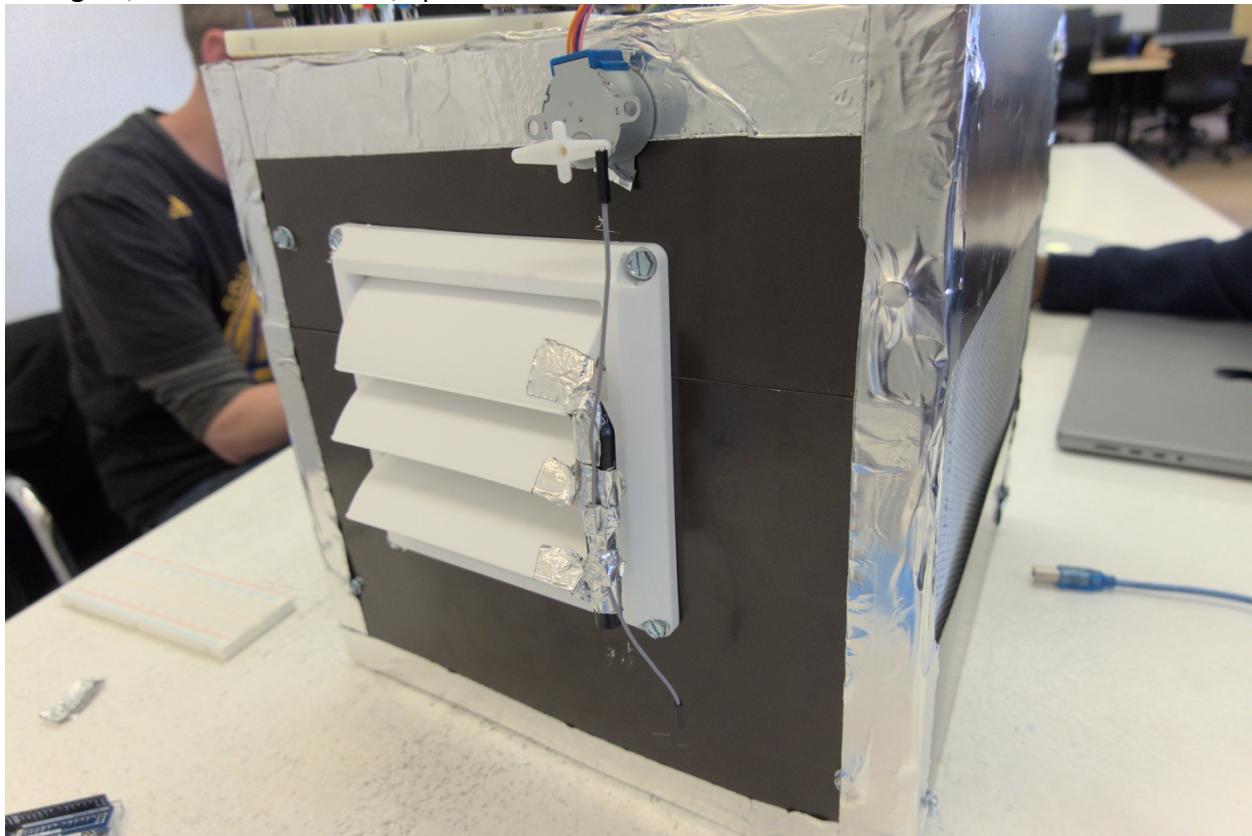


A photo of the Rotary Encoder that controls the Stepper Motor

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A Photo of the stepper motor connected to a vent for the vent to go up and down

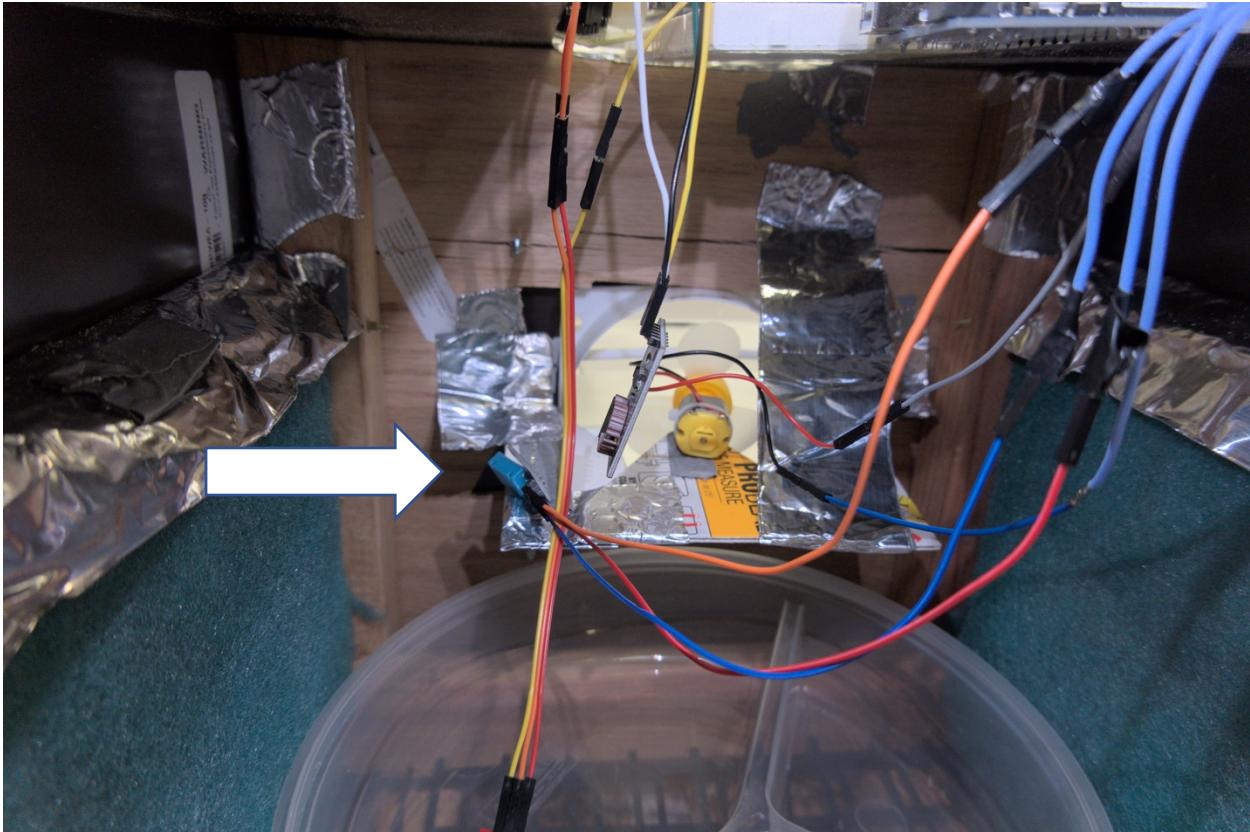
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Temperature Gauge:

- For the temperature gauge, we are using the DHT11 Temperature ad Humidity Module. The readings from this device will provide both the Temperature and Humidity to the LCD Screen. Temperature will be provided in Celsius, and the Humidity will be provided in a Percentage.

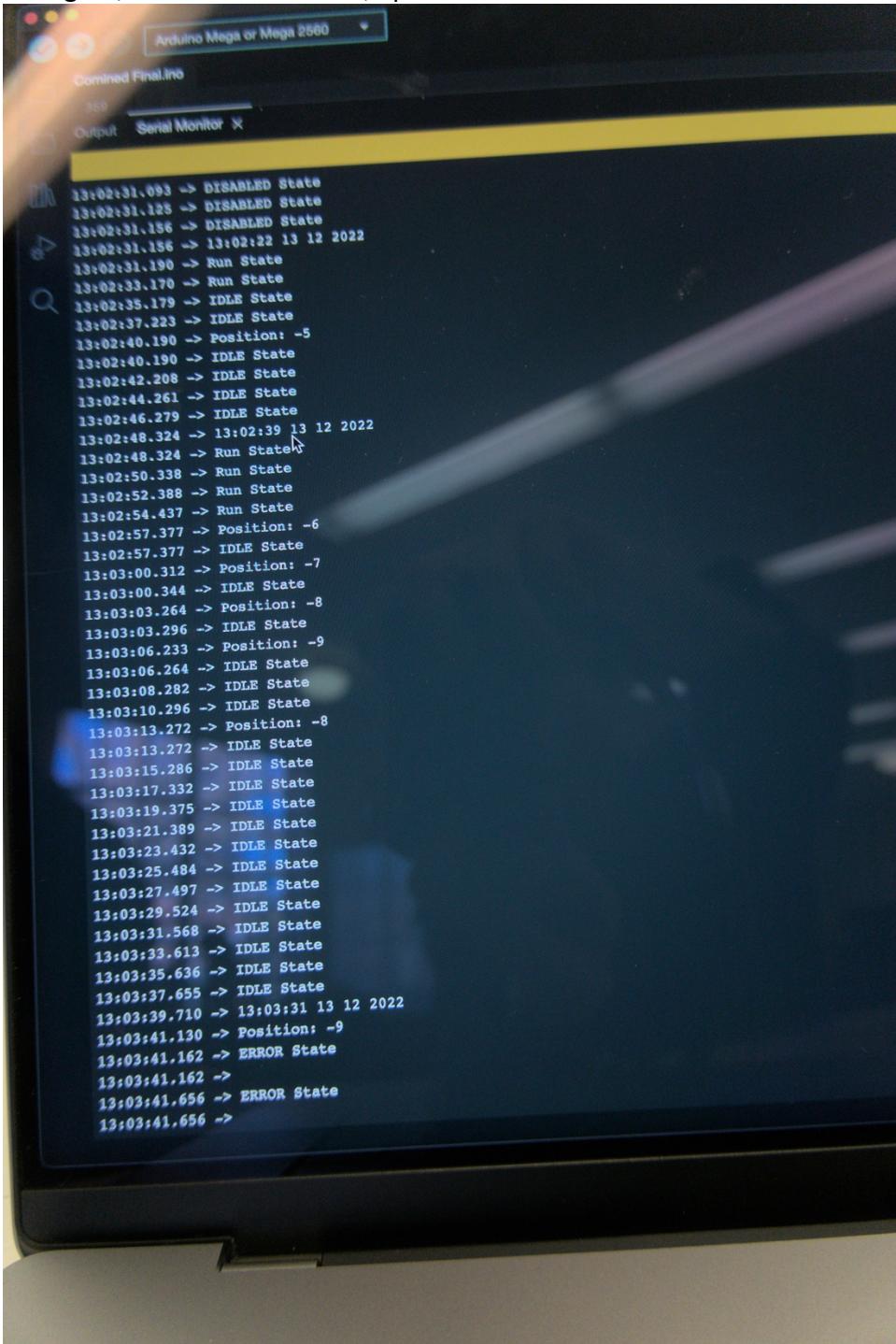


This is a photo of the Temperature Gauge

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```
Arduino Mega or Mega 2560
Comined Final.ino
369 Output Serial Monitor X

13:02:31.093 -> DISABLED State
13:02:31.125 -> DISABLED State
13:02:31.156 -> DISABLED State
13:02:31.156 -> 13:02:22 13 12 2022
13:02:31.190 -> Run State
13:02:33.170 -> Run State
13:02:35.179 -> IDLE State
13:02:37.223 -> IDLE State
13:02:40.190 -> Position: -5
13:02:40.190 -> IDLE State
13:02:42.208 -> IDLE State
13:02:44.261 -> IDLE State
13:02:46.279 -> IDLE State
13:02:48.324 -> 13:02:39 13 12 2022
13:02:48.324 -> Run State
13:02:50.338 -> Run State
13:02:52.388 -> Run State
13:02:54.437 -> Run State
13:02:57.377 -> Position: -6
13:02:57.377 -> IDLE State
13:03:00.312 -> Position: -7
13:03:00.344 -> IDLE State
13:03:03.264 -> Position: -8
13:03:03.296 -> IDLE State
13:03:06.233 -> Position: -9
13:03:06.264 -> IDLE State
13:03:08.282 -> IDLE State
13:03:10.296 -> IDLE State
13:03:13.272 -> Position: -8
13:03:13.272 -> IDLE State
13:03:15.286 -> IDLE State
13:03:17.332 -> IDLE State
13:03:19.375 -> IDLE State
13:03:21.389 -> IDLE State
13:03:23.432 -> IDLE State
13:03:25.484 -> IDLE State
13:03:27.497 -> IDLE State
13:03:29.524 -> IDLE State
13:03:31.568 -> IDLE State
13:03:33.613 -> IDLE State
13:03:35.636 -> IDLE State
13:03:37.655 -> IDLE State
13:03:39.710 -> 13:03:31 13 12 2022
13:03:41.130 -> Position: -9
13:03:41.162 -> ERROR State
13:03:41.162 ->
13:03:41.656 -> ERROR State
13:03:41.656 ->
```

This is a photo of the readouts

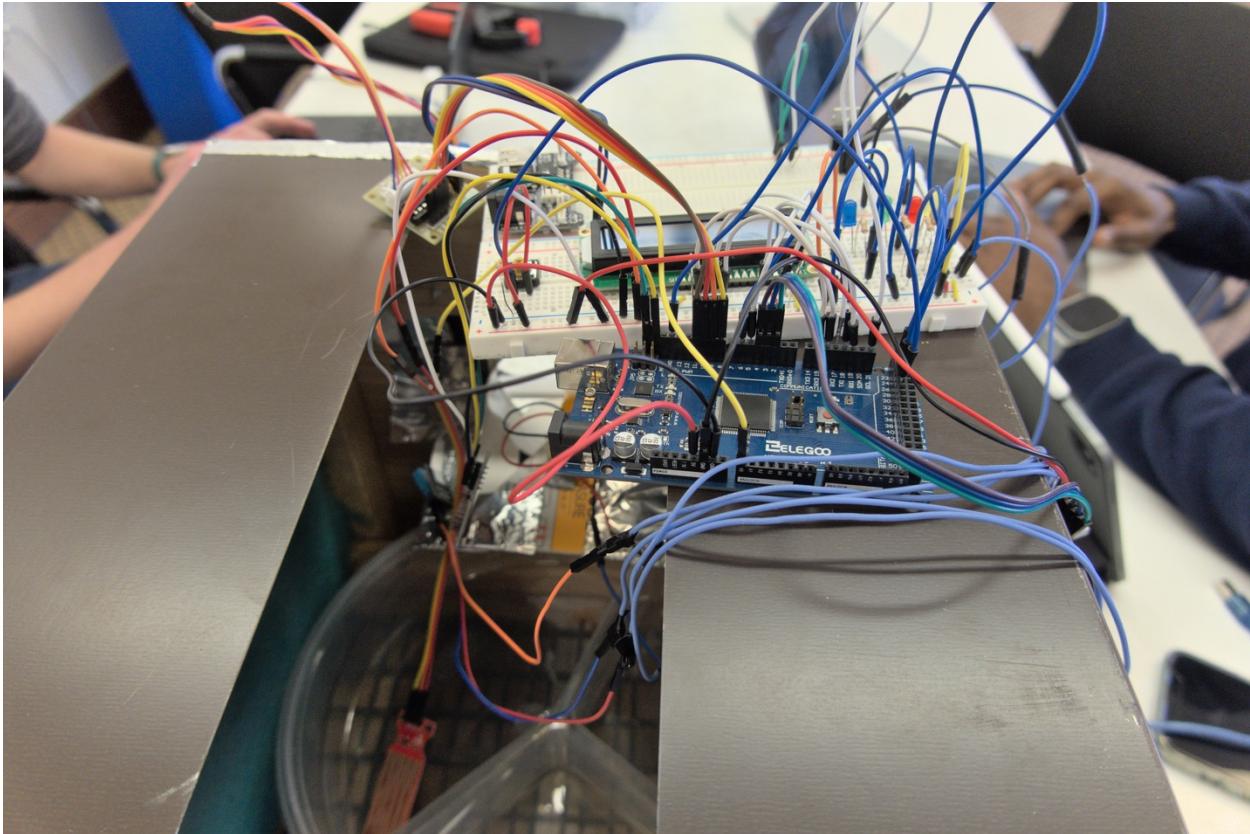
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Arduino ATMega 2560 Components:

- We are using the Arduino ATMega 2560 and are using the Arduino IDE 2.0.3. This device will connect all the separate components all in one place and will be controlled by a computer.



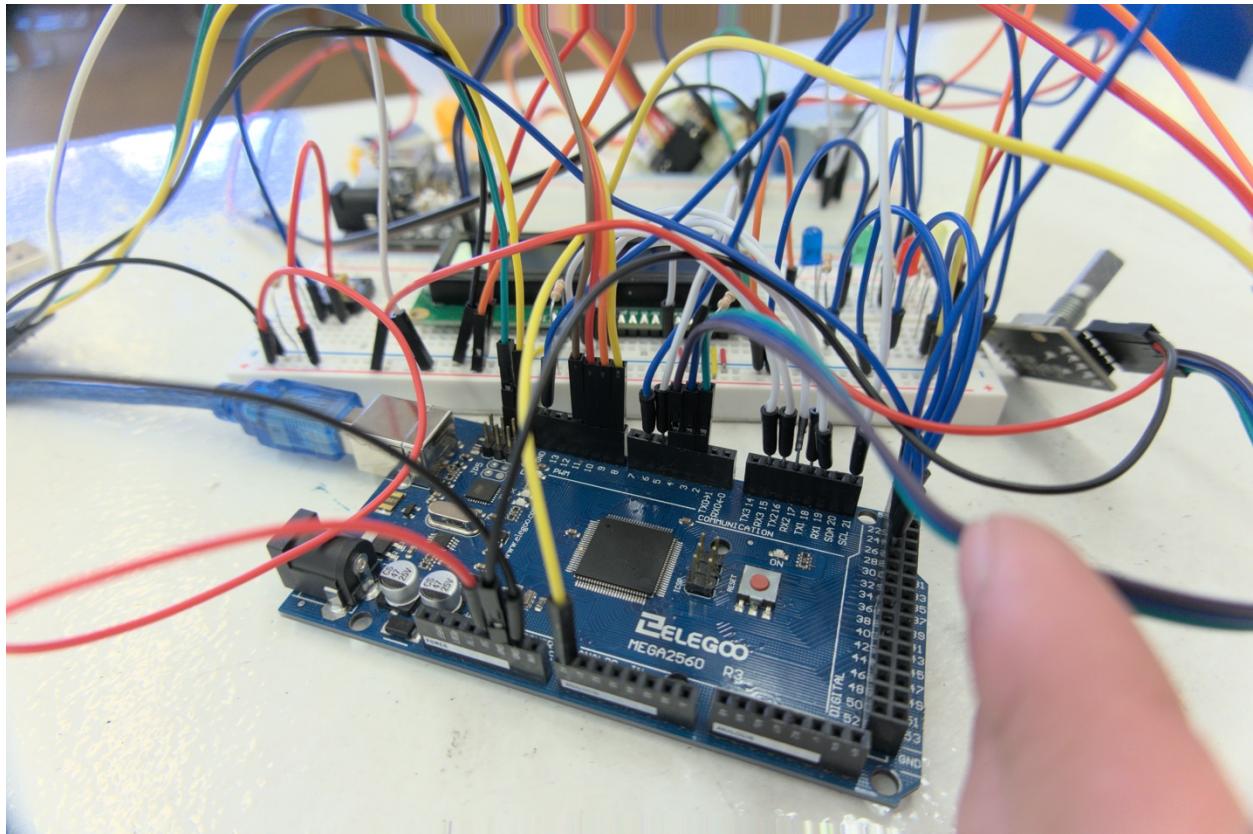
A photo that shows all the connections to the Arduino ATMega 2560

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Extra photos from the project

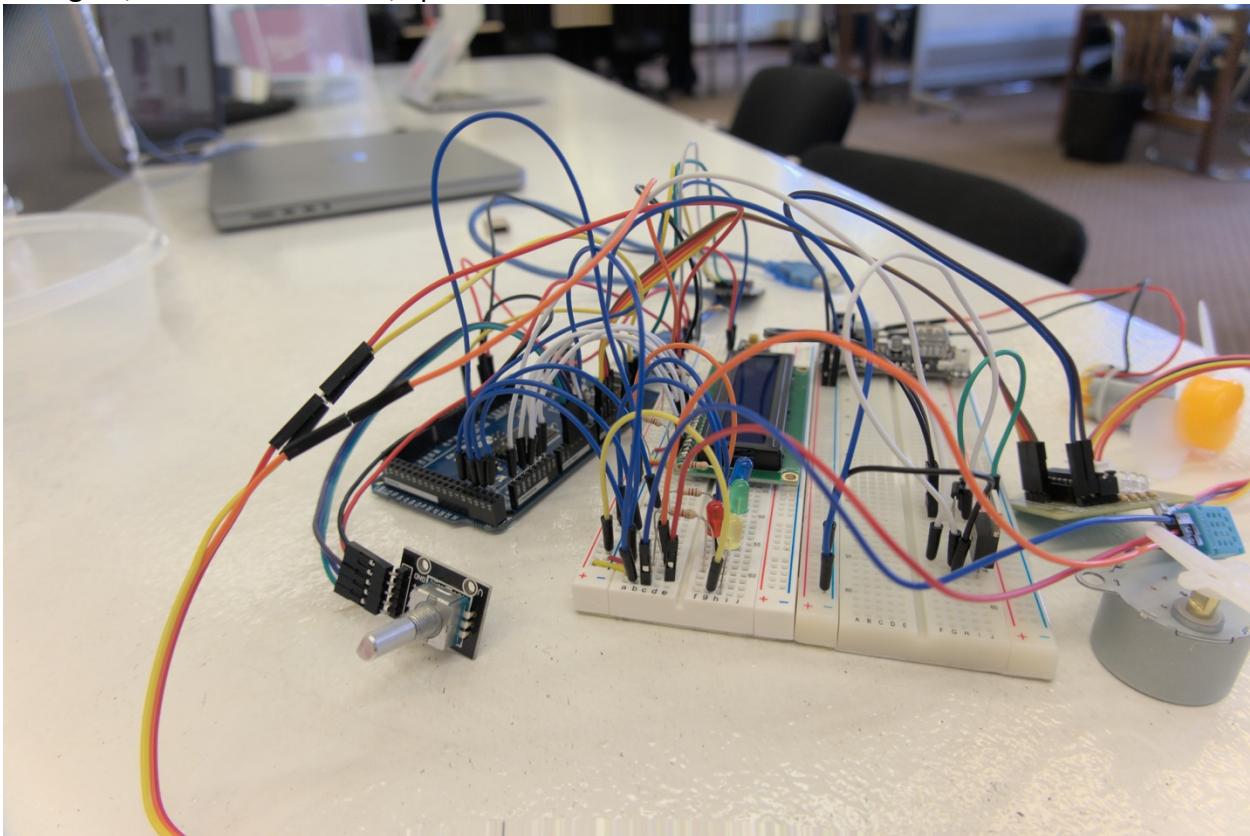


A photo of the Arduino before connecting to the swamp cooler (Test Runs)

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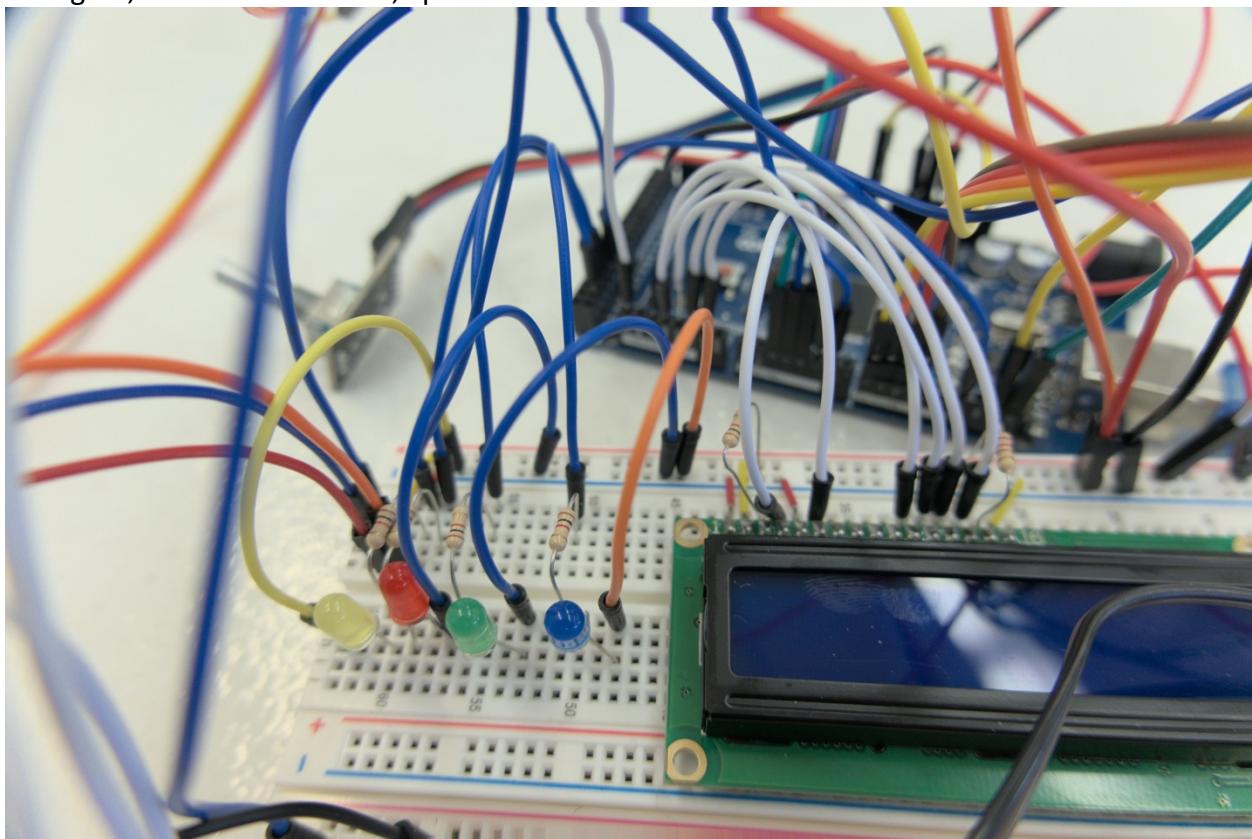


A photo of when we connected and ran the stepper motor with other components

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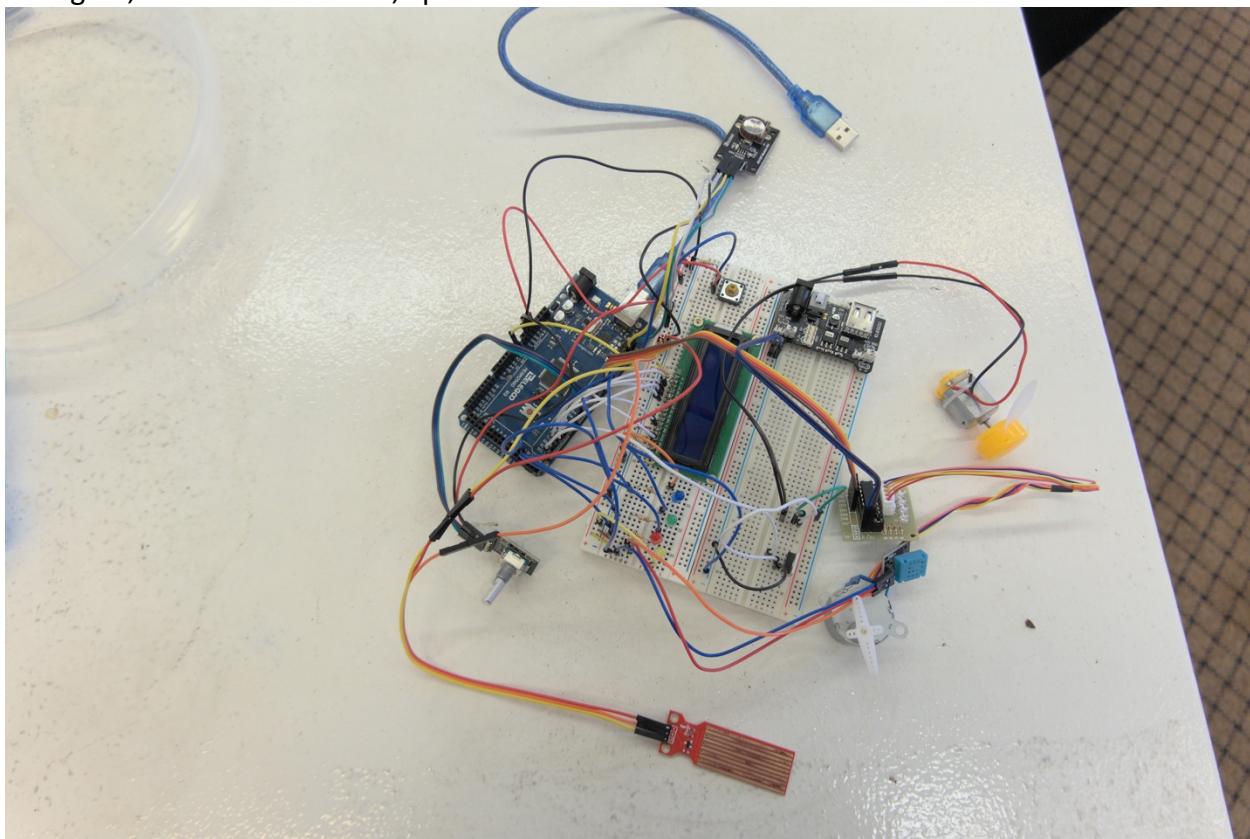


A photo of the signal lights prior to connecting to the Swamp cooler

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Everything prior to putting on the Swamp Cooler