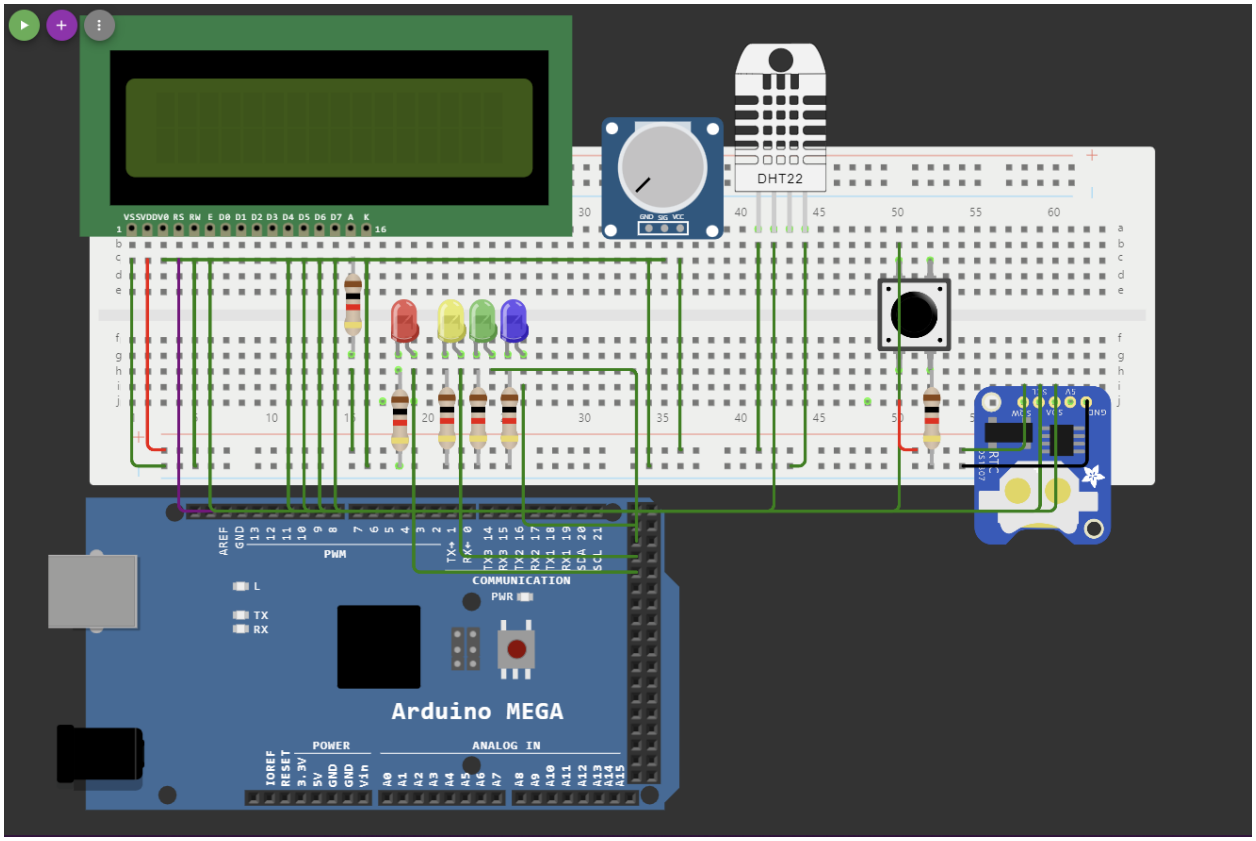
Cpe 301 Final project

Dimitri Brozowski

Godwin Igbekoyi

Overview:
The system turns on when the temperature is above 26 degrees celsius and turns off when the temperature is below 24 degrees celsius. The power requirements of the system is a 5 volt USB connection, and a supplemental 5 volt DC connection for the motors. The system will switch to an error state when the water level is below reading of 80 or above 300. The system will give a time output of when it changes states and when the motor is turned on or off in the serial monitor.
It will also show when the water level is too high or too low. The temperature and humidity are displayed on the LCD when the system is in the Idle and Running states. The system can be stopped or started at any time via a button that creates an event in the ISR.



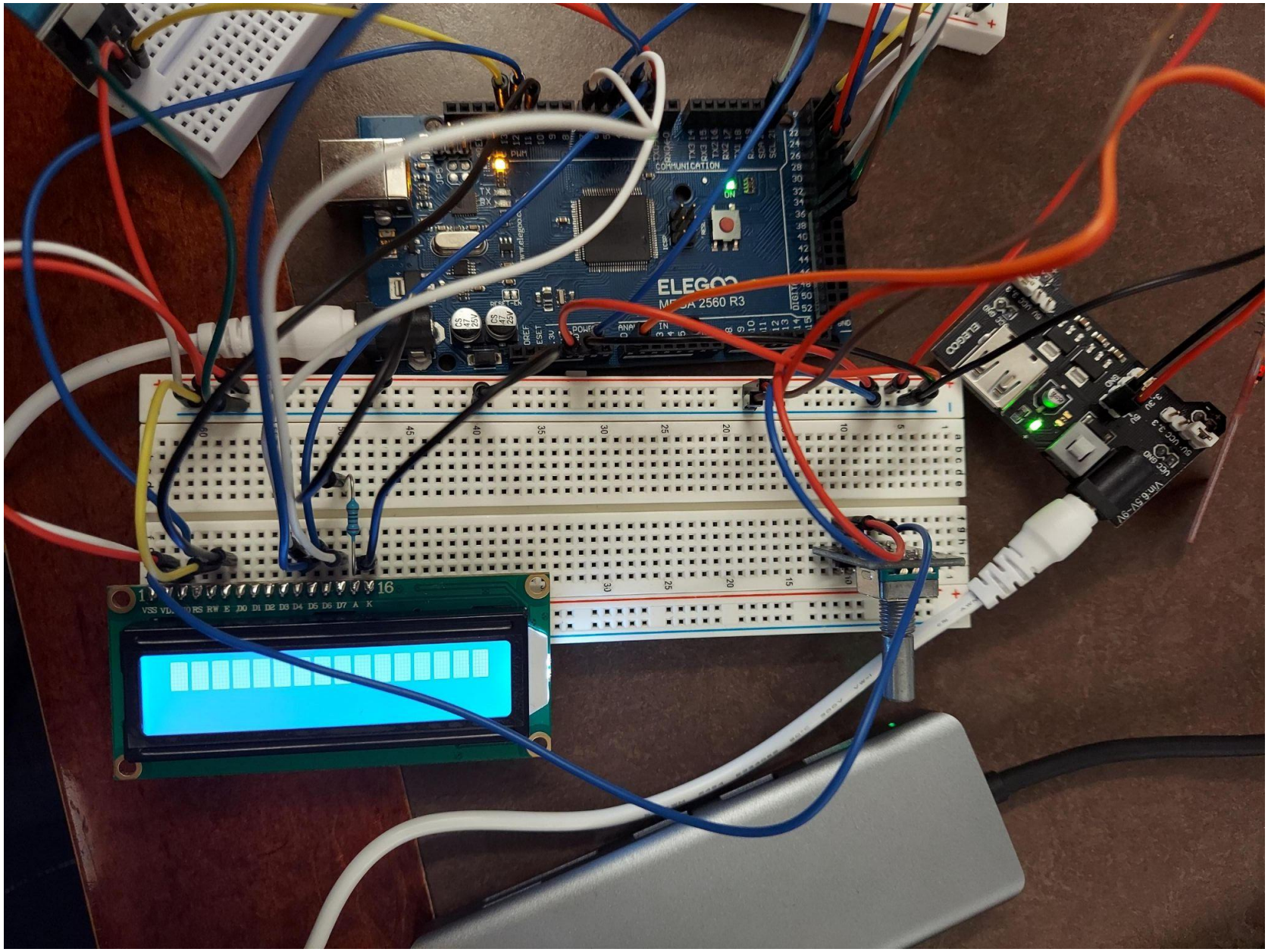
Running:
https://www.youtube.com/shorts/hSZrU-iX4Q0

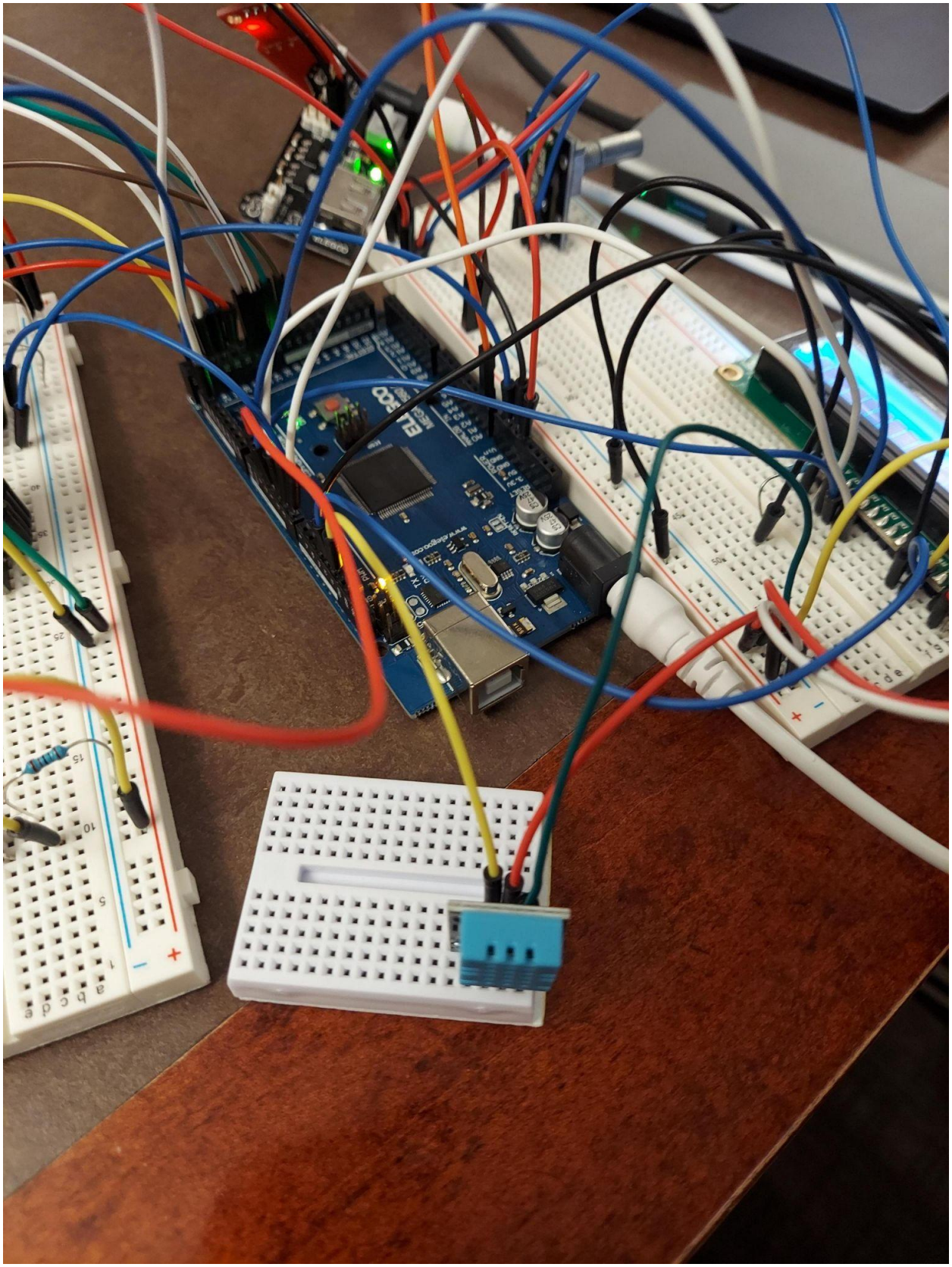
Error:
https://youtube.com/shorts/3FctaAVh-NA

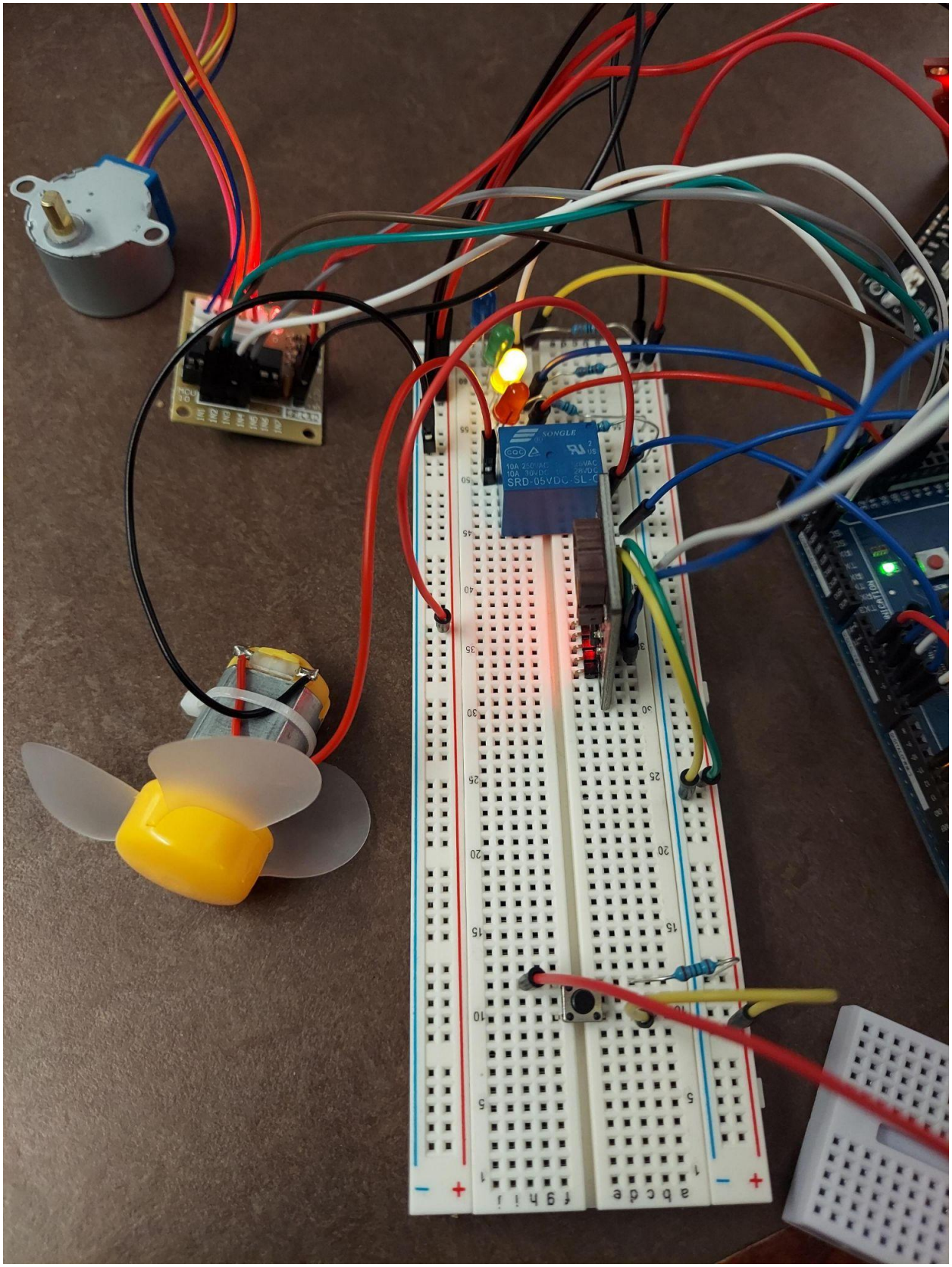
Idle:
https://youtube.com/shorts/r_Lofj1uwEM

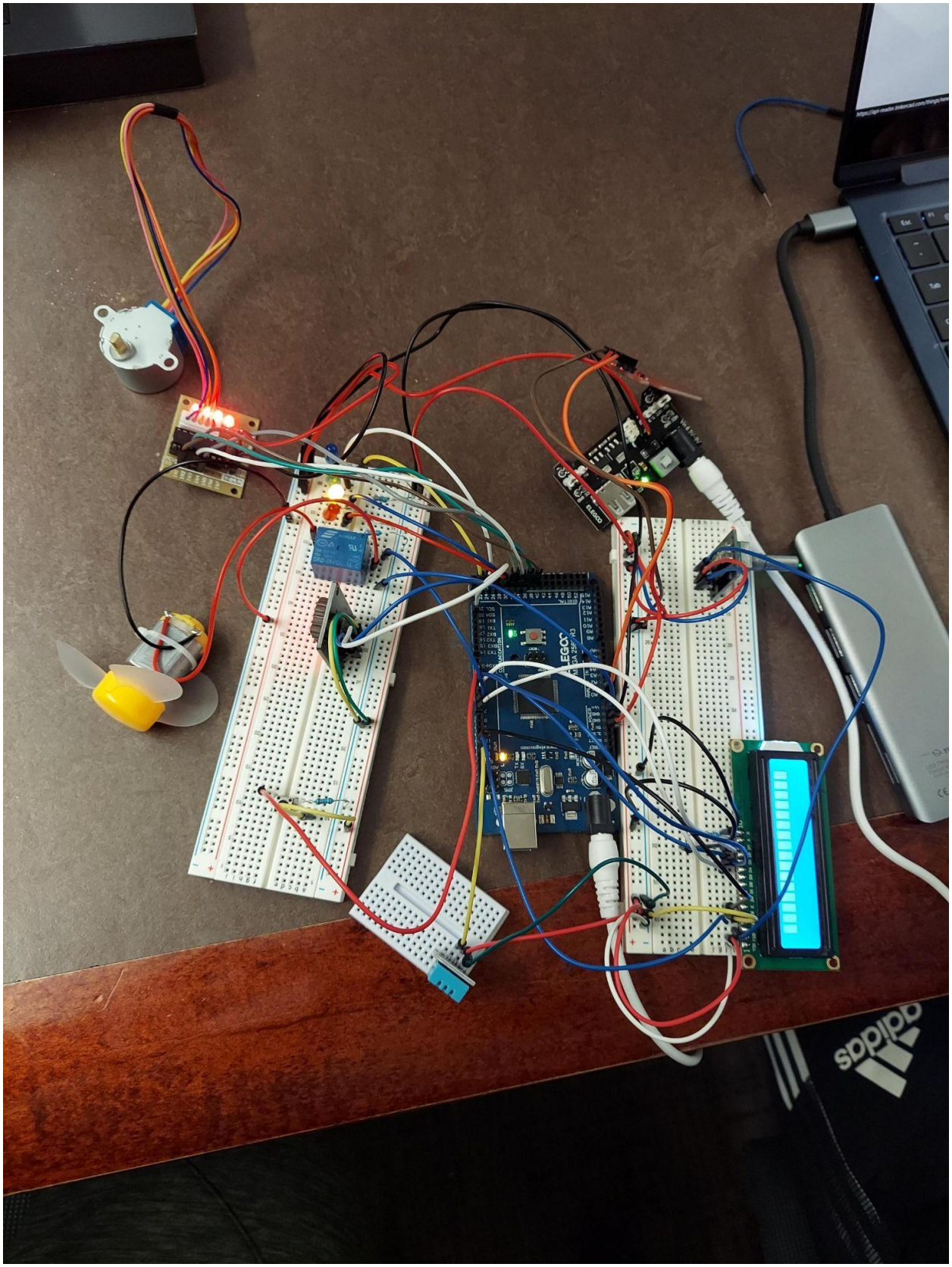
Disabled:
https://youtube.com/shorts/gu4sTEci39M

ELEGOO
MEGA 2560 R3
SRD-05VDC-SL-C


COMMUNICATION
ELEGOO
MEGA 2560 R3
VIN 6V-9V




SONGLE
SRD-05VDC-SL-C



Component Schematics-

Water leve sensor:
https://www.researchgate.net/figure/Functional-assembly-of-the-water-level-sensor-with-the-Arduino-device-a-Schematic_fig2_363936993

LCD Screen:
https://components101.com/sites/default/files/component_datasheet/16x2%20LCD%20Datasheet.pdf

Potentiometer:
https://www.etechnophiles.com/potentiometer-symbol-pinout/

DHT11 temp&humidity sensor:
https://www.mouser.com/datasheet/2/758/DHT11-Technical-Data-Sheet-Translated-Version-1143054.pdf

Relay:
https://www.circuitbasics.com/wp-content/uploads/2015/11/SRD-05VDC-SL-C-Datasheet.pdf

Timer :
https://www.analog.com/media/en/technical-documentation/data-sheets/DS1307.pdf

Stepper motor module:
https://www.makerguides.com/wp-content/uploads/2019/04/ULN2003-Stepper-Motor-Driver-PCB.pdf

Stepper motor:
https://www.makerguides.com/wp-content/uploads/2019/04/28byj48-Stepper-Motor-Datasheet.pdf

Fan blade w/ motor
https://create.arduino.cc/projecthub/ingo-lohs/first-test-super-starterkit-from-elegoo-motor-3-6v-dc-5b199d

Power supply:
https://components101.com/sites/default/files/component_datasheet/MB102-Datasheet.pdf

Arduino mega2560
https://www.arduino.cc/en/uploads/Main/arduino-mega2560-schematic.pdf

5x 330 resistors
https://components101.com/sites/default/files/2022-04/WHS-UL-Series-Datasheet.pdf

1x 220 resistor
https://components101.com/sites/default/files/2022-04/WHS-UL-Series-Datasheet.pdf

4x leds

Github Repository - https://github.com/Dimitribro/Final