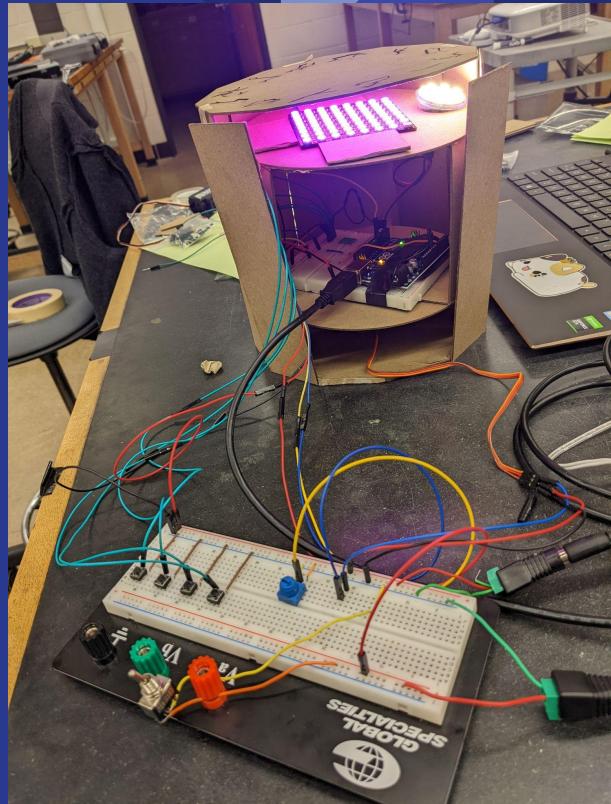


Constellation Projection Lamp

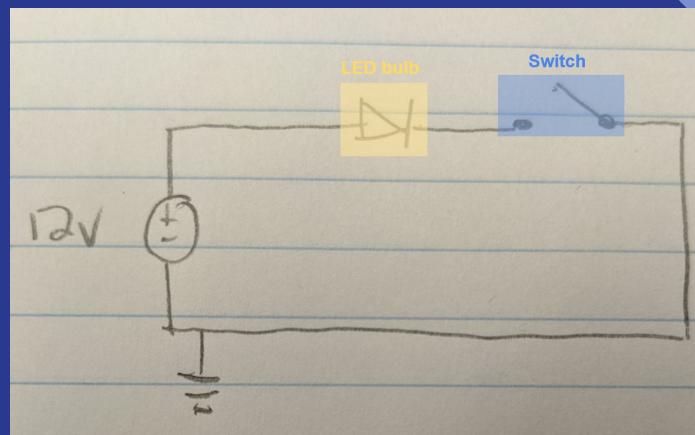
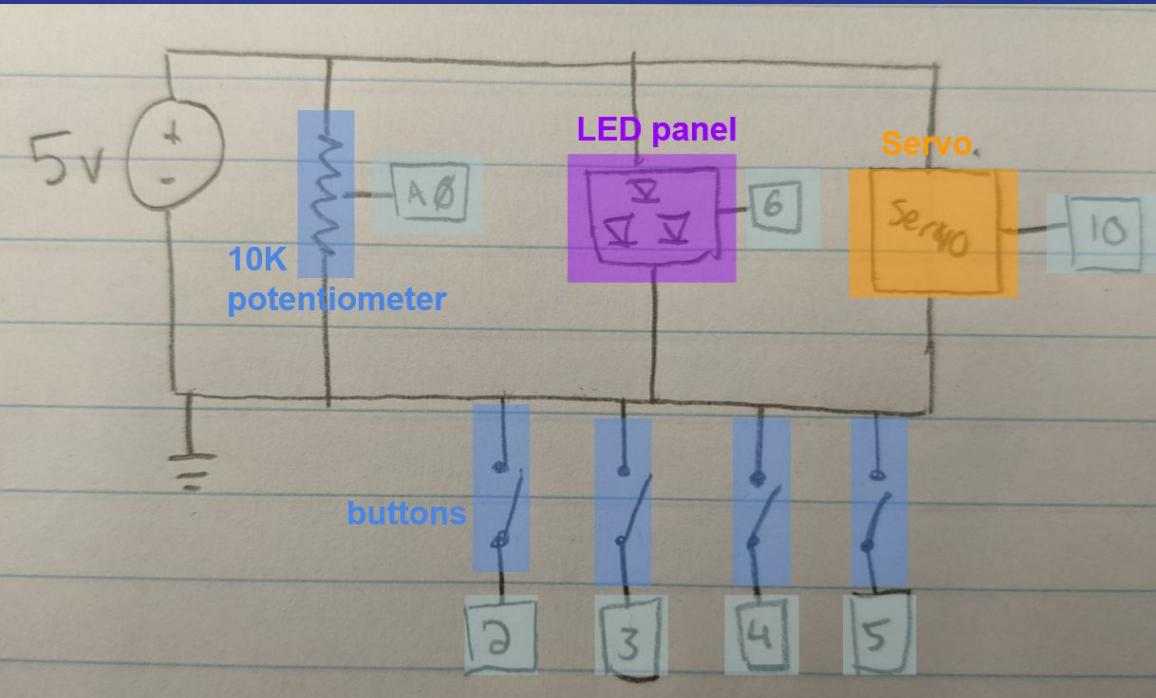
J. Frothingham

PHY 240
Fall 2021

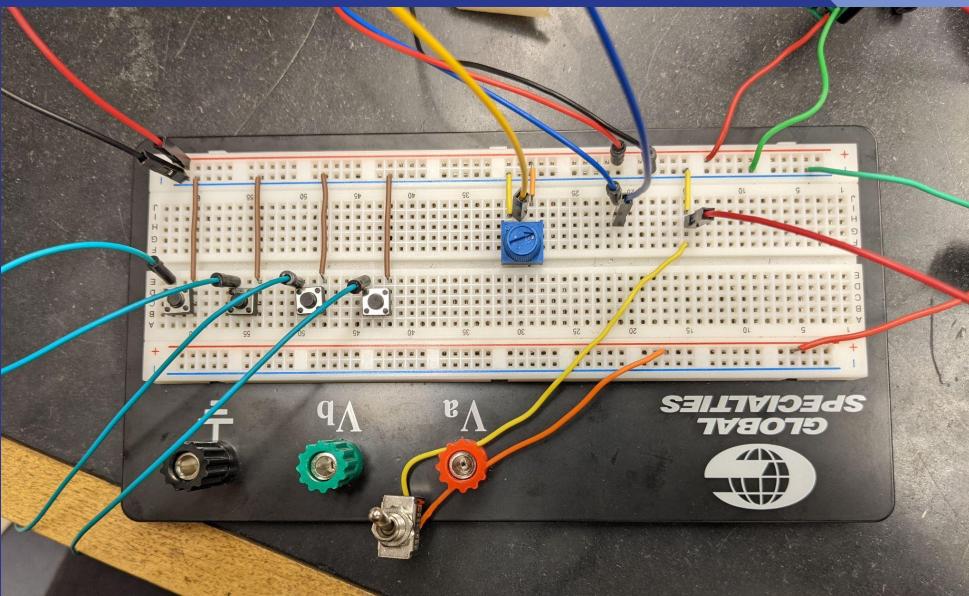
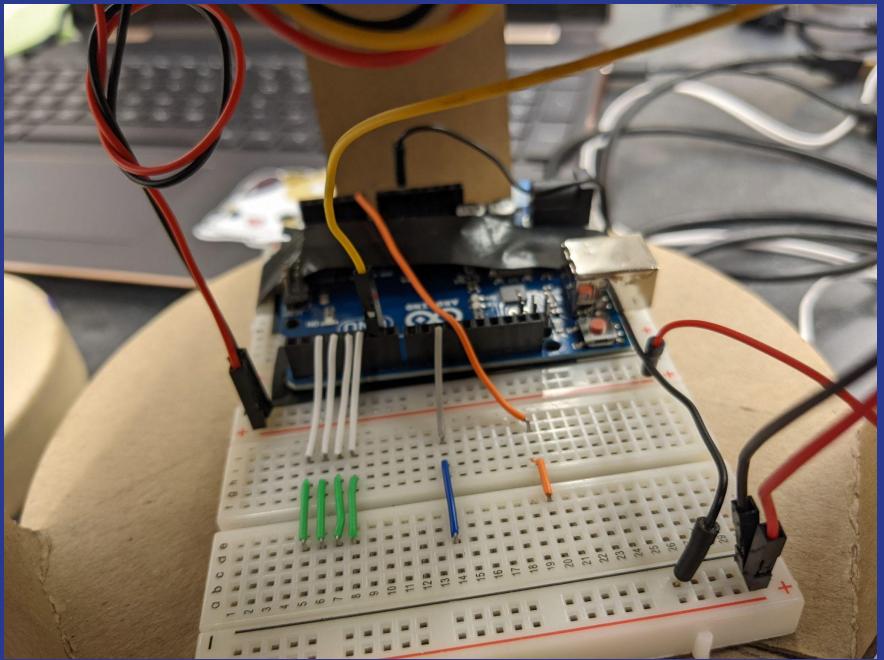
Demonstration



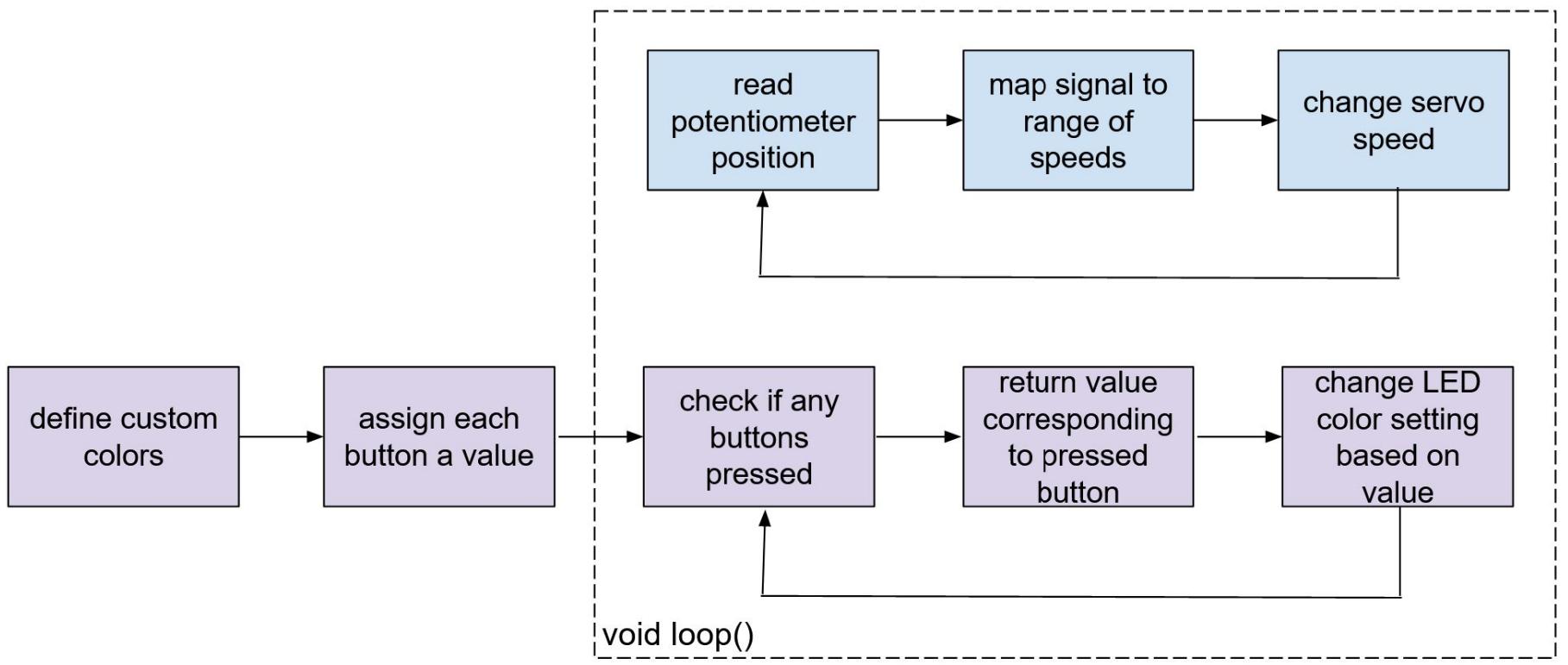
Circuit diagrams



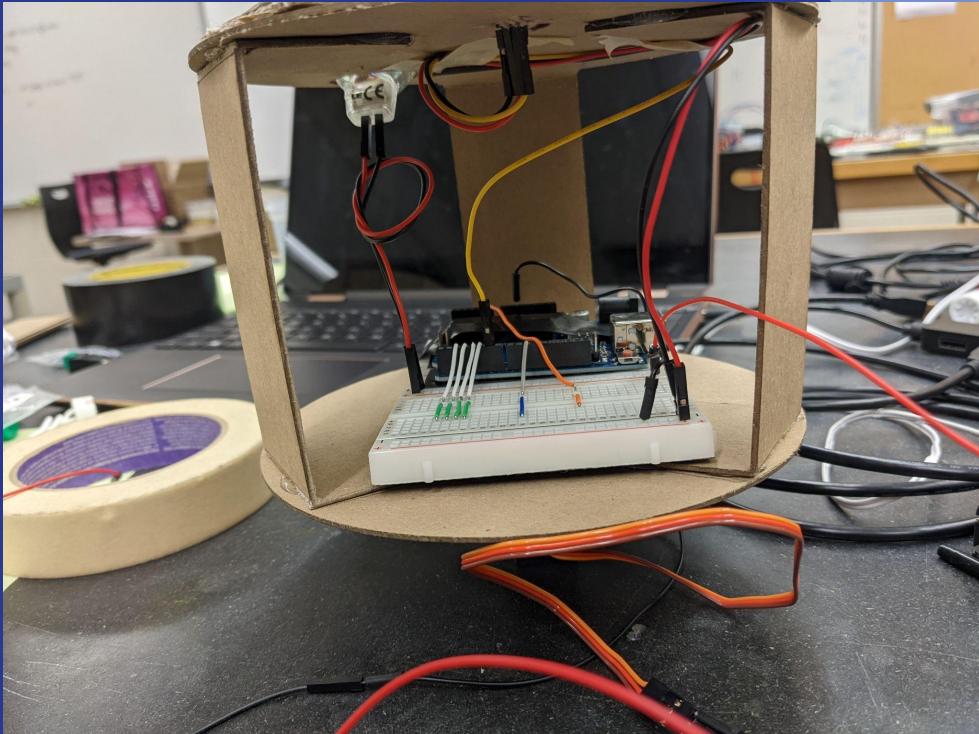
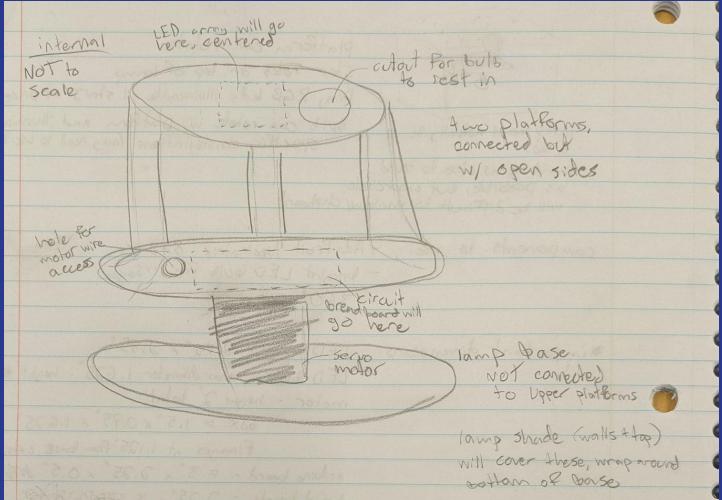
Wiring



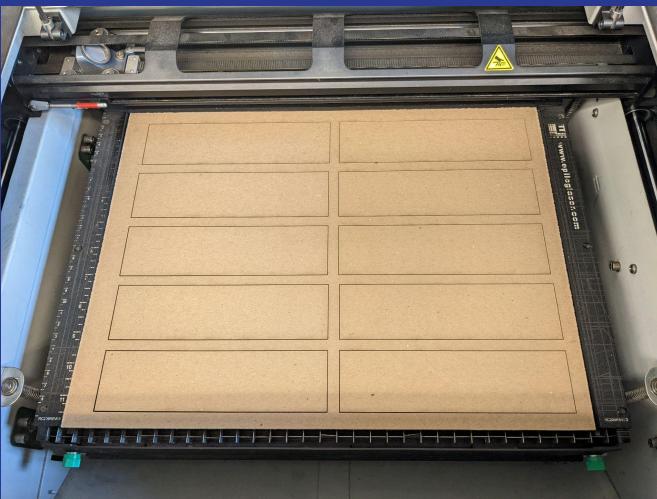
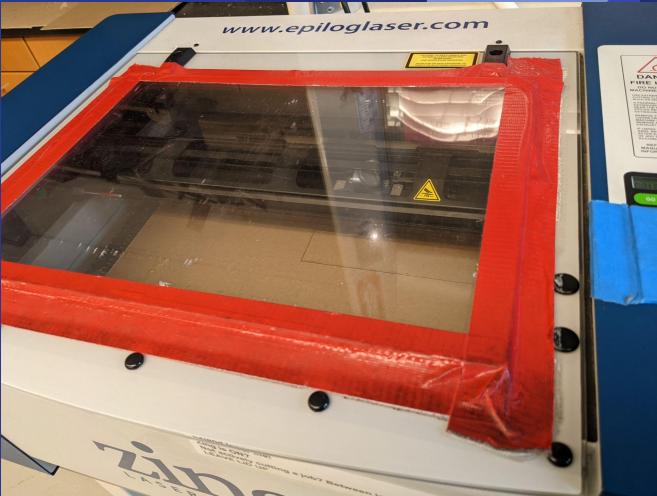
Code explanation



Mechanical design



Fabrication...



...and assembly!



Results

- Proof of concept!
- Learned more about types of servos (basic servos, continuous rotation servos, feedback servos) and how they're wired and controlled
- Mixed control types - LED panel controlled programmatically, LED bulb controlled physically
- Learned how to use LED software library
- Practice integrating mechanical and electrical design

Ideas for improvement

- Projection aspect
- Servo position control -- requires different library, different motor (360 degree parallax feedback servo), some additional wiring
- Rainbow cycle LED color setting -- requires additional programming
- Dedicated pathways for wires -- prevent wires from sticking out of lamp, getting caught, preventing rotation, etc.

Questions?

Thank you for your time!