sdmay20-29: Self-Solving Rubik's Cube
Week 2 Report
January 26 - February 9

Team Members
Taylor Burton — *Systems*
Jacob Campen — *Hardware*
Casey Cierzan — *Materials*
Joe Crowley — *Testing*
Luke Schoeberle — *Software Design*
Annie Lee — *Algorithms*
Patrick Levings-Curry — *Administrative*

Summary of Progress this Report

During this week, we made progress on the implementation of our first prototype.

In the hardware realm, we are ready to perform system testing, so we have started combining the subsystems to create our full prototype. At this point, we are in the early stages of this process. Additionally, we 3D-printed a few components from the CAD model, but we will need to print more components in the near future.

In the software realm, we improved the Teensy Arduino code slightly, and we started our implementation of the solving algorithms. In doing so, we fixed some issues with the rotation algorithms, and we discussed the best way of viewing the cube in software. At this point, we have completed small parts of solving the cube's first layer, so we will need to work on the solving algorithms in the near future.

Pending Issues

Due to a sizing issue with our 3D-printed sphere, our initial prototype may need to be slightly larger than anticipated. We will discuss this issue with our client next week.

Plans for Upcoming Reporting Period

Name	Upcoming Tasks
Jacob	● Design the overall system in more detail ● Design the motor controller
Casey	● Order more parts if needed ● Assist Jacob and Taylor with their tasks
Joe	● Improve the Teensy code ● Start working on solving algorithms
Luke	● Finish the first layer solving implementation ● Start the second layer solving implementation

Taylor	- Design the overall system in more detail - Improve the CAD model
Annie	- Finish the first layer solving implementation - Start the second layer solving implementation
Keegan	- Assist other members as necessary - Find adequate replacement motors

Individual Contributions

Team Member	Contribution	Weekly Hours	Total Hours
Taylor Burton	3D-printed additional components; Improved CAD prototype	14	98
Jacob Campen	Considered integration components; Tested the Teensy's ADC code	13	97
Casey Cierzan	Ordered new components from ETG; Assisted other members as needed	12	96
Joe Crowley	Improved the Teensy stepper code; Tested the Teensy's ADC code	13	97
Luke Schoeberle	Fixed issues with rotations; Started the first layer implementation	13	97
Annie Lee	Improved rotation API; Started the first layer implementation	13	97
Patrick Levings-Curry	Researched alternate components; Assisted other members as needed	12	96

Gitlab Activity Summary

Joe pushed some improvements to the Teensy stepper code and ADC code. Annie pushed her own branch with partial implementations of the first layer algorithms, and Luke pushed many major changes to the rotation code. Luke also pushed the first steps of the first layer algorithms.