**sdmay20-29: Self-Solving Rubik's Cube**
Week 5 Report
March 8 - March 29

## Team Members

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

## Summary of Progress this Report

After this week, we have made more progress on our first prototype, but the recent pandemic has greatly hindered our progress. Because we can no longer use the Coover labs, our client has agreed to loosen the requirements for our physical deliverables. As a result, we will focus on completing the solving algorithms and improving the documentation for our project, which may be transferred to another group in the fall.

In the hardware realm, we 3D-printed more components, and we tested the first draft of the PCB, which was generally unsuccessful. Consequently, we revised the PCB and ordered a second draft of the PCB, which arrived a few days ago. At this point, we would like to test our second PCB, but the pandemic has prevented us from doing so.

In the software realm, we made more progress on the solving algorithms. Currently, we have completed the third layer edges, and we have started the third layer corners. We hope to finish the third layer by the end of next week.

## Pending Issues

We need to ensure that the second PCB works as desired. We also need to choose better batteries and charging equipment for our application.

## Plans for Upcoming Reporting Period

| Name | Upcoming Tasks |
|------|----------------|
| Jacob | <ul><li>Test the second PCB with the motor control software if possible</li><li>Improve hardware documentation</li></ul> |
| Casey | <ul><li>Order more parts if needed</li><li>Improve hardware documentation</li></ul> |
| Joe | <ul><li>Test the second PCB with the motor control software if possible</li><li>Test the Teensy stepper code with the solving algorithms</li></ul> |

| Luke | <ul><li>Finish the third layer corners</li><li>Test the Teensy stepper code with the solving algorithms</li></ul> |
|---|---|
| Taylor | <ul><li>Finish the CAD model</li><li>Choose batteries and charging devices</li></ul> |
| Annie | <ul><li>Finish the second layer edges</li><li>Test the second layer edges fully</li></ul> |
| Keegan | <ul><li>Assist other members as necessary</li><li>Choose batteries and charging devices</li></ul> |

## Individual Contributions

| Team Member | Contribution | Weekly Hours | Total Hours |
|---|---|---|---|
| Jacob Campen | Performed the hardware testing of the first PCB; Designed the second PCB | 14 | 137 |
| Taylor Burton | Performed the hardware testing of the first PCB; 3D-printed the inner cubes | 13 | 136 |
| Casey Cierzan | Ordered new components from ETG; Designed the second PCB | 14 | 135 |
| Joe Crowley | Performed the software testing of the first PCB; Improved the motor control software | 12 | 137 |
| Luke Schoeberle | Finished the third layer edges; Started the third layer corners | 12 | 136 |
| Annie Lee | Tested the second layer code so far; Improved the second layer edges | 12 | 134 |
| Patrick Levings-Curry | Researched batteries; Assisted other members as needed | 12 | 133 |

## Gitlab Activity Summary

Luke pushed the third layer edges algorithms and some of the third layer corner code. Joe also pushed some improvements to the Teensy code.