

## sdmay20-29: Self-Solving Rubik's Cube

Week 12 Report

March 29 - April 12

### Team Members

Jacob Campen — *Hardware*

Casey Cierzan — *Materials*

Joe Crowley — *Testing*

Taylor Burton — *Systems*

Luke Schoeberle — *Software Design*

Annie Lee — *Algorithms*

Patrick Levings-Curry — *Administrative*

### Summary of Progress this Report

During this week, we finished the hardware design and received the rest of the parts. We also made more progress on completing the solving algorithms and improved the documentation for our project.

In the hardware realm, we designed the rest of the 3D-printable components and received the rest of the electrical parts. However, due to the recent pandemic, we do not have the equipment to print the other components and test the electrical parts, so we are currently stuck in this realm. The next group should be able to complete the prototype with our current components.

In the software realm, we nearly finished the solving algorithms. Currently, we have completed the third layer, so we only need to finish the second layer. We hope to finish the solving algorithms by the end of next week.

### Pending Issues

We need to choose better batteries and charging equipment for our application.

### Plans for Upcoming Reporting Period

Name	Upcoming Tasks
Jacob	<ul style="list-style-type: none"><li>● Improve hardware documentation</li><li>● Start the final report</li></ul>
Casey	<ul style="list-style-type: none"><li>● Improve hardware documentation</li><li>● Start the poster</li></ul>
Joe	<ul style="list-style-type: none"><li>● Improve software documentation</li><li>● Test communication protocols with the solving algorithms</li></ul>
Luke	<ul style="list-style-type: none"><li>● Finish the second layer algorithms</li><li>● Finish communication protocols with the Teensy</li></ul>

Taylor	<ul style="list-style-type: none"> <li>● Improve hardware documentation</li> <li>● Choose batteries and charging devices</li> </ul>
Annie	<ul style="list-style-type: none"> <li>● Finish the second layer algorithms</li> <li>● Test the solving algorithms as a unit</li> </ul>
Keegan	<ul style="list-style-type: none"> <li>● Improve hardware documentation</li> <li>● Choose batteries and charging devices</li> </ul>

### Individual Contributions

Team Member	Contribution	Weekly Hours	Total Hours
Jacob Campen	Asked questions to our peers; Responded to our peers' questions	13	150
Casey Cierzan	Ordered components from ETG; Documented the new deliverables	12	148
Joe Crowley	Asked questions to our peers; Responded to our peers' questions	13	148
Taylor Burton	Researched batteries; Designed the rest of the 3D model	13	149
Luke Schoeberle	Finished the third layer corners; Started the communication protocols with the Teensy	14	151
Annie Lee	Reviewed second layer algorithms; Improved the second layer edges	12	146
Patrick Levings-Curry	Researched batteries; Documented the new deliverables	13	146

### Gitlab Activity Summary

Luke pushed the rest of the third layer code and pushed parts of the communication protocols with the Teensy. Annie pushed a few improvements to the second layer code.