SSC Semesterly Project Report

SPARK - Fall 2024

## 1. Name of project

SPARK

## 2. Date project received financial award letter

November 9, 2023

## 3. Date of forecasted project completion

May 5, 2025

## 4. Date of report submission

December 14, 2024

## 5. Marketing and promotion efforts to date

After ordering our initial round of SPARK boards, we made a post about them and some other projects on our Instagram account. Once SPARK has undergone more testing and potentially had further revisions, we intend to further promote the project online and share it with other makers who are interested in building their own. We'll also start incorporating it into our society's larger events by having live testing demos. The SPARK design files are also open-source on our GitHub.

## 6. Please describe project progress

After spending last year working on the scope and design of SPARK, we were able to spend the summer reviewing and finalizing the design. The team more efficiently routed the board layout early on in the semester and ordered the board and components soon after.

The board assembly process proved to be a fun introduction for a lot of our new members to learn about soldering as well as how the system aims to reduce waste and refine our testing process. In total, we fully soldered two SPARK boards.

We were able to successfully test several aspects of the board but ran into some software issues that temporarily blocked it from being used fully. These issues will continue to be investigated and solved throughout the winter as we integrate SPARK into our hardware in the loop testing system.

Overall, we were really excited to finally produce a physical SPARK this semester and are looking forward to continuing to use it and refine the design!

## 7. Please describe how your project integrates student involvement and community outreach

SPARK has been an amazing opportunity for students to learn about the larger overall rocketry community and some of the testing challenges that they face as well as the verification and validation required to test a critical application. It's been a great hands-on experience for members working to learn embedded hardware design and in the future we plan to post our design for community feedback as well for others to create their own versions of SPARK.

Within our society we also think it would also be cool to work towards having SPARK do a live demo during our RSO's educational outreach events to talk about the importance of validation and verification engineering and how optimizing a system can make it overall more environmentally friendly in the long term.