View results

Respondent

27 Peter Giannetos

04:06
Time to complete

Project Questionnaire

Please provide proper and accurate information.

1. Name of project *

SPARK

2. Date project received financial award letter *

November 9, 2023

3. Date of forecasted project completion *

April 10, 2025

4. Date of report submission *

May 5, 2025

5. Marketing and promotion efforts to date *

Currently there hasn't been much marketing or promotion of SPARK as we're still finalizing the design. However afterwards we intend to promote our design 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.

6. Please describe project progress *

We took our time to properly step through the design process and went through multiple design iterations for our first prototype. Our overall scope hasn't changed but we did experiment with a few different ideas as to how to best implement SPARK electrically as well as what operating limits SPARK should support. After much consideration we were able to solidify a design for an initial prototype however it was too close to the end of the semester to be ordered and then built.
Instead, we plan to use the summer to take one final review of our prototype design and prepare any documentation in order to use SPARK's assembly as a fun onboarding project for some of our new members next semester.
While SPARK's design was occurring we also noticed that the screw connectors used for SPARK were relatively sensitive to over tightening which led us to invest in a torque drive to try and optimize the strength of our screw connectors and prevent over tightening. After some initial testing we were able to find that our connectors worked best with a torque of 27.5 in.-oz. The funding for the torque driver came from the budget for the logic analyzer which we received a large student discount on.
Overall, SPARK is making lots of progress in the design stages and we're excited next semester to bring it out of its design and into the real world!

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 next semester 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.

Project Documentation

8. Please upload updated financial documentation for your project

https://studentengagement.illinois.edu/student-sustainability/ssc/docs/SSC-Supplemental-Budget-Timeline.xlsx *

SPARK-Update-2024-Spring-Budget_Peter Giannetos.xlsx

9. Please upload project photography *

SPARK-Board-Routing_Peter Giannetos.png

SPARK-Board-Without-Component-3D-Models_Peter Giannetos.jpg

SPARK-Schematic_Peter Giannetos.png

SPARK-Torque-Driver_Peter Giannetos.jpg

SPARK-Screw-Terminal-Testing_Peter Giannetos.jpg