



## STUDENT SUSTAINABILITY COMMITTEE

### Semesterly Report

**Project Name:** Student Space Systems: Liquid V.1 Rocket Engine

**Date of Report Submission:** 1/10/2018

**Project Purpose:**

The purpose of this project is to design, manufacture and test a liquid bi-propellant rocket engine for launch vehicle applications. Additionally, utilizing only undergraduate engineers, this project pushes the limits of rocket development at the university level: significantly improving rocket engine efficiency, while also minimizing waste materials in the manufacturing process.

**Detailed Accounting of Expenditures to Date:**

Purchased the manufacturing materials and services, from GPI Manufacturing, Inc., to 3D print the Liquid V.1 injector plate. Total cost: \$4,700.40

**Project Progress to Date:**

Completed the design and manufacturing of the most critical and challenging component comprising the Liquid V.1 rocket engine. Major strides have been accomplished in the design of the combustion chamber and nozzle for the engine. Manufacturing of these parts will begin within the next month.

**Student Involvement and Outreach to Date:**

Undergraduate students are critical for rocket engine development in SSS, as they are the engineers designing and testing the engines. Depending on capabilities and experience, individual involvement varies from shadowing and learning about the design process and utilizing analysis software, to completing the actual designs, writeups and testing for components in this program. The club has participated in outreach events as well, such as E-Night, Quad Day, and Engineering Open House to increase interest in STEM programs, especially encouraging more female engineers.

**Marketing and Promotion Efforts to Date:**

Student Space Systems has reached out to a variety of organizations both in and outside the aerospace industry. Some of these organizations inside the industry include Orbital ATK, Blue Origin, and Northrop Grumman. Pairing with these companies, SSS hopes to improve membership experience as well as secure additional funds for future projects.