

Executive Summary:

The Electric Feed System (EFS) team will design, build, and test an electric feed system prototype to serve as a technology development platform for the PSAS LV4 rocket using commercial off the shelf (COTS) parts and in-house manufacturing by June 16, 2017 and for less than \$15,800.

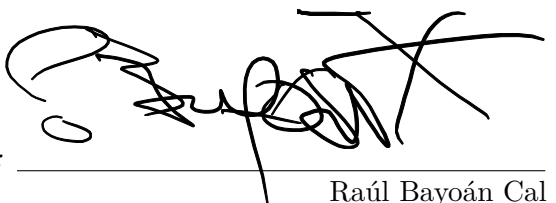
As of the time of this report, the EFS project is developing the first prototype, which will use water as its working fluid, and is transitioning from design to fabrication and testing. The project is currently ahead of the milestone schedule established by the project plan.

Efforts over the last two months have largely focused on pump sizing and impeller design. The critical decision has been made to transition from theory to validation through physical experiment, allowing us to proceed with the first prototype test. Along with pump theory and design, there have been ongoing parallel efforts to complete the other tasks required for the first prototype test, such as development of controls and data acquisition systems, sensor calibration, completion of CAD design, and identification and acquisition of critical components such as a motor, speed controller, and battery.

Our next milestone is the finalization of detailed design, encompassing impeller design, COTS parts selection, system simulation, and CAD modeling for the first prototype, planned for 3/26/17 but nearly complete as of 3/17/17. The associated milestone of finishing COTS part purchasing, due 4/2/17, is also largely complete and should be finished by 3/24/17.

The two critical following milestones are the assembly and testing of the first prototype, originally planned for 4/24/17 and 5/6/17, respectively. These two steps are now anticipated to be completed by 3/31/17 and 4/7/17, as much of the work required to execute this first test is either complete, underway, or well planned for. The major tasks preceding the first prototype test will be fabrication of the pump assembly, procurement of miscellaneous remaining COTS parts, and assembly of the test apparatus.

Looking forward to the final deliverable of a tested second prototype using liquid oxygen as a working fluid, our current status encourages us that we will be able to confront the challenges exposed by physical testing and the development of the final prototype.

Signature: 
Raúl Bayoán Cal
Faculty advisor