FALL 2017 NEWSLETTER

THE SOCIETY FOR ADVANCED ROCKET PROPULSION

RECOVERY UPDATE

LEAD: AARON GOLDFOGEL

The recovery team has its work cut out. Despite the pressure to not repeat last year's hull loss, recovery lead Aaron Goldfogel is confident in his team's ability to reach its goals. This year's recovery system will feature more student-built subsystems, including a completely sewn-in-house parachute. To guarantee an equal level of workmanship, changes will be made to recovery's schedule to accommodate more test runs. "The biggest goal of recovery is reliability," said Goldfogel, "our parts need to work every single time, so that on launch day, we get our hardware back."

"SARP is a place for all of us to pursue our passions and pour our very best work into a project we can all be proud of."

AVIONICS UPDATE

LEAD: SABRINA TONG

Avionics lead Sabrina Tong's goals for this year are summarized by: "Be safe! Find the rocket!" Her team's projects for this build are focused on modernization, redundancy, and automation. This year, three different systems manage location tracking, two core systems (ignition and filling) are being automated, and the launch system has gone wireless. The overall complexity of SARP 2017-2018 's avionics system has significantly increased with the intended changes, ushering in a new era of Kalman filtered flight data and largely automated ground control.

Setting up the static fire test stand, May 2017

Testing last year's avionics system across Lake Union

Letter from the Chief Engineer:

We want to welcome you to the 2017-2018 competition year and are very excited to be bringing you SARP's very first newsletter. Our team has revamped its structure and we believe this will be one of our best years yet. Previous SARP teams have given us the foundation we need to excel, and we are excited to share our team's work with you. SARP is full of passionate engineering undergraduates from all different majors coming together to build a hybrid sounding rocket that is over 15 feet tall. This year SARP has its eyes set on winning the IREC Spaceport America Cup. At Spaceport America Cup we are competing in the most technically challenging category: student developed hybrid motor with target 30,000 foot above ground level apogee. SARP is a place for all of us to pursue our passions and pour our very best work into a project we can all be proud of. We are excited to give all of you a portal into our world. So once again, welcome and we hope we can capture your fascination over the next few months.

- Arnela Grebovic

PROPULSION UPDATE

LEAD: TYLER MCIRVIN

Because of the high cost of testing, propulsion lead Tyler McIrvin's goal for the season is to "create analytical models to the best of our ability" and "to fine tune [these] models with the data and resources available."

> ***"It's much easier to modify an existing system than to make a system from scratch"***

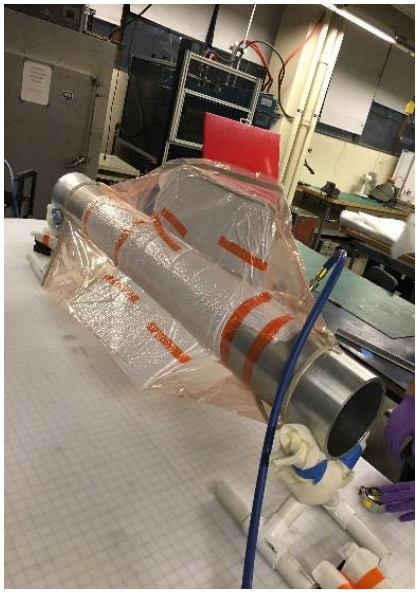
Emphasizing quality over quantity, McIrvin wants thorough data on all tests to facilitate modeling, modernizing the design process in the meantime. This focus for detail, combined with role shifts within the propulsion group, has iterative improvement over last year in mind. "It's much easier to modify an existing system than to make a system from scratch," explains McIrvin, "you can already identify the ways last year went wrong; we've learned a lot for this year."

STRUCTURES UPDATE

LEAD: KIEFER DUNDAS

Kiefer's focus this year on structures is on weight reduction and reproducibility, with a focus on looking towards the future. A major improvement he wants to make is centered on manufacturing consistency. This makes replacing high damage risk parts, such as fins, much easier. Iterating on last year's design, he hopes to have a new manufacturing process that allows fins to be swapped out and replaced on the fly, boosting performance on top of all of the weight-saving improvements that are already in the works. But the rocket isn't the only thing Dundas wants to build. "I want everyone to feel like they're building a rocket, not watching a rocket get built," he said, referring to the more decentralized role he's taken in design, "it should be a project I'm leading, not *my* project." Combined with a more conscious effort in manufacturing efficiency, Dundas wants to set the groundwork for future teams to rely on, from equipment, to knowledge, to relationships with companies.

Preparing for a static fire, May 2017



Building the fins, April 2017

Unloading the rocket at competition, June 2017

Nosecone Internal Design Review

USEED FUNDRAISING

LEAD: LEXI OTT

USEED was one of the biggest projects for the entire team this quarter. As a student-run organization, we rely on the support of our community to procure the funding for our rocket every year. We use USEED as a crowdfunding platform to gather a signifcant portion of our funding, where the team invites friends, family, and others passionate about rocketry to support us. This year we set our most ambitious goal yet at $17,000. Our expectations were thoroughly exceeded when we reached $22,200 through this crowd-funding effort. This support will make this year's rocket a reality – without this help, we would not be able to provide the opportunity for students to work on a tangible and challenging project year after year.

Thank you to all who donated and spread the word about the campaign!

THANK YOU TO OUR SUPPORTERS!

DigiPen Institute of Technology

Microsoft

Systima Technologies, Inc.

The Kim Family
Larry Shatos
Queenie Chu
Mr. Ortman

The competition team with the second place trophy at the Spaceport America Cup 2017

SARP 2017-2018 SCHEDULE

OCT: Design

DEC: Internal PDR
(Preliminary Design Review)

JAN: Industry PDR

FEB: Manufacturing & Testing

APR: Unveiling

MAY: Test Launch
(Brothers, Oregon)

JUN: Spaceport America Cup

Thank you for reading the first edition of our quarterly newsletter. We appreciate your support in every form. The SARP '17-'18 team wishes you a Happy New Year!