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MANUFACTURING IN FULL SWING

PROVE LAB PERIODICAL
FALL 2022 • ISSUE V

THE TEAM

PROVE Lab was started by a handful of students who saw the potential to do more with alternative energy. They wanted to be a part of something that had not been done before at Cal Poly and to accomplish something that had not been done in the world.

Members of PROVE lab are diverse in area of study, background, and interests. While some of our members are passionate about the automotive industry, most have passions that extend far beyond it or even the projects they are working on. The one unifying feature of our members is a strong desire to tackle meaningful challenges in pursuit of seeing an innovative concept brought to reality.



RECENT ORGANIZATIONAL RESTRUCTURING includes the addition of Co-Project Manager Hardit Singh, Co-Low Voltage Lead Mont Murad, Manufacturing Lead Justin Nguyen, and Mechanical Lead Scott Stirling. Retired from their positions are Project Manager Caleb Erlenborn and Mechanical Lead Chloe Schofield.



PAULO ISCOLD
FACULTY ADVISOR



KELLEN BARSLEY
PROJ. MANAGER



HARDIT SINGH
PROJ. MANAGER



ROCELIA RODRIGUEZ
PROJ. MANAGER



SARA ENTEZAR
BUSINESS



SCOTT STIRLING
MECHANICAL



ANDY MCCORMICK
AEROSHELL



GIBSON PUCKETT
HIGH VOLTAGE



JUSTIN NGUYEN
MANUFACTURING



LIN KNUDSEN
LOW VOLTAGE



MONT MURAD
LOW VOLTAGE

Our vehicles aren't just built to break world records. We strive to make a profound impact and challenge the status quo through innovative engineering driven by ambitious goals.



PROVE BUILDS ALL ITS PROJECTS from the ground up, as students learn the ins and outs of technical engineering and business management across a project's full life cycle. Through using alternative energy in our vehicles, PROVE Lab hopes to demonstrate the viability of clean energy and help pave the way for a renewable energy future.

Freed from the restrictions of competition, our team is left to make our project's visions uniquely our own. All aspects of project development are coordinated by students, from detailed technical designs and system engineering to sponsor acquisition and team management. Every member of PROVE is given the opportunity to excel, regardless of their experience, major, or background. The personal development of our team's technical and soft skills is our top priority, and we ensure every member at PROVE Lab is given responsibilities to make a real impact on the project.

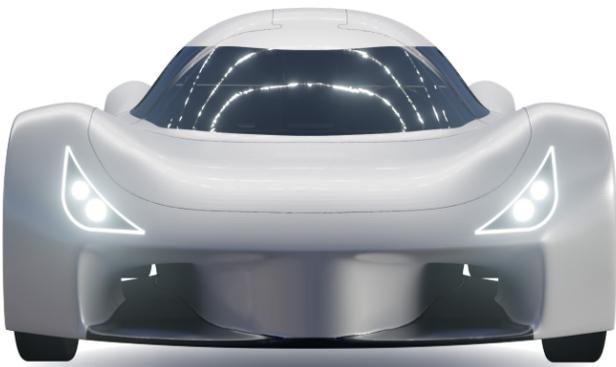
MEMBERSHIP DEMOGRAPHIC BY MAJOR

15	MECHANICAL ENGINEERING
10	AEROSPACE ENGINEERING
10	ELECTRICAL ENGINEERING
4	COMPUTER SCIENCE
9	OTHER

CURRENT PROJECT: MILA

THE ENDURANCE CAR PROJECT looks to develop a fully electric long-range sports car that will drive 1000+ miles on a single charge, aiming to break the Guinness World Record for the longest distance traveled on a single charge.

The student team will complete the full life cycle of the project—from design to systems testing—while applying the skills learned inside and outside the classroom.



ESTIMATED SPECIFICATIONS

EXPECTED RANGE	1200 mi
RECORD RUN SPEED	35 mph
BATTERY PACK CAPACITY	110 kWh
COEFFICIENT OF DRAG	0.12
TOTAL WEIGHT	2,900 lbs

SIGNIFICANT EVENTS

DURING FALL, the team hosted a number of social and professional events to strengthen team cohesion and career-readiness. These events not only foster friendships within the team, but provide a welcoming space for members to learn from each other, industry members, and professionals.

CLUB SHOWCASE

A handful of members staffed our booth during Club Showcase, sharing their experiences on the team with interested potential recruits.

RECRUITMENT SOCIAL & BBQ

The team ended the recruitment period with a Recruitment Social & BBQ at Santa Rosa Park, an opportunity for recruits to ask questions and mingle with members.

ALUMNI SOCIAL AND NETWORKING

We held our first in-person alumni event to reunite old friends, present team and project progress, and connect alumni with current members and recruits.

COMPANY NETWORKING EVENT

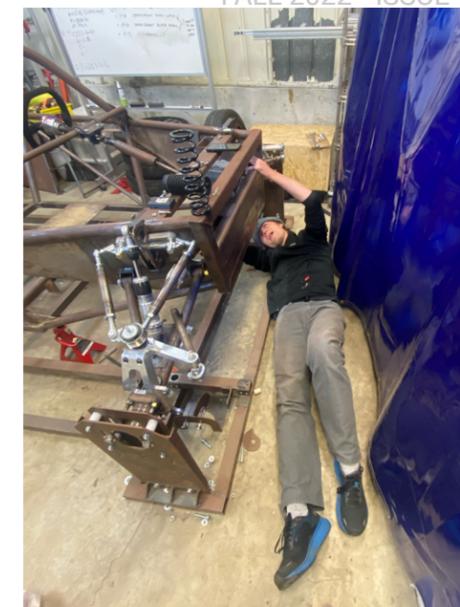
PROVE hosted Rivian, SpaceX, TI, and ESAero at its first company networking event. Fellow clubs in attendance were CP Hyperloop & Tunneling, CP Racing, and CP Space Systems. Each organization was given time to share their mission, current projects, and opportunities available for networking, partnerships, and internships/careers!

BALANCING FUN AND CASUAL EVENTS WITH INFORMATIVE WORKSHOPS ENSURES A FRIENDLY, CAREER-READY, AND SOCIALLY AWARE TEAM. EACH EVENT LOOKS TO FOSTER AN INCLUSIVE, WELL-ROUNDED CLUB CULTURE.



FALL 2022 PROGRESS

THIS QUARTER HAS BEEN DEFINED by significant manufacturing and Low Voltage system progress. With several new recruits, our team has been dedicated to the transfer of knowledge. The quarter ends with Build Week, a week-long commitment to manufacturing.

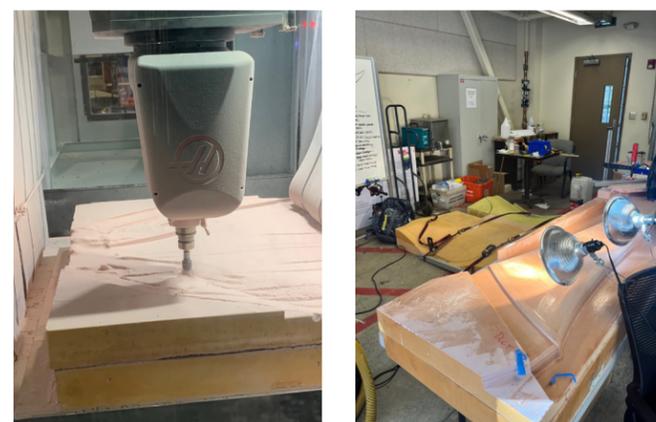


MECHANICAL

- Finished integrating steering and suspension subsystems
- Began manufacturing and integration of braking system and seat mounts
- Finished preparations for drop test to ascertain chassis meets loading requirements

AEROSHELL

- Manufactured the rear fairing top panels
- Simulated and analyzed new aeroshell designs with star CCM+

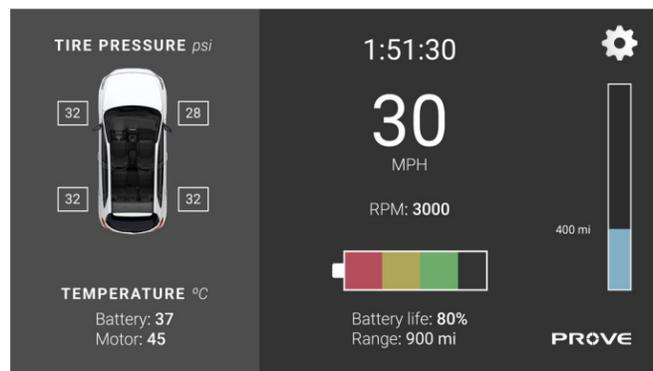


HIGH VOLTAGE

- Designed CNC Spot Welder to automate and ensure high precision for Li-ion spot welding
- Selected low voltage battery size and BMS and started on LV battery pack manufacturing
- Re-evaluated cooling system design to lower power loss
- Designed structure for holding the SLA batteries and selected a charger
- Started prototype battery pack manufacturing using SLA batteries

LOW VOLTAGE

- Developed and tested prototype RF telemetry system
- Developed beginnings of low voltage power distribution system and integration
- Established team GitHub workflow to foster collaborative software development
- Designed preliminary dashboard UI
- Set up data collection systems for drop test

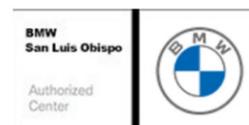


OUR SPONSORS

A HUGE THANK YOU TO ALL THE SPONSORS WHO MAKE OUR PROJECTS POSSIBLE!

AS A NONPROFIT Instructional Related Activity, members of PROVE manage partnership outreach, materials acquisition, and appropriate budgeting; your assistance ensures that our project can keep

making progress. The PROVE Team ensures that every single donation assists in the development of Mila and the education of our members, and we understand the generosity of all donations. Once again, thank you!



LETTER FROM THE PROJECT MANAGERS

We always knew that building the first of anything is difficult—but no one could have predicted just how much work would be needed. Five years have passed since the conception of the Endurance Car Project, bringing with it thousands of hours of great work by the entirety of the team. While we still have a long ways to go, it's important to recognize all the fantastic work—technical and non-technical—that we have already accomplished.

The rest of the periodical highlights the technical advancements made by the PROVE subteams, so we'd like to take some time to highlight other milestones the team has made in the recent months. First, the team moved to a new lab space in August, giving us a permanent home to build the vehicle. After three lab space changes in three years, the commitment to "The Garage," located next to the Aero Hangar, allows us to focus on our long-term manufacturing goals and provides a reliable space for members to gather beyond just work days.

In September, we recruited our largest group of new members, showing that interest in our team has grown more than ever. Our team now totals just over 45 members! Many of these new members have already designed parts that are now on the vehicle, and the transfer of knowledge continues on.

Finally, we hosted two successful networking events to advance professional development. Our Company Networking Event provided members the opportunity to speak with representatives from ES Aero, Space X, Texas Instruments, and Rivian. Our Alumni Social and Networking Event provided a casual space for members to connect with PROVE alumni who've already experienced the trials of job search, career development, and work-life balance. Thanks to the generous attendees of both events, we were successfully able to foster intimate spaces for our members to engage directly with industry professionals.

As 2022 comes to an end, our team celebrates more than just the work displayed here in the newsletter. We celebrate every hour spent by each member that brought us to where we are today—many, many hours. Now we welcome the new opportunities to learn and progress upon returning in the new year.

Sincerely,
the Project Managers
Kellen Barsley, Hardit Singh, and Rocelia Rodriguez

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PROVELAB