



THE UNIVERSITY
OF BRITISH COLUMBIA



UBC Formula Electric Sponsorship Package

Wayne and William White Engineering Design Centre

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About Us

Mission

To challenge students in developing a hands-on well-engineered, high-performance electric race car to prove that sustainability can be competitive and exciting.

Approach

We are a student engineering design team from the University of British Columbia that designs and builds electric race cars to compete in the Formula SAE series. For decades, internal combustion engines (ICE) have been the norm in motorsport and class. We challenge that notion and instead provide students with the opportunity and resources to develop, expand, and apply their engineering skills with an electric drivetrain.

The Formula SAE series requires a diverse array of technical abilities forming several subteams, each focusing on building a specific car segment. With the complexity of these events, we rely on strong student management and business team to operate and manage this small organization while racing around the world.

Process

We are a team of over 70 students from various disciplines, not just engineering. Members learn about the many complexities and intricacies of designing and building an electric vehicle from scratch. Nearly all of our team's parts are manufactured by students, cementing in their minds the process and how to improve upon it. Since we are students first and foremost, we instill a significant focus on managing projects and teams to ensure they're done on time, on budget and, most importantly, make us faster.

Team Leads

ENGINEERING TEAM



Edwin Mooney
Team Captain - 4th Year

Edwin oversees the development and organization of our team. As captain, he ensures all sub-teams are progressing on schedule and within budget on top of being a technical leader for our team's design and vehicle development. He is also in charge of managing our relationships with UBC and other design teams.



Reece Haberstock
Mechanical Director - 5th Year

As the mechanical director, Reece is in charge of six subteams, from the accumulator design to the suspension teams. He also leads two subteams within the mechanical team in the design of our chassis and suspension. Since first year, Reece has been on the team and is expecting to graduate in 2024.



Joe Thurston
Electrical Technical Director - 5th Year

Joe is responsible for PCB design and vehicle integration. His interdisciplinary background ensures that the mechanical and electrical systems of the vehicle come together seamlessly. He also shares his knowledge with junior members so they can become comfortable with vehicle wiring and PCB design practices.



Gus Tahara-Edmonds
Firmware Director - 4th Year

Gus has experience with PCB design and embedded firmware development. Currently, he is focusing on integrating and testing vehicle electronics, as well as sharing his electrical knowledge with newer members.

BUSINESS TEAM



Alysia Yoon
Business Director - 4th Year

Alysia leads many of the business projects and ensures that everything runs smoothly. Besides being the director, she also leads our infrastructure and processes team, which includes managing and improving our team's internal structure and projects.



Harrison Cardey
Accounting and Finance Lead - 3rd Year

Harrison helps run all things finance related. He oversees and assists with managing our newly implemented internal accounting and financial reporting system and reimbursement processes. He is passionate about teaching and creating long-lasting relationships with our members.



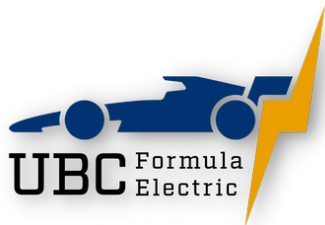
Josie Field
Social Media Lead - 4th Year

Josie runs all of our social media accounts. She films and edits photos and videos to capture the essence of UBC Formula Electric. Our team does incredible work, and Josie makes sure to share it with everyone in the community. She loves motor sports and is super excited to see everything come together for competition this year.



Our History

UBC Formula Electric



After the completion of Elektra, the UBC Electric Car Club pivoted its focus away from electric drag racing and became **UBC Formula Electric** to build fully in-house electric race cars for the Formula SAE (FSAE) competition.

First Competition



We competed at Formula North 2018 in Barrie, Ontario with our first electric race car, Luna. In our first competition ever, Luna passed all the technical inspections and placed 7th overall out of 18 teams.

Thruna



Utilizing the data collected from Tuna at competition and testing, we were able to optimize and improve the design of our 2023 vehicle: Thruna. A continuation of our 2-wheel drive architecture.

We overhauled our team organization to better prepare ourselves to tackle our future goals. We implemented two new software programs: **Wave Accounting** for digitalizing finances, and **Atlassian** products to improve engineering documentation and project management.

2015

2018

2022/23

2009

UBC Electric Car Club

UBC Electric Car Club (2009-2015) converted a 1972 Volkswagen Beetle to emphasize the short-range performance of electric powertrains and named it Elektra. At its peak, Elektra produced approximately 240kW/320 hp of power. Fun fact: Elektra was the first electric car to drive across Canada!



2017

First Formula E Car - Luna

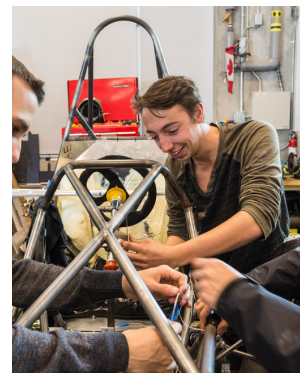
Luna was our first car specifically designed to for the Formula SAE competition. It was completely student designed from the ground up. Over the course of a year, we developed, tested, and built the electrical and mechanical systems.



2019/22

We spent the first half of our season in 2019 working on our second-gen car, Tuna. Due to the pandemic we were heavily delayed with the manufacturing of the car, however, that did not stop us from completing the car. We competed with Tuna for our first FSAE competition in 2022 placing 20th against 50 teams.

Tuna



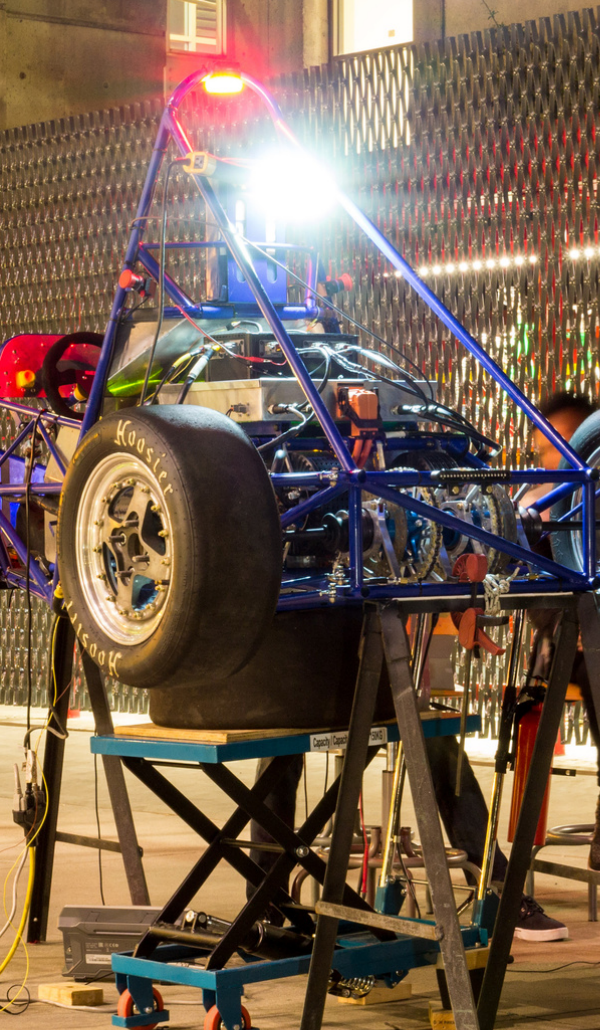
2023

FSAE Michigan 2023

In 2023, we were back for the second time at FSAE Michigan. Placing **2nd in the efficiency event** and 21st overall. We made significant strides forward this year by completing all inspections and competing on-track. Using lessons from 2023 and continuing testing on Thruna we are putting together big plans for 2024 and 2025.



See page 8 for our future goals & plans



The Competition

Overview

Formula SAE is an engineering student design competition organized by SAE International that requires performance demonstration of vehicles in a series of events, both off-track and on-track against the clock.

Each competition gives teams the chance to demonstrate their creativity and engineering skills compared to various university design teams from around the world.

Outline

Each design will be evaluated against competing designs in a series of Static and Dynamic events to determine the vehicle that best meets the design and performance goals in addition to being profitably built and marketed through a business case competition.

Static Events (325 pts)

Presentation | 75 pts

Create a comprehensive business, logistical, production, or technical case to convince outside interests to invest in the team's concept.

Cost | 100 pts

Explain our budget and decisions in terms of performance tradeoffs.

Design | 150 pts

Evaluate the engineering effort that went into the vehicle and how our design meets the intent of the market in terms of vehicle performance and value.

Dynamic Events (675 pts)

Acceleration | 100 pts

Vehicle acceleration on a straight 75-metre line on flat pavement.

Skid Pad | 75 pts

Vehicle cornering ability on a flat surface while making a constant radius turn.

Autocross | 125 pts

Vehicle maneuverability and handling qualities on a tight course.

Efficiency | 100 pts

The Efficiency event evaluates the energy used to complete the Endurance event.

Endurance | 275 pts

Vehicle's overall performance and tests durability and reliability.

FSAE 2023



In June of 2023, our team travelled to the Michigan International Speedway and competed in our second-ever FSAE Competition. Armed with a ton of improvement over last season with the integration of new project management software and a new organizational structure, we competed with our most technically advanced car to date; Thruna.

Despite a few flat tires on our trailer, we made it to Michigan and began setting up for a gruelling four-day event. Unlike last year, we were able to complete all of our technical inspections, which only 30% of teams were able to complete.

Passing the technical inspections meant we were now able to compete in all of the dynamic events. From our dynamic events, we were able to secure 2nd place in battery efficiency, in which we were ecstatic to receive such an award in our second-ever FSAE competition.

Overall, our team placed 21st out of the 69 teams from across the globe. We are pleased with the result but in no way satisfied. The competition this year was very much a learning experience, and we can't wait to come back next year and show off what we can really do!



Our Future Plans

2024 Goals

Top 10 Overall

By focusing on improving reliability and our engineering methods we will attempt to fully optimize our 2nd generation package (started with Tuna) while beginning our ambitious 2025 projects.

Quadrana Vehicle Concept

- Carbon Fiber Monocoque*
- First Aerodynamic Kit
- Dual-Motor Rear-Wheel Drive
- Slimmed Battery Pack
- New Vehicle Electronics Architecture
- Advanced Traction Control
- Power Limiting & Optimization

2025 Goals

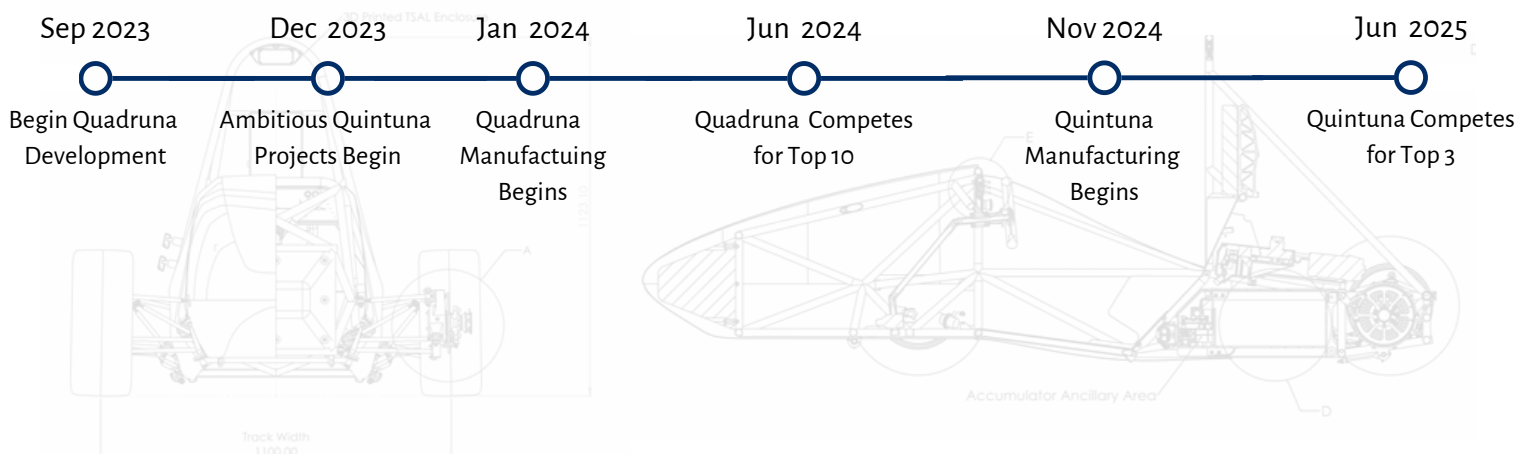
Top 3 Overall

Building off of the foundation of the 2024 season, we will design and build an entirely new vehicle architecture to compete at the top. Using our vastly improved engineering practices we expect to deliver a data-driven and fully optimized package.

Quintuna Vehicle Concept

- Carbon Fiber Monocoque*
- Optimized Aerodynamics
- Quad-Motor AWD*
- Ground-up Suspension
- All-New Refined Battery
- Advanced Torque Vectoring
- Advanced Power Optimization

Timeline



*Projects are dependent on the results of further analysis

Why Support Us?

Sponsoring us supports UBC students beyond the design and manufacturing of our vehicles.

Reason

UBC Formula Electric strives to be the starting point for the finest engineers in sustainability and for the leaders of the future.

At UBC, we use the projects you fund and the opportunities you give to achieve:

- Technological Innovation
- Environmental Sustainability
- Vehicles that are powerful, precise, and inexpensive

Our team focuses on supplementing the education of our team members with hands-on experience. We are passionate about not only creating a new, innovative future that will keep our planet green for generations but also promoting investment into projects such as ours, which is a necessary way of achieving this goal. Our team is driven and willing to collaborate for any Co-op opportunities offered within your company.

Next Steps

With your help, we can further develop the learning of our team members to cultivate and inspire the next generation of leaders, engineers, and environmentalists in developing a better future.



Sponsorship Benefits

	Donation \$500	Bronze \$1,000	Silver \$2,500	Gold \$5,000	Platinum \$10,000	Ruby \$15,000	Diamond \$20,000
Receive our newsletter	✓	✓	✓	✓	✓	✓	✓
Logo on car and website		✓	✓	✓	✓	✓	✓
Invitation to team networking events		✓	✓	✓	✓	✓	✓
Mentions on our social media accounts			✓	✓	✓	✓	✓
Preferred location on the car					✓	✓	✓
All of the above and your logo on our team clothing						✓	✓
Surprise Benefits!							✓
Logo on car (size in cm ²)		12	18	20	30	40	50



Current Sponsors

Diamond



Ruby



Platinum



Gold



Silver



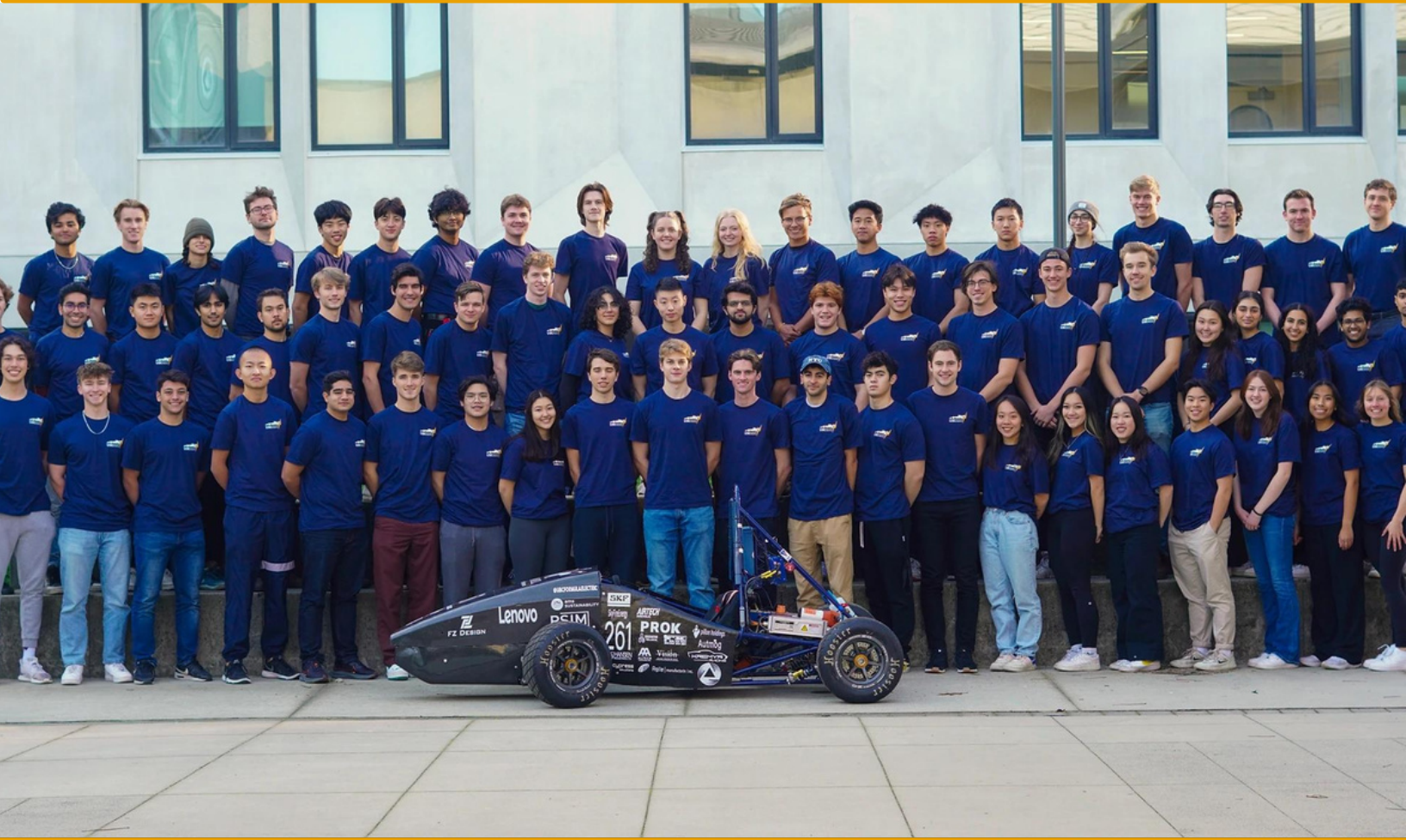
Bronze



Walter H. Gage Memorial Fund



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