

2023/2024

ST  RR | Student Team for
Alberta Rocketry
Research

Sponsorship Package

Development of Ringo IIB & Ringo III
Spaceport America Cup 2024
Launch Canada 2024

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About Us

The Student Team for Alberta Rocketry Research (STARR) is a team of like-minded students from a wide array of disciplines and faculties who have come together with the common goal of expanding Alberta's space industry through the development, testing, and launching of high-altitude sounding rockets.

STARR was founded in 2018 by several engineering students passionate about designing and manufacturing a rocket worthy of launching in intercollegiate competitions. Due to the COVID-19 pandemic, STARR was unable to participate in a rocketry competition until the inaugural 2022 Launch Canada Competition.

Following the successful flight of Ringo I in 2022, STARR successfully launched Ringo II in August 2023 at the Launch Canada 2023 Competition to 9,841 ft where it was awarded second place in its category.

Ringo II's payload employed a 3U CubeSat structure and housed an experiment studying the concentrations of microbial life at high altitudes. For the second year in a row, STARR's payload was awarded first place in the Payload Design Challenge at the Launch Canada Competition.



Grace Ciarniello
President

A 5th-year engineering physics - nanoengineering option student who was heavily involved with the payload development of Ringo II. Grace oversees all day-to-day club activities with the vision of expanding the University of Alberta's aerospace talent. Grace has been a part of the club since 2019, eventually moving to the role of payload team lead, and finally taking the mantle of president.



Colby Gauthier
Chief Technical Director

A 5th-year mechanical engineering student who worked closely on the design and development of both Ringo I and Ringo II. Colby oversees the development of each of our rockets. Colby has worked with STARR since 2020 as a mechanical team member and was eventually promoted to the mechanical team lead and finally, to the club's chief technical director.

Meet the rest of the team on the next page!

Team Profile

STARR consists of 100+ active members including students from all faculties, disciplines, and levels of experience at the University of Alberta. Alongside the President and Chief Technical Director, we are composed of executive members and seven sub-teams that work closely together throughout the year.



Egor Yaritsa
Technical Director

A 5th-year mechanical engineering student who directs the research and development of special technologies for STARR.



Ethan Jogola
Technical Director
Recovery Team Lead

A 3rd-year mechanical engineering student who directs the development of Ringo IIB, and the recovery systems for our rockets.



Christian Venter
VP External

A 3rd-year math specialization in computing science student responsible for coordinating the outreach and external relations for STARR.



Joseph Hoven
VP Finance

A 5th-year mechanical engineering student who coordinates all financial related matters and handles the clubs budget and funding opportunities.



Dan Liang
Safety Officer

A 3rd-year mechanical engineering student who carries out workplace inspections and ensures our club follows safe work practices.



Tyler Stocking
Mechanical Team Lead

A 5th-year mechanical engineering student who oversees the design, development, and manufacturing of our rockets.



Jade Belisle
Payload Team Lead

A 5th-year mechanical engineering - biomedical option student who oversees the development of our payload projects and experiments that take place within our rockets.



Jakob Zimmerman
Testing Team Lead

A 3rd-year mechanical engineering student who conducts the testing of our rockets and their various components.



Matthew Thomson
Avionics Team Lead

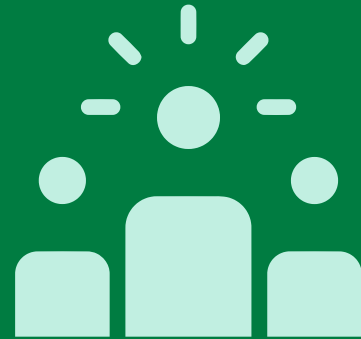
A 3rd-year engineering physics student who is dedicated to the computer and electrical engineering aspects of our rockets



Ben Paulson
Software Team Lead

A 4th-year computer engineering student who develops and implements plugins and software for our rockets.

Our Mission and Vision



MISSION

Our mission is to provide experience for students in developing launch vehicles and scientific payloads, educate the public through outreach activities, and promote STEM to students across Alberta.



VISION

Our vision is to provide to our members the necessary experience and skills to pursue a career in the aerospace industry and strengthen Alberta's position as a leader in the Canadian aerospace community.



Ringo I



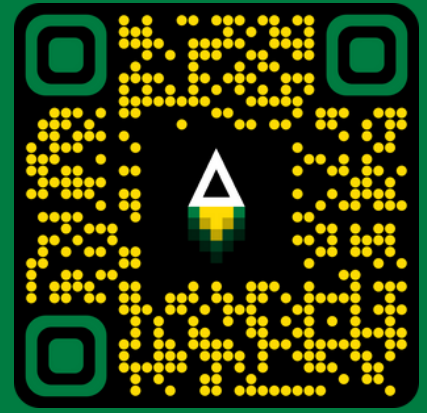
Scan me to see
Ringo I in flight!

- STARR's first launch project, designed and manufactured in the 2021-2022 academic year
- University of Alberta's first sounding rocket
- Competed in the Inaugural 2022 Launch Canada Rocketry Challenge
- Awarded **1st place in the Payload Challenge**
- Awarded **top 5 in the Basic Launch Challenge**
- Second-ever amateur experimental rocket launch on Canadian soil
- Employed a dual event recovery system
- Propelled to **10,671 ft**

"The University of Alberta [team] showed a remarkable amount of progress over the course of the event and in spite of initial setbacks when they went through the first safety inspection, they were really determined to learn, grow and progress and ended up being one of the first teams to fly! That was an amazing accomplishment!"

**- Adam Trumpour,
President of Launch Canada**





Scan me to see
Ringo II in flight!

Ringo II

- STARR's second launch project, designed and manufactured in the 2022-2023 academic year
- Competed in the 2023 Launch Canada Rocketry Challenge
- Awarded **1st place in the Payload Challenge**
- Awarded **2nd place in the Basic Launch Challenge**
- Employed a dual-bay, dual-event recovery system
- Deployable payload mechanism
- **Improved** aerodynamic efficiency
- **Student-manufactured** aerostructure via fiberglass
- Propelled to **9,841 ft**

"This team started out last year with a whole host of challenges they needed to overcome from the time of their flight safety inspection and worked tirelessly to get off the rail. This year, the improvement in the team was really visible and it was awesome seeing how far they have come."

- Adam Trumpour,
President of Launch Canada





Ringo III

STARR's third sounding rocket, developed for new heights.



Goal #1

Develop Ringo III for launch at Launch Canada in August 2024.



Goal #2

Reach an altitude greater than 30,000 ft at speeds far exceeding Mach 1.0.



Goal #3

Have Ringo III carry a deployable 3U CubeSat payload.

STARR's main goal is to develop and launch a new sounding rocket, Ringo III, at the 2024 Launch Canada Rocketry Competition. Ringo III will be a 4" diameter sounding rocket powered by a commercial off-the-shelf solid motor from Cesaroni Technologies Inc. We intend to launch Ringo III to an altitude exceeding 30,000 ft, and speeds exceeding Mach 1.0. This will be accomplished by using a more powerful motor than for both Ringo I and Ringo II.

Ringo III will carry a student-developed 3U CubeSat payload that will be ejected from the airframe at apogee. Inspired by the 2027 NASA Dragonfly mission to Saturn's moon, Titan, this payload builds on Ringo II's 'BIOME' payload as part of a 5-year project to be taken on by STARR. This year, our payload will be designed to improve upon our previous air sampling unit to filter and collect microbes from the lower troposphere, while introducing structural components, such as arms, that will build towards the end of the 5-year plan. In future years, the payload will deploy a roto-copter drone capable of performing autonomous atmospheric testing.

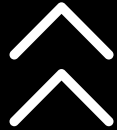
Ringo IIB

A re-design of STARR's second rocket, optimizing for performance.



Goal #1

Develop Ringo IIB for launch at the Spaceport America Cup in June 2024.



Goal #2

Demonstrate STARR's first student-developed recovery system at an intercollegiate competition.



Goal #3

Have Ringo IIB carry a payload developed by the *AlbertaSat* student team.

Our goal is to remanufacture and re-launch Ringo II as Ringo IIB. This will be a more efficient and optimized design of our second rocket, allowing us to compete at a high level at the 2024 Spaceport America Cup. Following its predecessor, Ringo IIB will be a 6" diameter sounding rocket powered by a commercial off-the-shelf solid motor from Cesaroni Technologies Inc. We intend to launch Ringo IIB to a target altitude of 10,000 ft. The 2024 Spaceport America Cup will be STARR's first appearance at an international intercollegiate competition, as well as STARR's first demonstration of an SRAD recovery system at a competition.

Ringo IIB will carry an *AlbertaSat*-designed 3U CubeSat payload that will be ejected from the airframe at apogee. This payload will act as a test flight for components and hardware which will be used in future *AlbertaSat* projects. This is the first major collaboration between two student groups in University of Alberta history for an international aerospace competition.

Why Sponsor STARR?

1

Brand Visibility

Your organization will be featured on our website and social media pages. Depending on your size of contribution, your logo will also be on our team uniform and rocket.

2

Aerospace Promotion

We aim to develop a strong aerospace educational program at the University of Alberta. Our partnership will encourage innovation in aerospace and will provide university and grade school students with the opportunity to get involved.

3

Networking

STARR is composed of multidisciplinary students who are passionate about the aerospace industry. This is an opportunity for sponsors to gain exposure to some of the most promising students that the University of Alberta has to offer.

4

Youth Empowerment

Through your meaningful support, youth can grow their curiosity in the space industry and plan a future around it. Not only will you be providing the resources to inspire youth, but you are helping develop the next generation of STEM leaders.



Building a rocket isn't easy. After all, it's rocket science. We need your help in the form of services, materials, and financial contributions.

Whether it's small or large, your support would be invaluable in helping us reach new heights and fulfill both our mission and vision.

STARR is eager to represent our sponsors with class and pride.





Outreach Activities



STARR participates in a number of university and high school outreach events, for both recruitment and educational purposes.

Clubs Fair and Engineering Carnival

STARR takes part in the University of Alberta's annual clubs fair and engineering carnival where we recruit prospective members to join our club. STARR sets up a booth at both events, showcasing our projects and diverse team. Representatives of STARR from a variety of sub-teams speak to students about the type of work we do, the benefits of joining a design team, and the different subteams and parts of the project that they could work on.

Mechanical Engineering Night & Space Symposium

STARR has made presentations at events set up by the University of Alberta's Mechanical Engineering department and Institute for Space Science, Exploration and Technology (ISSET), where we presented our work to current students and shared the story behind the University of Alberta's first sounding rocket, Ringo I.

Alumni Weekend

STARR attends the University of Alberta's annual Alumni Weekend where members gain valuable connections with alumni engineers and showcase the promising aerospace talent we have to offer.

High School Outreach Events

Members of STARR reach out to their old high schools and conduct outreach events to present Ringo I. Members are able to showcase what they have been pursuing since high school graduation and have inspired students to pursue a career in STEM at the University of Alberta.

DiscoverE

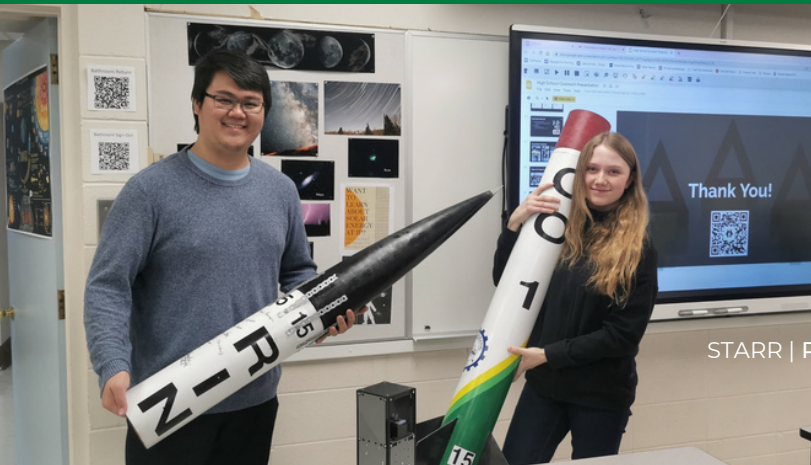
During the summer, STARR presents at the University of Alberta's DiscoverE camp for students in grades 1 through 9 who are interested in STEM. DiscoverE is a high-impact program, organized by the Faculty of Engineering, that inspires and engages youth through fun, meaningful, and accessible STEM programs. In our presentations, we break down our work and present it in an easy-to-understand format, showing off our first sounding rocket, Ringo I, and explaining all of the exciting careers and projects you can work on as a STEM student.

Engineering Showcase

STARR takes part in the annual University of Alberta Engineering Showcase, where prospective engineering students receive a tour of engineering buildings and get the opportunity to learn about the different extracurricular design teams available to them. As one of the design teams at this event, we speak to parents and students about the opportunities available through STARR, the importance of extracurricular design teams in an engineering degree, and showcase our first sounding rocket, Ringo I.

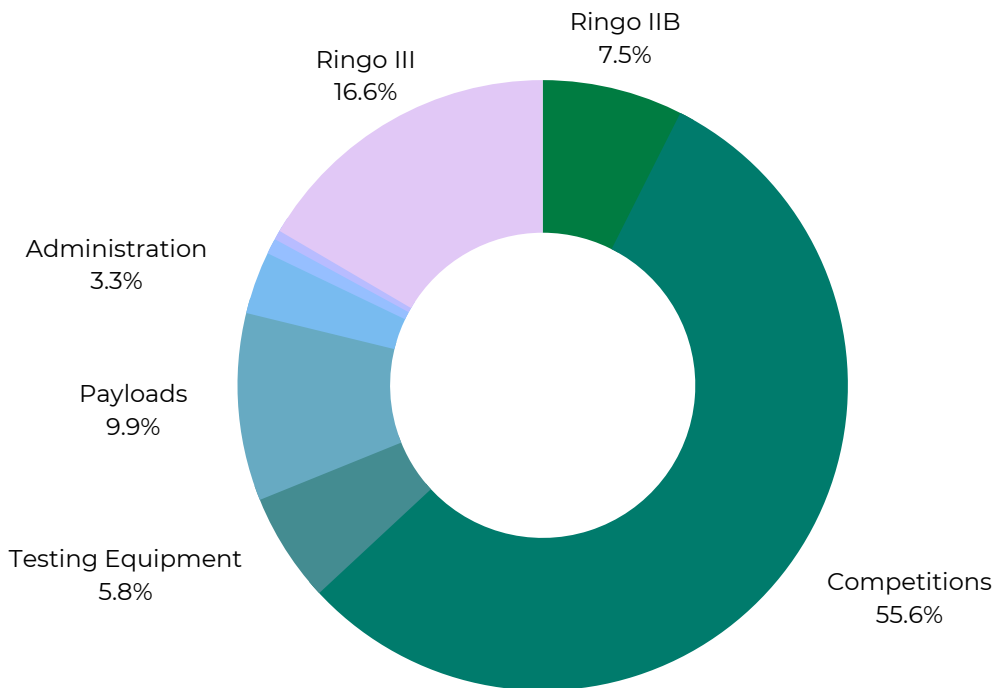
STARR at Jasper Place High School in Edmonton for a High School Outreach Event

STARR at Parkland Composite High School in Edson for a Junior High School Outreach Event



Our Budget

FOR THE 2023/2024 ACADEMIC YEAR



STARR requires \$60,400.00 to design, build, and launch Ringo IIB and Ringo III at the 2024 Spaceport America Cup and 2024 Launch Canada competitions.

The intercollegiate competitions themselves will be the club's most significant expense. We will be competing against the best student aerospace talent in the world!

We will also require \$20,500.00 to design and build this year's rockets and payloads. These are our most ambitious projects to date!

Expense	Value
Competitions	\$33,600.00
Ringo III	\$10,000.00
Ringo IIB	\$4,500.00
Testing Equipment	\$3,500.00
Payloads	\$6,000.00
Administration	\$2,000.00
Safety Equipment	\$500.00
Tools	\$300.00
TOTAL	\$60,400.00

Sponsorship Tiers

Bronze (<\$499)	Silver (\$500-2999)	Gold (\$3000-5999)	SuperSTARR (\$6000+)
<p>Small Logo on Club Banner + Website + Team Uniform</p>	<p>Medium Logo on Club Banner + Website + Team Uniform + Small Logo on Rocket</p>	<p>Large Logo on Club Banner + Website + Team Uniform + Medium Logo on Rocket</p>	<p>Header Logo on Club Banner + Website + Team Uniform + Large Logo on Rocket</p>
<p>Social Media Promotion</p>			

WE LOVE IN-KIND SPONSORS!

Want to be an in-kind sponsor instead? Contact us, and we'll be more than happy to talk to you about how you can make a direct impact on our project!

INTERESTED IN MAKING A BIGGER IMPACT?

Contact us so we can give you all the details about how we can reach new heights together. We'll even make you a bespoke sponsorship benefits package!



STARR and Ringo II at Launch Canada 2023



**THANKS TO OUR
CURRENT
SPONSORS &
PARTNERS**

Reaching new heights
together.



For sponsorship inquiries, contact us.



STARR
Student Team for Alberta Rocketry Research

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