ARBALEST ROCKETRY

Sponsorship Package 2023-2024

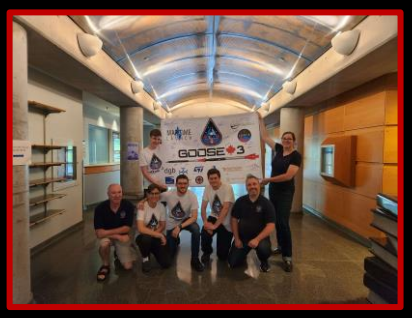
Goose 4
Launch Canada Competition

ROAD TO SPACE

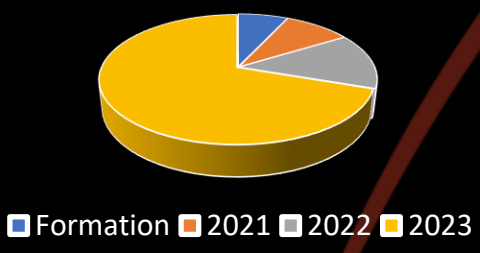
100 Kilometers
Karman line

TEAM PROFILE - ARBALEST ROCKETRY

Our team, Arbalest Rocketry, was founded as a student-led rocketry team driven by a shared interest in advancing the foundation of Canadian Rocketry. The team is now officially affiliated with the Lassonde School of Engineering as a student club, which has welcomed York University students and students from other institutions, providing them with an entry point into the field of rocketry.



Team Members



Our team's journey began with just three members from York University and has since expanded to encompass 30 members by late 2023. Over the past few years, dedicated individuals from York University and other Universities in the Greater Toronto Area (GTA) have collaborated to design, manufacture, and launch our rockets.

The team had participated in the first-ever Launch Canada competition. In Addition to this, the team had the privilege of collaborating with Maritime Launch Services and Launch Canada for the historic first launch from Spaceport Nova Scotia. These interesting opportunities have given us the ability to have excellent outreach to the communities in which we participate and help inspire a bright future for Canadian rocketry.

TEAM VALUES

Arbalest Rocketry is dedicated to fueling Canada's rocketry enthusiasm and fostering collaboration among individuals who share a passion for learning and innovation. Our mission encompasses building rockets for competitions and groundbreaking technology demonstrations, creating a culture of innovation that propels us to new heights in the field of rocketry.

TEAM ROCKETS - FLIGHT HERITAGE

GOOSE 1

Arbalest Rocketry was established with a focus on the innovative hybrid rocket, Goose-1, and actively participated in the inaugural Launch Canada competition. This experience brought our team together, allowing us to pool our ideas and shared experiences toward a unified objective. We successfully completed the design phase for this mission and initiated the manufacturing of critical components, leveraging the capabilities of the Lassonde machine shop for precision machining.

As the COVID-19 pandemic swept across the globe, it presented an unfortunate challenge. The machine shop was temporarily closed due to safety measures, and the competition was postponed by a year. Despite these setbacks, our commitment to excellence and passion for rocketry remain unwavering.

GOOSE 2

This rocket represented a significant milestone for the team as it secured 3rd place in the inaugural Launch Canada competition. It was conceived as a solution to the challenges posed by the COVID-19 pandemic and the limited access it imposed on the team in terms of machinery and facilities. The team established their manufacturing process in the basement of a teammate's home, as it was the only space available to them at the time. The vehicle reached a velocity of Mach 1.37, ascending to an altitude of approximately 5,500 meters, and was successfully recovered by the team on the same day. The design included a canard control system, a Spin can, two onboard cameras, and drop-off launch lugs.

LAUNCH CANADA

GOOSE 3 - SPECIAL EVENT

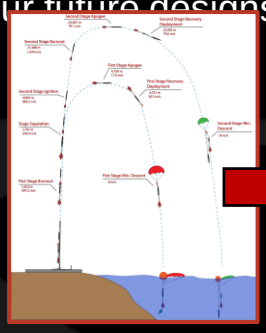
Our recent project Goose-3 was by far our most ambitious mission which was offered as a collaboration with two amazing organizations.

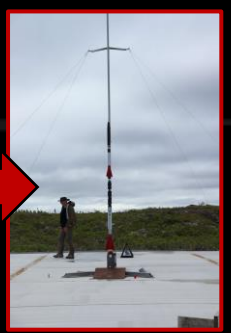
Maritime Launch Services of Nova Scotia was looking for a rocket that could open its new spaceport and had reached out to Launch Canada for a team that could fit their criteria. Launch Canada had approached our team knowing the altitude of our new design may be too high to cater to at the annual Launch Canada competition. The team had made the group decision to change the design to fit the new conditions that a Nova Scotia Atlantic ocean water landing would intel.

MARITIME LAUNCH + LAUNCH CANADA + ARBALEST ROCKETRY = LAUNCH THE NORTH 2023

One of the largest milestones in rocket development is the ability to stage the rocket. This was the main goal for Goose 3, as staging allows us to fly higher than any single rocket motor would allow.

The team had traveled to Nova Scotia to fit the launch rail on the Maritime Launch Services Launchpad prior to the launch date. On the 6th of July 2023, Goose-3 Left the launch pad at Spaceport Nova Scotia. The rocket hit a speed of about MACH 2.4 to an altitude of about 13,500 meters more than twice as high as Goose-1. The successful stage of Goose 3 will pave the way for our future designs.



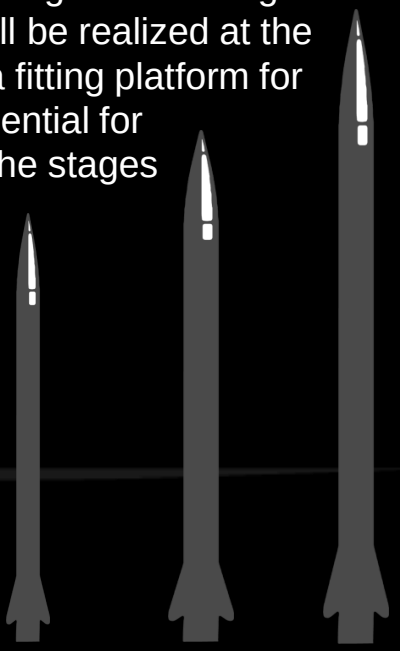
PROJECT PROFILE - WHAT NEXT?

GOOSE 4 - ROAD TO SPACE

The project at hand entails the development of a rocket with the capacity to hopefully breach the Kármán line, situated at an elevation of 100 kilometers. This particular milestone, often recognized as a significant engineering challenge, underscores the complexity of our undertaking. Consequently, our team has devised a methodical approach that dissects the mission into distinct phases, enhancing the likelihood of its triumph.

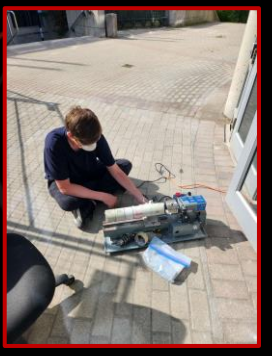
Our strategy involves the conception of a three-stage rocket, and subsequently, a transformation of each of these stages into autonomous single-stage rockets akin to Goose-1 or Goose-2. This innovative design hinges upon the utilization of modular subassembly components, thereby facilitating the seamless replacement of parts such as fins, nosecones, and other pivotal elements that impact the rocket's center of mass and center of pressure. This adaptability is integral to ensuring the rocket's stability in both its single-stage and three-stage configurations.

The culmination of this endeavor will encompass the rigorous testing of two of the three single stages. This pivotal phase will be realized at the 2024 Launch Canada competition, which provides a fitting platform for the demonstration of the requisite assessments essential for space-bound missions. It is noteworthy that two of the stages will undergo testing in a two-stage formation, while the remaining single stage will wait for its three-stage assembly. Moreover, we will allocate a designated payload area to accommodate student team payloads and experiments that necessitate the unique high-altitude and space environment that our rocket endeavors to attain. This proactive approach will enable us to make the most of this endeavor, fostering both scientific exploration and educational outreach.



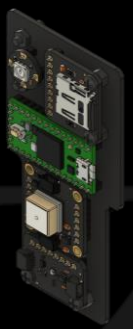
OUR PARTNERSHIP WITH YOU

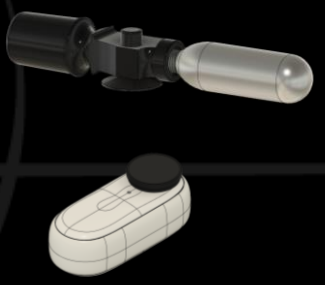
Our team consistently demonstrates a track record of excellence, consistently garnering favorable opportunities. Renowned for our unwavering work ethic and ability to complete tasks safely and efficiently, we have confronted and surmounted challenging circumstances in the creation of Goose-2 and now, in the development of Goose-3. These endeavors have entailed tasks as diverse as crafting fiberglass components in confined spaces and meticulous tube sanding in front of the chemistry building. As we endeavor to meet our objectives, we seek your support in the form of services, tools, and financial contributions, thereby fostering a collaborative partnership to share in our mission's success. We are eager to engage in a dialogue to determine the optimal means of aligning your contributions with the needs of our team, ensuring that our shared objectives are met.

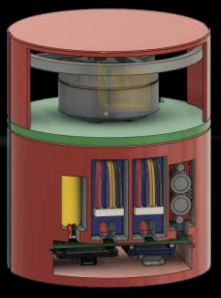


EQUIPMENT, SERVICES, AND MATERIALS

In the rocket construction process, tools and machining play a vital role, particularly in the development of Goose 4, which will primarily utilize fiberglass with integrated metal components. While the metal components for Goose 3 were machined by team members at local machine shops, reducing labor costs but necessitating custom tooling bits, raw materials such as aluminum, fiberglass cloth, epoxy, and 3D printing filament are significant expenses. The team employs 3D printing filament not only in the vehicle but also as tooling jigs to achieve precision finishes, making these materials invaluable contributions to the project's success.







OUR PARTNERSHIP WITH YOU

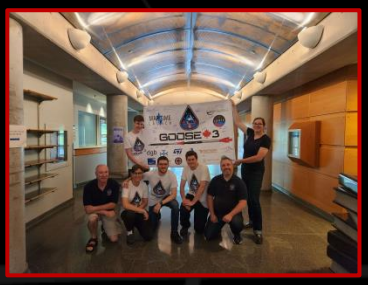
FINANCIAL SUPPORT

Financial contributions play a crucial role in supporting our project. While we strive to construct as much as possible, certain components, such as electronics, must be procured from commercial sources in compliance with competition regulations. Additionally, the manufacturing process involves the use of consumable components. These financial donations primarily cover expenses associated with fuel and accommodations required for our team's participation in the Launch Canada competition. Your generous support is instrumental to our success.

Booster Package	Sustainer Package	Cosmic Package
$500	$1500	$3000+

SPONSORSHIP BENEFITS

Sponsor logos will be prominently featured on a range of promotional materials, including rockets, banners, t-shirts, and various team merchandise. These logos will be presented in a packaged format, with Cosmic-level sponsors enjoying a notably larger logo placement in comparison to other sponsorship tiers.



All sponsorship packages will receive a mission patch after the development of the mission. Mission patches are a new feature to our mission and were tested in the Maritime launch service and Launch Canada collaboration.

SPONSORSHIP BENEFITS

All sponsors who elect to support Arbalest by selecting a sponsorship package will be entitled to all the privileges and amenities associated with their chosen tier. Furthermore, they will gain eligibility for any advantages and offerings that are available in the tiers positioned above their selected tier.

I Booster Package

The first tier, known as the 'Booster Package' affords sponsors the exclusive privilege of prominently displaying their logo on our team's rocket, t-shirts, and team banner. Additionally, their logo will be prominently featured in the flight summary video. Each sponsor will be presented with a highly coveted mission patch which is a custom limited-edition emblem produced in a single, unique run. The sponsor's logo will receive prominent exposure throughout the entirety of the competition events and on Arbalest's various social media platforms.

II Sustainer Package

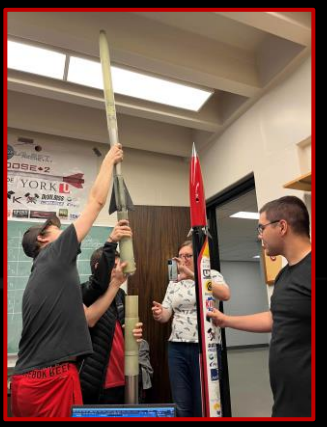
Subsequently, the 'Sustainer Package' encompasses all the attributes of the initial tier while extending the scope of offerings and exposure. In this tier, the sponsor's logo will be prominently featured on team merchandise, including t-shirts, the team banner, and various other team paraphernalia, presented at a larger scale compared to the preceding tier. This sponsorship level further grants the sponsor access to a quarterly update, featuring exclusive insights into the team's progress within the project, including in-depth details about their processes during that phase. As a distinguished mark of appreciation, sponsors at this level will also receive an exclusive team mission t-shirt, crafted specifically for each unique mission.

III Cosmic Package

‘The 'Cosmic Package' represents the pinnacle of sponsorship opportunities, encompassing all the elements offered in the preceding tiers. Sponsors at this level enjoy the distinction of having their logo featured prominently, at its most expansive size, on team mission merchandise.

Moreover, this premier sponsorship package extends a unique privilege by offering payload space for the sponsor, allowing them to include a small, distinguished item, such as a mission patch, a flag, or another agreed-upon article, within the payload.

The 'Cosmic Package' also includes a spotlight in the team's mission summary video, where the sponsored product of choice will be prominently featured. Sponsors can opt for an Arbalest team member to present and highlight their product personally in the video, following a pre-scripted format or by providing an authentic and personalized evaluation of the product. This high-visibility feature enhances the exposure and prestige of the sponsored product in a unique and engaging manner.



GOOSE 3 SPONSORSHIP

Throughout our previous mission, Goose-3, we were fortunate to receive invaluable assistance from our esteemed sponsors and dedicated supporters. Their unwavering support played an indispensable role in making the mission a resounding success. These individuals and organizations did not merely provide financial backing; they also championed the cause of fostering student learning and innovation.

By empowering our community to collaborate and engage in the entire process—from design and manufacturing to testing and demonstrating their prowess as safe, confident, and successful engineers—these benefactors enabled a vibrant ecosystem of knowledge and ingenuity to flourish. Their commitment to our mission not only made it possible but also underscored the significance of collective effort in nurturing the engineers of tomorrow.

THANK YOU!

Contact Us
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