Executive Summary (1600 character limit, approx. 250 words or less)

"TrickFire Robotics, a student-led organization at the University of Washington Bothell Campus, focuses on preparing students for their future career through hands-on projects. For the past 6 years, TrickFire has accomplished its mission by competing in the annual NASA Robotics Mining Competition (RMC) at the Kennedy Space Center in Florida, for which we spend the year designing, building, and testing an autonomous lunar mining robot.

For this funding cycle, we have changed the competition that we are participating in from the NASA RMC to the University Rover Challenge (URC), which is a Mars simulation instead of Moon. We will first compete in this competition during the summer of 2023 school year, so by 2024, it would be our second time competing in this new competition.

However, much like previous years, we are requesting funds to travel to the competition. Travel costs include plane tickets, lodging, transportation during our stay (car rental) for students and the rover, food expenses, and rover shipping.

Currently we plan to send 15 students to the competition in Utah who work on the rover and are integral to its success during the competition. The competition lasts 4 days, but a day before and after are needed to ensure adequate set-up time and preparations when arriving and leaving, totaling 6 days (5 nights) of stay.

By approving this grant, SAF will be continuing a path for students to develop their professional skills beyond the classroom—one that has already improved countless careers."

Need for Program (1600 character limit, approx. 250 words or less)

"TrickFire strengthens the student's experience in technical and business skills and builds a community within UW Bothell. Through hands-on experience, alumni mentorship, and weekly meetings across five sub-teams, TrickFire has much to offer to the students in career and educational development and life-long abilities. This project is a great way for students to learn invaluable skills and gain experiences that they can take forward in their professional careers. It allows all club members (30 active members) to have the opportunity to work on a large-scale engineering project, be they mechanical engineering, electrical engineering, computer engineering, or business majors.

Many of our members have attested that they have gotten internships and job offers as a direct result of their experiences at TrickFire Robotics and going to the competition is a part of that."
They can network with other students from all over the country and connect with industry professionals that attend and organize these competitions. This is a truly unique experience on the UWB campus. Additionally, UWB engineering students can work with TrickFire Robotics to complete their capstone project. TrickFire works alongside university staff to ensure that these students have their capstone requirements met when working on the rover project. This is a great opportunity for UWB students to show all their knowledge and skills. 

Is this a new request? Partial

What on your request is new or has changed?

All line items of the submission are new, but the program itself is not new to the club, hence the “Partial” answer to the prior question.

Strategic Plan (1000 character limit, approx. 150 words or less)

"TrickFire Robotics wishes to continue competing in the new URC competition as it has been a fresh change of pace compared to NASA and has presented novel and interesting challenges for the team to work on. We hope to iterate on and further develop our models and designs. As more alumni come back to mentor the team, we will be able to leverage their experience in industry to focus on our students’ professional development. We have already seen significant progress in the few years of operation and expect exponential progress as we get more dedicated mentors and as current returning alumni continue to gain industry experience.

Financially, TrickFire is trying to head for partial self-sustainability; that is, to not depend completely on the University for financial support. We hope to do this by getting sponsors from local companies, like many UW Seattle engineering teams do. This, naturally, takes time; TrickFire hopes to change that over the next 5 years and work to get more sponsors. "

Assessment (1600 character limit, approx. 250 words or less)

"Our club has roughly 30 active members that attend weekly meetings and work on projects. With this funding, we will work together to construct a robot. While working on the robot, we have concurrent sub-projects that help students with understanding different aspects of STEM and get students to communicate with each other. With our financial team, business students get the opportunity to work on getting funding and sponsorships from the university and local companies to ensure adequate funding for our club activities."
Financially: This year we have secured close to $40,000 from STF to make sure we can participate and hopefully succeed in the competition while also allowing students at the club who are doing capstone projects to be able to fulfill their requirements and even work on individual smaller projects that benefit them. Next year we hope to get at least $10,000 from company sponsors, which is in line with our 5-year plan.

Transportation and Travel

"We need at least one truck and two SUVs to transport the 15 students from the airport to the hotel and from the hotel to the Mars Desert Research Station near Hanksville. Hanksville is well over an hour and a half away from the airport at Moab.

For the competition, students will be away from home and as part of going to it, they will have food expenses during our stay when normally that is not something they would need to worry about. We don't want that cost to be a barrier for students to go to the competition.

Flights: We need to travel to Utah which is where the competition is. About 15 students will be travelling.

Hotels: The competition takes place over 4 days so we will need lodging for the duration of our stay, including a day before and after the competition to ensure there is enough time for prep and organized departure (6 days/5 nights total).

Food: Students need food for the duration of the competition and the day before and after (6 days total).

Car Rental: We need to transport everyone and our rover from the hotel to the competition every day. For this purpose, we would need 3 cars to accommodate 15 people, assuming 5 people per car. The competition takes place in the desert (dirt road/off-road conditions), miles from the nearest town, with no public transport or ride sharing. The rover's weight and bulk necessitate a pickup truck as one of the cars.

Shipping: The rover is very large and close to 70 kg heavy, so we need to ship the rover separately to our place of stay.

Professional Development

"The competition takes place in the state of Utah around May 31st. Therefore, in order to compete, we must fly to Utah. The nearest airport is in Moab and the actual competition takes place in the desert near Hanksville. In previous years, TrickFire traveled to the annual NASA RMC in Florida. That was an integral event that the team prepared for the entire year. At the competition, we demonstrated the ability of the Moon rover that we spent the year building.
Testing the rover through the competition is the premier way of demonstrating the work and skills of the students in our club to future employers. Our members gain a unique experience and practical skills from operating the rover in a Mars-like environment and all the challenges that come with that.

For the purpose of the competition, we need roundtrip flight tickets for 15 people ($10,800). In addition, we need lodging for 4 people per room for a total of 5 nights ($4,800), food for 6 days (4 days of competition, one day before and one day after, Total Cost: $4,860), and transportation (at least 1 truck and 2 SUVs so a total of 15 people can travel, Total Cost Including Gas: $4,380). Shipping the rover to the competition ($4,000) "

**Uniforms**

Students will be wearing T-shirts representing our club, the university, and our sponsors.

**Total Amount (please note the total dollar value)**

$29,560

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