Project Proposal

Redmond STEM Center

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Executive Summary

In the Greater Seattle Area, there is a lack of community spaces geared towards the development of creative STEM projects by high school students. This not only inhibits students' abilities to harness their creativity and technological expertise, but also prevents them from giving back to their communities and inspiring others. Another problem is the severe contrast between the opportunities available for the economically privileged and economically underprivileged and underrepresented minorities in the area. Although Redmond is considered a technological hub in the Pacific Northwest, the overwhelming majority of employees at companies such as Microsoft are not from Washington, showing a significant lack of career readiness in our education.

We are creating a nonprofit STEM center, Redmond STEM Center (RSC), that would function as a hub for students to work, learn, and interact with industry mentors and professionals. This teen-oriented makerspace will act as an outlet for creative students who wish to help better themselves and their community. This center will focus on STEM education, youth development, and closing the gap for underrepresented minorities in STEM careers. Featuring workshop equipment such as CNC equipment, laser cutters, and other engineering-grade machines, RSC aims to foster a collaborative environment in which those from backgrounds are brought together and are able to learn from highly experienced mentors. In addition, the center would feature many programs for teens, such as rocketry and robotics, host professional workshops, and provide outreach programs to young students. Through these programs, not only will the youth in the Redmond area have a place to innovate, but also inspire similar projects in areas across the Pacific Northwest. The Redmond STEM Center will provide free membership to those in compromising economic circumstances and prioritize outreach to underrepresented groups.

Since the execution of this project would be costly, this proposal aims to garner support from the community at large, generous corporations, and local governments. The support this proposal addresses comes in the form of financial donations, equipment sponsorships, space donations, and mentorship opportunities. The development of the Redmond STEM Center will require a great effort from all parties involved, but it will dramatically increase student involvement in STEM and foster countless future leaders and tech professionals.

Objective Key Results

- Objective 1: Create an **established** and **sustainable** STEM community space
  - Key result 1: 35% new members/year
  - Key result 2: 20% increase in yearly equipment and education budget
  - Key result 3: 800 yearly total mentor hours
- Objective 2: Increase **STEM interests** both within our **program** and within our **community**
  - Key result 1: 10,000 hours of participant attendance in program-activities yearly
  - Key result 2: 25% increase in STEM/Career-focused Classes taken (relative to total classes in that year) in high school yearly
  - Key result 3: 5,000 community engagement/year (hours of outreach * individuals impacted)
- Objective 3: Provide for **underprivileged/underrepresented** groups
  - Key result 1: 15% annual increase of underrepresented minority (Black, Pacific Islander, Latinx) and low-income members in the Redmond STEM Center
  - Key result 2: Hold 5 yearly events promoting STEM education through geared-workshops to economically underprivileged and underrepresented students
  - Key result 3: 30% annual increase in total number of female members

Beneficiaries

- High school students in the Redmond area will have their STEM educational resources expanded vastly and will be provided with opportunities for high level projects with industry mentorship.
- Mentors serve a key role in the program, as they will not only gain substantial volunteering hours from working with these students, but also have an opportunity to truly connect with the brightest youth in the community.
- The parents of those who participate in the Redmond STEM Center will have the chance to witness the creative minds of their children at work, and the center will also be an adult-supervised place that those who are busy with work can leave their kids.
- Underrepresented groups and those with economic difficulties gain access to resources and programs usually hidden behind paywalls or found through existing connections.

- Kids of all ages will be greatly inspired by the work of the more experienced students or mentors, through outreach events and community talks. Events will also be regularly scheduled to allow those in elementary school and middle school to participate in STEM center activities.

Programs

The objectives will be met through a series of programs housed by RSC, all dedicated towards disseminating STEM opportunities throughout the community. The programs will be realized through a multi-staged system, where programs are added periodically over the first year. These programs are open to corporate suggestions or sponsorships.

Online Programs (COVID-19)

- Provide an online platform where ambitious high schoolers can engage in academic and STEM focused discussions easily.
- Host regular competitions and clubs in order to help engage the community and generate interest in the Redmond STEM Center. These include chess, competitive programming, design, and art competitions.
- Coordinate roundtables once every two weeks for groups of students to discuss possible ventures and new ideas. This also serves as a judgement free opportunity for teens to ask for help in certain subjects or projects and learn about some up and coming ideas in diverse fields.
- Begin exciting online social events for the community in order to engage them in the center and its environment. These can include ice cream socials, movies, and video game nights.
- Host virtual webinars presented by accomplished adults or academically driven students on various STEM subjects. Published our first webinar starring Kevin Tran on our YouTube channel.

In Person Programs

- Provide support for a FIRST Robotics Competition Team
- Provide support for The American Rocketry Challenge
- Coordinate biweekly talks on various educational topics surrounding science, technology, engineering, and math.

- Begin exciting social events for the community in order to engage them in the center and its environment. These can include ice cream socials, movie nights, and general social gatherings.
- House a VEX Robotics Competition field for local teams
- Host workshops for teens over the summer covering subjects such as CAD and CAM, basic machining practices, programming, and basic electrical engineering topics.
- Monthly shared task projects where members work together in order to brainstorm and complete one-week builds, bringing the community closer together.
- Open the center to the general public through Open House events
- Coordinate and facilitate programming camps and opportunities for younger students
- Provide a funding request pool, for students and groups to request grants or purchases of materials for the space
- Provide resources on mental health and stress management
- Host large scale STEM events such as hackathons and maker fairs.

Procedure and Preliminary Timeline

Phase 1: Initial Infrastructure

April 10th, 2020 - July 30th, 2020

- Recruit an initial student team
- Brainstorm and key program goals and timelines
- Develop key operating documents
- Create engaging and representative branding
- Contact possible mentors & establish adult advisory board
- Construct a robust website

Phase 2A: Creating a virtual presence

August 1st, 2020 - End of Pandemic

- Procure funding for a space, capable of housing machinery, computers, electrical equipment, and a classroom.
- Work with industry professionals in order to develop a sustainable mentorship program

- Advertise the project through means such as social media, local newspapers, and a website.
- Begin online events throughout the summer and into the fall, bringing a sense of community during the Coronavirus pandemic.

Phase 2B: Generating Support

End of Pandemic - June 19th, 2021

- Continue to find the necessary funding in order to launch the space.
- Find equipment donations for the tools and furniture of the space.
- Continue to advertise the program on all avenues of social media, transitioning from online events to information about the physical makerspace.

Phase 3: Project Launch

June 19th, 2021 - September 1, 2021

- Open doors to the public with initial programs running and in place.
- Begin training sessions for workshop safety and proper machining operation with the support of adult volunteers.
- Plan plentiful activities and projects throughout the week to keep the community engaged.

Phase 4: Sustaining Programs

September 1, 2021 - Forever

- Facilitate monthly board meetings consisting of the Redmond STEM Center executive team and a group of trusted adults.
- Gradually implement additional programs while still sustaining and growing the initial ones.
- Consider expansion to less fortunate areas

Requirements

As this project is highly ambitious, it will require many resources in order to follow out the procedure correctly and efficiently. These needs range from monetary

donations to fully functional machining equipment and computers, most of which we hope to acquire from sponsors, donations, or buy with the money that the center produces. They include:

- A large flex space that can comfortably house machinery, computers, project storage, and general amenities.
- Funds to cover rent, equipment, utilities, and other extra costs associated with launching and maintaining the project on a monthly basis.
- A large variety of hand tools and machinery, including but not limited to: standard workshop hand tools, 3D Printers, plastic filament, CNC routers and mills, a laser cutter, and an extensive inventory of manual machinery.
- A supply of electrical tools for basic wiring and soldering projects. This includes basic crimping/stripping tools, soldering irons, multimeters, power supplies, and any other essential electrical tools.
- Other technology that is able to assist programmers and designers alike i.e desktops, monitors, and peripherals capable of running CAD/CAM software and software development utilities will be necessary.
- Furniture required to create a safe and comfortable workplace environment.
- Basic utilities
- Multiple outreach streams to reach potential members and younger children across the Redmond area.

Budget

Through a series of preliminary calculations, the team has decided on an initial budget with estimates for costs of equipment, rent, and other miscellaneous costs.

Item	Cost ($)
Rent (Year 1)	$38,400
Tools and Equipment	$10,500
Insurance (Year 1)	$2000
Computers	$3,000
Legal Services (Year 1)	$2,000
Safety Gear + Misc.	$1,000

General Furniture	$1,000
Stock Materials	$1,000
Electrical Equipment	$200
Remodeling	$1,250
Utilities	$880
Advertising	$300
TOTAL:	**$62,530**

These expenses will be covered through multiple means including membership fees, one time team fees, company sponsorships, grants, matching volunteer hours, and the sale of stock materials.

Key Personnel and Recruitment Plan

For this endeavor to be sustainable long-term, it requires strong student and adult leadership. The adult leadership is relatively consistent year to year, providing a consistent foundation to work from, while the student leadership is responsible for the majority of operations. Outlined below is the current student leadership:

- Executive Director - Eric Zhou
- Director of Operations - Krish Jain
- Director of Finances - Karthik Shaji
- Director of Technology - Abel Dagne
- Director of Programs - Varsha Venkatesan
- VP of Branding - Aryan Jha
- Executive Advisor - Abhinav Diddee

Current Mentors:

- Kevin Tran
- Rishita Roy
- Milen Petkov

Redmond STEM Center currently has a team of 30 members and two industry mentors.

RSC is focused on finding key students, sponsors, and robotics teams to support our mission. After joining, tools and safety training will be required to ensure safety in the build space. RSC will reach out to tech companies in the surrounding area and leverage personal connections in search of mentors and funding. For potential mentors to work at the RSC, they must go through the application process plus a background check. Mentors are required to volunteer 20 hours a month and will receive 2 free memberships.

Evaluation

The proposed project aims to accomplish many objectives in hopes of creating a large-scale impact on the youth in Redmond, inspiring them to pursue STEM further in the future as well as helping them gain valuable technical skills essential to survival in the technological industry. However, there must be Key Performance Indicators to show the progress of the project and if it accomplishes the goals.

- Member count per year
- Hours of outreach engagement
- Number of individuals reached through outreach, newsletters, and social media.
- Number of events/programs RSC is involved or featured in
- Social media presence: number of tags and mentions by people or organizations outside of Redmond STEM Center
- Number of people subscribed to the RSC mailing list
- Number of members in discord server
- Total number of Redmond STEM Center memberships.
- Percentage of URM members in the Redmond STEM Center
- Percentage of free/reduced memberships
- Total profits
- Attendance for weekly events and the makerspace
- Number of **actively engaged** URMs.
  - Active Engagement: People using the resources RSC provides in order to pursue interests aligned with RSC's mission.
- Number of hosted programs

Each of these indicators will be measured monthly and reviewed during the board meetings, while a report containing these statistics will be sent out to sponsors and partners quarterly.

Sponsors and Partnerships

Much of the funds required to run this project are planned to be acquired through corporate sponsors and/or partnerships. The capital investment will go towards paying rent each month, buying equipment, and sustaining or opening our programs. Refer to the Budget section for more specific information. Through our partnership and sponsor programs, not only will RSC flourish, but the generous companies will benefit greatly as well.

Sponsorship Tiers

Seed - $500+

- Your business will be listed on our website

Sprout - $1,000+

- Includes all perks above
- Your business will be included on all promotional content

Sapling - $2,500+

- Includes all perks above
- Your business will be on our physical sponsor's wall
- You will be invited to attend the sponsors dinner

Tree - $ 5,000+

- Includes all perks above
- Your business will be displayed on all RSC apparel
- All employees will receive 20% off discounted memberships for their children for a year

Woodland - $ 10,000+

- Includes all perks above

- All employees will receive 50% off discounted memberships for their children for a year

Arboretum - $ 25,000+

- Includes all perks above
- All employees will receive free memberships for their children for a year

Nonprofit Information

The Redmond STEM Center initiative falls under the 501(c)(3) nonprofit organization Redmond Robotics. Redmond Robotics provides opportunities for a diverse range of individuals to engage in learning about science, technology, engineering, mathematics, business, and design while sharing these learnings with the greater community.

The specific objectives and purpose of this organization are:

A. to provide programming for individuals to learn and practice science, technology, engineering, mathematics, business, design, and other relevant fields.
B. to help develop soft skills such as leadership, communication, respect, trust, time management, public speaking, and attention to detail.
C. to prepare individuals for future careers in science, technology, engineering, mathematics, business, and design.

Further information about Redmond Robotics is detailed below.

Organization Name: Redmond Robotics

Federal Tax ID: 84-4322442

Organization Address: 2690 152nd Ave NE, Apt 514, Redmond, WA 98052

Organization Phone Number: (714) 512-2096

Organization Email: kevin.tran@redmondrobotics.org

Organization Primary Contact: same as organization info

Organization Website: https://redmondrobotics.org

Board of Directors for Redmond Robotics:

- Kevin Tran - President / Treasurer / Executive Director
- Phil Sodoma - Vice-President / Parent Committee Chair
- Amit Kumar - Member / Finance Committee
- Saliha Azzam - Member / Mentor Committee Chair

Total Annual Budget: $80,000

Major Services and Programs: FIRST Robotics Competition, Redmond STEM Center

Key Accomplishments: FIRST Robotics Competition World Championships, 2019

Key Objectives: High student engagement in STEM programs in the Greater Seattle area