

Chairman's Award - Team 2412

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2022 - Team 2412

Team Number

2412

Team Nickname

Robototes

Team Location

Bellevue, Washington - USA

Describe the impact of the *FIRST* program on team participants within the last 3 years. This can include but is not limited to percentages of those graduating high school, attending college, in STEM careers, and in *FIRST* programs as mentors/sponsors.

Being a part of FIRST is a life-changing experience that prepares members for college and beyond. In the last 3 years, all our alumni graduated high school, and 75% declared STEM majors in college. Through mentor connections, 3 of our members got engineering internships at our biggest sponsor, Intellectual Ventures. Currently, 20% of our mentors are returning alumni.

Describe your community along with how your team addresses its unique opportunities and circumstances.

Despite living 15 minutes from Microsoft world headquarters, 35% of our students qualify for free/reduced lunch and have limited access to STEM opportunities. To address this, we encourage everyone, including historically marginalized groups, to join in robotics. Since COVID, we expedited this mission by having weekly Equity Minutes. We have created a welcoming environment, having the most diverse team yet. Our team has doubled in size, going from 37 to 77, and percent of POC, from 35% to 75%.

Describe the team's methods, with emphasis on the past 3 years, for spreading the *FIRST* message in ways that are effective, scalable, sustainable, and creative. How does your team measure results?

2412 continually prioritizes spreading FIRST's philosophies. In the last 6 months, our media team has produced 6 videos that showcase robotics' impact, collecting over 3,500 views total. We attend non-traditionally STEM-oriented events, such as the Bellevue ARTSFair gauging over 250,000 people. At our 4 STEM camps, all preparations were archived in OneNote to help with future planning. We have STEM nights for elementary schoolers, introducing 20 kids per session to FIRST through FLL Mindstorms.

Please provide specific examples of how your team members act as role models within the *FIRST* community with emphasis on the past 3 years.

2412 members serve as role models by embodying what it means to be a FIRST student. We hosted and planned an off-season event: Bordie Recharge, attended by 19 teams. Members volunteered here and at over 15 FIRST events, helping us get over 1,000 volunteer hours. Our team emphasizes inclusion, with all members of leadership being DEI trained, 3 serving on the FIRSTWA DEI committee. Last year, we focused on inter-team connection by hosting breakout rooms in the PNW FRC Virtual Pits.

Describe your team's initiatives to Assist, Mentor, and/or Start other *FIRST* teams with emphasis on activities within the past 3 years.

Due to high demand, we started an FTC team in 2019, 16750. They operated out of our shop, and we supplied student mentors. The team had a successful rookie year, reaching interleague semifinals. Since then, 16750 won States, qualified for worlds and started a second team, 20403. We regularly supply and assist both 10 person teams. We mentor FLL teams, teach them gracious professionalism, invite local teams to use our shop and collaborate. We helped the Bear Creek School in starting an FTC team.

Beyond starting teams, what initiatives have you done to help inspire young people to be science and technology leaders and innovators? What results have you seen from your efforts in the past 3 years?

Through outreach, we teach there is always a place in robotics for everyone and fight to make sure that remains true. For example, our camps were attended by 105 students, many low income. Before COVID, we volunteered weekly at Stevenson, an elementary school with 47% of students on free and reduced lunch. Also, we lobbied to 5 Congresspeople to ask for more funding of CTE education in American schools. All formally agreed, and Congresswoman Kim Schrier even asked to visit our shop.

Describe the partnerships you've created with other organizations (teams, sponsors, educational institutions, philanthropic entities, etc.) and what you have accomplished together with emphasis on the past 3 years

In 2019, the Robototes founded the Bellevue Alliance, which includes 5 local FRC teams. We meet monthly with representatives from each team to organize scrimmages, lobby the Bellevue School District for secure workspaces, and for our coaches to receive stipends. Intellectual Ventures, our largest sponsor, gifts us advanced machinery use, jobs and internships for students. Pedestrian Tactics, a local artist from the MAD ZOO record label, sponsors and allows us to use their music in our videos.

Describe your team's efforts in the past 3 years to promote equity, diversity, and inclusion within your team, *FIRST*, and your communities.

When we went online with COVID, we started an Equity Initiative, introducing Mindfulness Minutes to educate members on topics like microaggressions. We regularly work with school clubs such as Asian American Pacific Islander, Latino Heat, and Black Student Union. These connections allow us to mitigate the stereotype of an engineer and spread *FIRST* to students who otherwise wouldn't consider robotics. Due to this, we doubled our POC percentage to 70%, and our non-male percentage to 40%.

Explain how you ensure your team and the initiatives you have created will continue to run effectively for the foreseeable future

The leadership team makes sure team culture is passed on and valued by all members. Our Under My Wing training program connects students with programming exercises and FRC history Kahoots. It allows rookies to explore aspects of robotics and learn from teammates. This fall, 25 members went through the CAD CSWA course. They use these skills during the season and will get certified in the Spring. To provide a foundation for the future meeting minutes and sub-team trainings are documented.

Describe your team's innovative strategies to recruit, retain, and engage your sponsors within the past 3 years

To engage our sponsors, like Microsoft, T-Mobile, The Home Depot, we're constantly reaching out and updating them with videos and projects we work on. We also invite them to our annual silent auction and off-season competitions. We host open houses and invite them to visit our shop and give back awards we win to show our gratitude. To encourage sponsors, we use a sponsor tier list for donations. In turn, they receive a range of benefits, like their logo on our robot, merch, and website.

Highlight one area in which your team needs to improve and describe the steps actively being taken to make those improvements.

Our team realizes a need to improve communication. During the pandemic, we held meetings on Microsoft Teams. This helped close the gap between sub-teams and improved our digital communication. Now in-person, we're struggling to transition back to face to face communication. In the offseason, our business and media sub-team had trouble communicating for our annual silent auction fundraiser. To help this, we've created a guide to all things silent auction to ensure success in the future.

Describe your team's goals to fulfill the mission of *FIRST* and the progress you have made towards those goals.

From outreach events, like GIFT with Women of AT&T, to focused recruitment meetings, we actively work to empower marginalized groups. Our Arduino camps were free for all feeder schools in the entire Bellevue Alliance. In addition, 2/5 of our current leaders are girls, while half are minorities. Lastly, our lobbying to US congresspeople allowed us to get 4 confirmations from US Washington Senators and Representatives to vote for more CTE funding, helping us spread both smiles and STEM.

Briefly describe other matters of interest to the *FIRST* Judges, including items that may not fit into the above topics. The judges are interested in learning about aspects of your team that may be unique or particularly noteworthy.

We hosted Bordie Recharge, letting 350 people experience a fun FIRST competition. It went so smoothly that FIRST asked us to host a PNW week 3 event, expected to be attended by 31 teams. The Robototes were one of two FIRSTWA teams to be part of the Student Association for STEM Advocacy campaigning. We lobbied five elected officials and got them to support the "Every Student Succeeds Act", pushing Congress to pass \$1.22 Billion towards STEM education, especially for underrepresented areas.

Essay

Since the founding of the Robototes, 15 years ago at Sammamish High School, we have been reacting to our rapidly changing world. Whether it's hosting FRC competitions when others cannot, shifting to virtual outreach, or fighting the loss of our shop space, when the Robototes see a problem, we do something about it. We react to challenges with innovation to spread the mission of FIRST.

In 2020, just as the robots were finished, lockdown rolled in, and competitions were cancelled. Fall of 2021 looked like a sign of hope, where many off-season events were scheduled to run. Unfortunately, multiple events were cancelled, including Auburn, a local event we were planning to attend. Seeing this, we rapidly reacted, and within a month organized our own off-season event, Bordie Recharge. The event drew 350 attendees from 19 different teams and was only 1 of 4 large-scale, off-season events in the PNW. For many, Bordie Recharge provided the only opportunity to put their robots to the test on the competition floor. FIRST students smiled as they danced the Macarena for the first time in 2 years. As a result, FIRST WA asked us to host the Week 3 event for the PNW, which is expected to field 31 teams.

In 2019, a local FRC team was struggling to stay afloat. We reacted by founding the Bellevue Alliance, a group of 5 FRC teams in our city to share shop space, tools, scouting information, and funding. Together, we convinced the school district to reimburse coaches for their hard work by giving an \$8,000 stipend, as well as securing workspace for all alliance members. Just this February a sixth team joined, team 7461 Sushi Squad, expanding our network and providing us with unique insights. During COVID, to encourage connection among teams, we hosted break out rooms for PNW FRC Virtual Pits, leading region-wide conversation on how to overcome strife brought by the pandemic.

Another way we introduce people to FIRST and STEM is through our many outreach events. Our latest were three virtual Arduino STEM camps, attended by 105 middle schoolers all throughout the Bellevue School District. This included several attendees from Highland Middle School, which has a 49% free and reduced lunch rate. With many families struggling with financial instability, we reacted by focusing on inclusivity and made the camp free and fun. Our team members planned, advertised, and ran the entire camp, collecting over 430 volunteer hours. We taught campers the fundamentals of code and hardware, introducing them to robotics, ending with a presentation on how to join FIRST teams.

One of our unique outreach events we attend is the Bellevue Arts Museum Arts Fair. We use LEGO MINDSTORMS to make robot art for kids to take home, introducing many of the 250,000 fair attendees to FIRST in an unconventional way. In 2019, we volunteered weekly to teach STEM activities at Stevenson Elementary, an economically disadvantaged school with a 47% free and reduced lunch rate, collecting over 200 volunteer hours. When COVID restrictions ease, we plan to return to this program and help lower income students gain access to STEM learning and FIRST.

Concerned about dwindling team numbers due to COVID-19, the Robototes reacted with a recruitment video, "Think Again" in September 2020. The video has 783 views to date, while our YouTube channel continues to grow with 19 short videos to spread the mission and vision of FIRST. Another staple of our recruiting program is our beloved t-shirt cannon bot, Tomo, zipping and zooming in front of 1,213 people at Sammamish assemblies each year. We also host a Sammamish Robotics Open House the first week of school, allowing students to explore our shop, drive FRC and FTC robots, and eat cookies! Thanks to this, FIRST went mainstream at Sammamish High, doubling our FRC team size from 37 to 79, and expanding the Sammamish Robotics program by adding another FTC team.

We spread FIRST through starting, assisting, and mentoring FIRST teams. In 2019, we started the current Washington State Champion FTC team, 16750 Technototes. We assist them by giving them access to our shop, volunteering at their events, and mentoring them. We also assist them with fundraising, most recently for their upcoming trips to Worlds. Due to member surplus, they started another FTC team in 2021, team 20403, which we also mentor. They had a remarkable rookie year, ranking 9th at Interleagues out of 20 teams. Collectively, Sammamish Robotics has over 100 members, making up ~1/12 of the student body. However, we aren't just working with our school teams. Additionally, we have been paramount in the creation of Bear Creek's FTC team, who will be starting their rookie season this coming season. We have spent hours with their head parent volunteer giving advice on how to start, where to get resources for FTC, and agreeing to provide volunteers and student mentors for the team once COVID restrictions at the school are lifted.

During the lockdown, we decided to prepare an FLL initiative, ready to launch when the pandemic eases. Through our creation of the FIRST Lego League Alliance of Bellevue, we have been able to provide resources about how to start and join FLL teams in our city and have connected more than 50 parents to coaches and mentors. In addition, we post informative videos on our YouTube channel about starting FLL teams for new coaches, which have been viewed by over 1,000 people. Once outreach events were allowed to happen in-person again, we incorporated FLL Mindstorms into our Parents' Night Out events, which are 4-hour sessions where we work with a batch of 20 kids and introduce them to the world of robotics.

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Our team is proud of not only the impact our students made within the FIRST community, but the impact of FIRST has had on our students. For instance, when meetings moved online, our team expanded our understanding of FIRST philosophies, implementing our Equity Initiative. One of our goals is to mitigate the stereotype of an engineer and spread FIRST to students who otherwise wouldn't consider robotics. This translated into a new wave of Robototes more aware of DEI issues and far more reflective of the real world than ever before. In 2019, our team was 65% white and 75% male, a ratio seen far too often in the world of STEM. We strived to do better—and we did just that. Leadership taught weekly lessons on Equity in STEM, educating our now 79 members on topics such as gender inequality and implicit bias. Since 3 members of our team are on the FIRSTWA Diversity, Equity and Inclusion (DEI) committee, these team lessons were broadcasted to teams across the state. Outreach collaborates with school clubs, such as Asian American Pacific Islander club, Latino HEAT, and Black Student Union to provide resources and spread the mission of FIRST to groups who have been historically marginalized. Consequently, we have tangible results: our team is now 40% non-male, and 70% POC. 75% of our mechanical co-leads and 20% of our programmers are female, the industry rates being 18% and 15% female respectively, and in 2019, both these numbers were 0% for our team.

However, an impact beyond Bellevue does not mean an impact solely in America—just like FIRST, we pride ourselves on an international reach. Currently, our team has members that are from 18 different countries, ranging from Mexico to New Zealand. We actively encourage these members to spread resources about FIRST to friends and family in these countries, and many serve as ambassadors when they go back to visit. Our most successful instance of this is seen with our team captain, Kiri Nakagawa. When she spent time in Japan, she reacted to this opportunity and met with FIRST Japan executives to share successful strategies that our team utilized to fundraise, connecting FIRST across the globe.

To spread our impact beyond Bellevue, our team lobbies government officials to advocate for STEM education. In the past year, the Robototes, alongside FTC team 18225, initiated the Student Association of STEM Advocacy (SASA) within Washington State. Team members spent 5 hours in a lobbying bootcamp, writing pitches during June of 2021. After countless rehearsals, 5 Robototes made presentations on STEM education to 5 Congresspeople in DC, focusing on the Every Student Succeeds Act (ESSA). ESSA is a proposition to grant \$1.22 billion in Career Technology Education (CTE) funding for American schools, especially those which are historically marginalized and underfunded. These meetings were an immense success, as all 5 officials confirmed to vote "yes", and Congresswoman Kim Schrier plans to visit our shop at Sammamish High School to discuss more opportunities for CTE education. The Robototes plan to continue working with SASA, as well as speaking to local city council members to ensure that FIRST Robotics is something every child can experience.

Despite the past 3 years being full of surprises and change, the Robototes continue to react by igniting students' passions for STEM while embodying FIRST philosophies. We make not just robots but change in our school, community, and beyond. From Bordie Recharge to SASA, we have proven that our team can react to and overcome anything, even a global pandemic.