



The Highlanders Executive Essays

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.

FIRST develops opportunities and practical skills by impacting work ethic as seen in Neera Consulting(main sponsor), Lockheed Martin Space and Woodward Governor internships. We gain real world experience through mentorship. 94% of our alumni pursue STEM degrees and 6% join the military. With achievements like the Grewcock, Daniel's Fund and Boettcher Scholarships, all alumni have pursued higher / education. Some alumni have even become entrepreneurs, starting their own machine company, Artech.

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

Locally, regionally and internationally, we expand our virtual presence by creating 10 videos, assisting 4 nationwide webinars and supporting new virtual FIRST events. Our non-school team meets and impacts in-person despite covid. We've attended 48 events—totaling appx. 58000 folks. We've donated science kits to schools in MO, Peru and India. In CO, we've assisted 32 FLL/FLL Jr. and ran 5 FLL events, launched COFIRST FLL judge training called and presented an ambassador program at FLL Power Ups.

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?

By measuring the people reached and communicated with locally/internationally, team 4499 analyzes improvement areas. We use this data to meet observed paucities like running the first Jeffco(2nd largest CO school district) FLL qualifier since 2013(2y). We engage kids through science kits-18, coloring/activity

books-100, Halloween robots(3y) and 4 Spanish/English, printed and taped edition 4499 children's Rocky the Robot books allowing us to bring today's opportunities to tomorrow's engineers.

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

Through mentorship and assistance, we stand as role models for kids' STEM development by establishing personal relationships the Boys and Girls Club, schools and 12 FLL and 3 FTC(5899, 15403,11308) teams. We jump at chances to help teams like 4388 through school shutdowns, allowing them into our facility; to volunteer in 3 of the 5 FLL power up stations; and to give out rookie survival kits, safety kits and tools. We host training demos and share our love for FIRST at schools and festivals.

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

4499 continues FIRST outreach through one-on-one and virtual training, webinars and design assistance. We have opened our shop and machines to 3 teams since the pandemic. We have assisted team 4388 in over 20 hours of machine training to improve their shooter. We have assisted 22 FRC teams, 3 FTC teams and 5 FLL teams; mentored 2 FTC teams and 10 FLL explore teams and started 5 FLL explore teams. 4499 has assisted in FLL explorer and challenge programs with virtual tournament development for CO.

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?

By opening our shop in 2019 to an FTC team, we assisted in developing both robot parts and a future FRC member who became a critical mechanical member and outreach lead. 4499 students have main leadership roles in the FIRST community: FLL judge advisors, judges and tournament directors in CO. We lead judge training with the help of our main sponsor, Neaera Consulting. They've provided opportunities for internships and jobs. 4499 alumni are business owners and work for Leidos, Tesla and Xylinks.

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

Our main sponsor, Neaera Consulting, has employed 6 students as interns and 3 alums full-time. We are given the opportunity to use our machining experience to make custom antenna mounts for our sponsors connected vehicle project. This year, 4499 connected with teams virtually by partnering with ColoradoFIRST and MentorMeetups. We assisted in virtual tournaments, making informational videos, custom backgrounds and hosted a training on Premier Pro. 4499 has 8 sponsors and gained MWFB for 2021.

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

4499 is a community-based team backed by our 501-C3 non-profit, Neaera Robotics. As a community-based team, 4499 is open to any student from any school and any financial background. The team is self-funded and there are no team fees for students to be members of 4499. As a result, 4499 is home to a diverse group of students, 54% of whom are members of minority groups. Our team members come from 6 different high schools spread throughout 5 different cities, from far as 70 miles away.

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

We believe that a big part of the learning process is giving back and teaching what you have learned. Our students, and mentors, are responsible for teaching new members and ensuring that the team's passion and knowledge base is continuously shared for years on end. 4499 has 40% underclassman who hold leadership positions, oversee outreach, and develop advanced vision targeting solutions. We pride ourselves on being a small team, allowing our students to explore individual interests and projects.

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

Our main sponsor, Neaera Consulting, offers internship opportunities and full-time employment to team members and alumni. They have developed an initiative that donates a portion of these salaries directly back to the team. This innovative relationship has donated over \$180,000 in sponsorship and equipment in 6 years and \$75,000 in the past 3 years. In 2019 we added wearing kilts to our teams' imagery and reached out to DNKE Kilts where they donated several kilts. We love our sponsors!

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

4499 is a small team, this is a strength, as it allows us to cultivate dedicated, talented students, and a weakness, as our impact and capabilities are limited and need to be shared among a larger audience. We have 11 and will be graduating 5 seniors. To help grow the team we created videos introducing prospective students to our team and a tour of our shop. Due to our small size, everyone has an opportunity to learn a variety of things. After all: we may be small, but we are mighty!

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

Mission: The mission of *FIRST*® is to inspire young people to be science and technology leaders and innovators, by engaging them in exciting mentor-based programs that build science, engineering, and technology skills, that inspire innovation, and that foster well-rounded life capabilities including self-confidence, communication, and leadership.

4499 strives to enable students with technological, leadership and innovative skills that go beyond building robots. Our students become leaders, teachers and mentors that can apply these skills to a wide variety of academic and practical pursuits, such as fixing cars, designing apps, and perusing advanced technological certifications. Current and past members hold certifications in AWS, Solid Works and Microsoft. A current team member even became the first certified Hass operator in Colorado.

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.

4499 is not just about robots, we follow our motto; "It's not about the game, it's about the journey". We take this into our hearts and how we function as a team. Our team is more than a team, we are family. We are all part of leadership, design, implementation, and hands-on creativity and pride ourselves on machining. We aren't just making robots, we develop confidence, humility and forever bonds of friendship that leave their mark on so many more people locally, statewide and across the globe.