Chairman's Award - Team 7451

Print Close

2022 - Team 7451

Team Number

7451

Team Nickname

AvengerRobotics

Team Location

Cumming, Georgia - 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.

AvengerRobotics has been highly conscious of our impact on the world of FIRST and the community as a whole. We have progressed students into mechanical and electrical engineering degrees at many FIRST supporting colleges such as Kennesaw University. To grow our members' knowledge of STEM, our team has prioritized reaching out to companies and mentors around the US, including the senior satellite engineer at SpaceX.

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

The community at our school is primarily STEM-based due to the number of students we can reach out to for robotics, including more than 90 FTC students and 40 FRC students every year. We utilize these STEM-motivated members by introducing them to increasingly complex programming, software development, and mechanical engineering tasks. As a result, we have a student-driven team in which our members work to plan, execute, and lead every meeting.

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?

We have had the opportunity to spread the FIRST message in multiple ways, including STEM Nights and Girls in STEM events. At STEM Nights, our team goes to elementary schools within our community and discusses FIRST with elementary school students. We have hosted twelve of these events over the past three years, during which we let elementary school kids drive robots. We have also hosted 4 Girls in STEM events where female STEM professionals addressed the girls about FIRST and their field.

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

We continually strive to expand the influence of STEM and spread the ideals of FIRST within our community by actively seeking out leadership roles. Over the past three years, we grew the number of FTC teams we mentored from 8 teams in 2019 to 13 in 2021, and for every one of those years, at least one of the teams we mentored reached state-level competitions. AvengerRobotics has also had the opportunity to work with a few FLL programs.

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

We motivate ourselves to inspire younger generations to join the STEM industry as a team. As a team, we ensure the teams we mentor have the skills necessary to succeed in their competitions. In the past three years, we have built an extensive FTC program that has spread the word of FIRST through our community by bringing inspiration to younger generations. We currently mentor 13 FTC teams, nearly double what we did in 2019.

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?

Our team is very passionate about inspiring young people to be leaders in STEM. Our program has hosted four Girls in STEM events, in which we introduced young girls to STEM careers. We have hosted several Vex IQ events for middle schoolers and supported their journey in robotics. Through these events, we have increased the enrollment in our school's engineering program by nearly 200%. In fact, many of the students we have interacted with at these events are now members of our team.

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

The partnerships created with other organisations and businesses have helped our program thrive through the most trying times. With partnerships such as Lowes to build a practice field and Mentors from AutomationDirect to help our Mechatronics program, we have had one of the most significant impacts in STEM in Georgia. We have partnered with middle schools in the area to continue volunteering through Covid-19 to provide more than 100 middle schoolers with opportunities to compete.

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

Our effort to promote Girls in STEM has helped us more than double the number of girls that have participated in the program in the last 3 years. To not exclude a single person from a robotics program, we ensure that each member has a part on the team and in our program. Inclusion is listening to everyone's thoughts and ideas and ensuring they feel like a part of our team. We take extensive measures to assure that all members feel comfortable asking questions and feel safe in our environment.

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

Our team is composed of both veterans and rookie members. To develop our program, we train new members with training sessions created by veterans who meet over the summer to create ways to train the rookie members. We have officers and multiple advisors in different sub-teams: business, electrical, mechanical, and programming. Advisors and officers connect with students in the program, ensuring first- and second-year students remain knowledgeable and trained enough to continue the program.

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

In the summer, we collect a list of potential sponsors. Due to the COVID-19 pandemic, it has been difficult to talk to sponsors in person, and thus we contact sponsors through media. We are also able to recruit sponsors through our outreach events. We engage with sponsors through the team newsletters, and we invite them to our school and events we host to provide input and involve them in projects we work on.

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

Previously, our team had set softer deadlines due to our program consisting of inexperienced members. To actively counteract the lack of rigid deadlines, experienced team members are continually training newer members in fields such as using tools and 3D modeling software. As a result, our team has become progressively efficient. This process has allowed us to enforce stricter deadlines that ensure our team is on track for success this season.

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

To accomplish these goals, we have held middle school robotics events that are open to and have attracted teams from hours away to compete. We hold STEM Nights at schools where we give students the opportunity to drive robots and inspire them to join robotics programs in the future. We have created and mentored a maximum of 16 FTC teams making us one of the largest FIRST programs in the nation. We have a field where teams come to practice and get assistance from other teams present and us.

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.

Something that makes our team stand out is our relative rookie status. At the end of the FRC season last year, our two most vital mentors with over three years of experience left. This year our team is rising to the challenge to reinvent

ourselves through our new members and mentor. Our senior members are teaching the new members how an FRC team operates and how to become a "well-oiled machine".

Essay

AVENGERS ASSEMBLE
7451 AvengerRobotics strives to inspire young minds to become successful STEM leaders within our community and engage in compelling and exciting hands-on opportunities with FIRST and technology. Our journey began in 2018 with the opening of our school, Alliance Academy for Innovation. Within the past four years, we have been able to advocate for STEM in our county and surrounding areas by bringing robotics and competitions to those who could not participate before. By bringing these possibilities to our area, we hope to encourage the next generation of Avengers.

#MoreThanRobots
AvengerRobotics continuously seeks out ways to leave a lasting impact on everyone. We host and partner with various teams, companies, and programs that target all ages to promote the values of FIRST and our team. So whether you're just starting school or a CEO in a million-dollar company, we believe that superhero scholars can begin at any age.

ELEMENTARY
We understand that it is essential to expose young children to the possibilities of STEM early and show what opportunities the future holds for them. To do this, we join local STEM Nights at several elementary schools around our county to give students a chance to operate FTC Robots. At these events, resent to parents their child's options to get involved currently or in the future. We have also had the opportunity to mentor an FLL team in the past. AvengerRobotics is currently making plans to mentor local teams and host VEX IQ events for them in early April.

MIDDLE SCHOOL
As a team, we view the three years in middle school as the most important ones to grow in STEM. Before the start of 7451, many middle schools in our area did not have a place to compete in robotics. That is why we worked with the middle schools in our area to host and run a total of 22 events so that hundreds of students could compete. Over the summer of 2019, we had a camp where we mentored and helped teams design, build, and code a robot.

HIGH SCHOOL
We proudly share our resources and knowledge with the rest of our region to promote teamwork and innovation at a high school level. We started and mentored numerous FTC teams, taking the program from 7 teams (60 members) in our first year to 14 teams (115 members), and have become one of the most extensive programs in the nation. In addition, we hosted a total of 17 FTC Meets for these teams, with many placing at the state competition. We provide support to other FRC teams when possible as well. We opened our practice field for FRC teams during the 2020 season and our workshop for other teams to use, partnered with GA FIRST to manufacture for other teams, and helped set up and volunteered at FRC events. We also more than tripled the number of students in our school's engineering program that combines mechanical and electrical components and went from just 60 to over 200 students in only one year. We have welding classes run by trained members that are open to any student in our school to come and learn this real-life skill. AvengerRobotics had available training sessions before the start of the season for those interested in learning FRC skills such as Computer-Aided Design, Java programming, speaking to sponsors, mechanical building, and more.

NON-STEM AUDIENCE
Our team is always looking to connect with those outside of the robotics community and share our passion. A few of our members organized a meeting with Eritrean refugees to teach them Microsoft Word and increase their skill set to be more desirable applicants in the future. We presented to the National Guard to thank them for their service and spread the word of FIRST. We arranged an event in January 2022 at a local animal shelter and used robots to shoot tennis balls, and encouraged visitors to provide their forever home. This April, AvengerRobotics is collaborating with our school's Access Life America Club to raise funds for families struck by childhood cancer. We will help to cover their necessities, transportation, and treatment with our funds.

ADVOCACY
AvengerRobotics has been honored to present about FIRST and STEM on multiple platforms. In 2019, we went to Automation Direct and spoke to them about FIRST and how FRC has impacted our community. Over the past three years, we have also spoken at Information Nights, where we discussed the countless opportunities FIRST can provide now and in their careers with parents and future students. These were important to us because many students were apprehensive about joining FRC. We used these events to reassure them and let them know that FRC is "the hardest fun" they would ever have. We have also talked about FIRST at our local Engineering, Mechatronics, Energy Advisory Council Meetings. At these meetings, we update local engineering companies, colleges, and high school engineering teachers about the progress of our robotics program and how as a community, we can better prepare students to face the real world. Through our outreach events, we are able to interact with students in middle school and high school and voice their concerns to this council.

INCLUSION

Essay - page 2

Respect is the foundation of our team, and we acknowledge that each individual brings something valuable to the table. The diversity on our team is vast, guaranteeing that no one is discriminated against for their gender, grade, race, identity, or experience level. We have recognized the lack of women in STEM and work tirelessly to increase interest and numbers. We have held multiple Girls In STEM events directed at young women who have not yet entered high school. Even when COVID hit, it did not stop our cause. In March 2021, we partnered with Walton Robotics and GA FIRST to present to over 100 women about technology. Even though we have drastically increased the number of women in STEM in our community, we plan to host an event directed at 8th-grade girls later this year to draw them to a STEM-based career. Inclusion means more than diversity to us; to our team, inclusion is listening to everyone's thoughts and ideas and ensuring they feel like a part of our team. We take extensive measures to assure that all members feel comfortable asking questions and safe in our environment.

MEDIA
While outreach is one of the most important ways to show our love for robotics and to inspire the next generation, we try to reach as many people as possible through our media. Our team runs different social media pages and a website. We aspire to spread awareness about FIRST Robotics by providing free online resources for anyone to access. Our team has also been promoted in our area's newspaper after our Rookie All-Star win in the 2019 season at the World Championship. Bringing this award home to Forsyth County and the promotion in our county's newspaper helped us build a steady increase in interest in robotics in our school and all of the schools in our county. We have used these unique opportunities to inspire schools to participate in FIRST Robotics.

PARTNERSHIPS
At the start of 2022, AvengerRobotics started a fundraiser to help support a local high school engineering program that is struggling financially. We use our workshop to make and sell laser engraved wood boards, and all of the revenue goes to the engineering program. Multiple businesses have supported our team. We have partnered with Beaver Toyota Cumming, Swagelok, Lowes, Automation Direct, HC Robotics, and Rosati's Pizza. In the past years, we attained our sponsors by meeting them at different events, such as our Board of Engineers meetings. However, due to COVID, we have reached out to our sponsors through email. As a team, we keep in touch with our sponsors by sending them updates on our program's progress. AvengerRobotics also looks for ways to involve mentors in our team to provide unique knowledge and assistance to our current members. We have had mentors from GA Tech, Verizon, FIRST Alumni, Humana and even SpaceX!

#FIRSTFORWARD
AvengerRobotics desires to leave a lasting footprint on every individual we meet one step at a time. Our team hopes to inspire and exemplify FIRST's ideals to our community and surrounding communities, just as the Avengers would in their universe. Together we build the path to a better future and bring superhero scholars to life.