

## Chairman's Award - Team 3489

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2021 - Team 3489

**Team Number**

3489

**Team Nickname**

Category 5

**Team Location**

North Charleston, South Carolina - 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.**

Through our involvement in FIRST, we have been provided unique opportunities. The degree of professional exposure, due to the support of our corporate sponsors, mentors, and outreach partners, has provided a significant advantage to us in our pursuit of STEM careers and post-secondary education. Our sponsors employ several of our alumni. Our alumni have successfully achieved degrees in computer science, engineering, and other science majors

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

Over the past five years, Category 5 has influenced over 231,800 individuals. We firmly believe in spreading the FIRST message and introducing all ages to the concept that STEM can be fun. For example, we attended the Air and Space Expo with Boeing and reached 80,000 people. For the past four years, we have been invited to the Charleston STEM festival which routinely attracts over 10,000 people. Through more than 148 events we helped educate our community about STEM and FIRST.

**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?**

Category 5's system for distributing the FIRST message is a formula that includes robots and audience involvement. Every event we attend, we use our robot ambassador to create a deeper connection with our community. Through these robots, we provide a hands-on experience and show that STEM is not only interesting but also fun. We work to establish relationships with our community, so we can continue to inspire others around us.

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

Our students and mentors act as role models to new team members, other FIRST programs, and our Lowcountry community. Veteran team members take a leading role in preparing rookies. Members of our team take an active role in inspiring the next generation of STEM professionals. We have mentored 25 FLL teams, and even started an FTC team. Our team has supported 27 FLL qualifiers and we were the first FRC team to run a qualifier in SC. Many of these FLL participants are now Cat 5 members.

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

We support all FIRST programs. We started the Cross Junior-Senior High School FTC team in Berkeley County. It is the first FIRST program in underserved rural Berkeley County. We have supported many FRC teams throughout the years, through sharing the schematics to our pneumatic gripper for Power Up, hosted a four-week robotics training camp inviting several other teams to join us. We have mentored 25 FLL teams and assisted with 27 FLL competitions; average impact on 200 kids per season.

**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?**

The following examples are how we inspired young people of our community: the creation of STEM kits, guided lessons for teachers, hosted various workshops covering topics such as introduction to pneumatic, participated in Charleston STEM Festival, supported Girls Day Out at the College of Charleston, and teamed up with FRC 3490 for their all-girls STEM day camp. The end result was an increase in community recognition and participation across all FIRST programs.

**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 supporter, Bosch provides a workspace in their North Charleston plant. Boeing South Carolina, NIWIC, GAF, and Google have provided us with annual sponsor and mentor support. We are truly grateful for the support of our sponsors. We spread the FIRST message with our sponsors at many recurring events that have included Boeing Family Day, Charleston STEM Fest, Bosch Employee Safety Day, STEM High School Career Fair, Boeing's Air and Space Expo, SPAWAR's Girls' Day Out, and other events.

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

Over the past three years we have helped run all girl events to attract them into STEM and worked with many schools in underserved communities to help bring FIRST to them. But we are also currently working on expanding the diversity of our team by working with the Young Scientists of South Carolina organization to become a community team instead of being a school district based one. We are also working on getting all our team members to complete FIRST EDI training.

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

We ensure that our team will continue to run effectively by allowing more students to take a leadership position on the team. And to make sure that we continue to mentor and connect with other FIRST programs. We would also continue to work on our broad community recognition to further recruit members

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

Our team recruited and retained sponsors by attending sponsorship functions, sending thank you letters, and we invited them to team events. For example, we attended the Charleston STEM fest to promote FRC with our sponsor Bosch.

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

One of the areas that our team needs to improve on is team member involvement. We want the team to be less mentor driven. To act on this goal, we have new student leads that engage others.

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

We are working towards developing more community relationships especially with the help of our new nonprofit organization, The Young Scientists of SC, and their goals to spread the mission of STEM. With the help of our new organization we are currently working through the challenge that is Covid and the team is staying alive by participating in the at home challenges

**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.**

Since the formation of Category 5, we have focused on spreading our roots primarily throughout the Lowcountry of South Carolina. Over the past ten years, we have raised awareness for hurricane preparations, mentored the younger members of FIRST, and provided our students with the opportunity to pursue a STEM career or continue with their post-secondary education. The 150,000 individuals we have inspired is a great milestone for the team.

## Essay

### About our team

Team 3489: Category 5 was founded in 2010, and has a mission to incorporate science and technology within our team and community through FIRST values. Our team works towards these goals besides just building robots. We have made it a point to inspire not only the members of our team but also our community. Team 3489 has created a strong presence in, and bond with, the community over the past ten FRC seasons and is persistent in encouraging Gracious Professionalism and Cooperation within our team. We have accumulated 13,451 volunteer hours over the past five seasons through working and interacting with our community. Category 5 has proven that robotics and STEM can be fun to youth and adults alike. We have impacted the minds of young children, by supporting and volunteering in community and school activities. Our team is proud to say through numerous outreach, fundraising, and recruiting events that we have reached approximately 231,800 people. Team 3489 has continuously improved in our efforts to promote FIRST and inspire the people around us.

But none of this would have been possible without our sponsors. The value of our sponsors goes beyond monetary benefits. Sponsors such as Bosch, Boeing, NIWC, and Google have also provided mentors; who helped us gain the experience and knowledge necessary to help our ideas come to life. Bosch, our largest supporter, has graciously provided us the opportunity to work inside of their North Charleston facility, allowing us to access tools and machines. These contributions have allowed our alumni to pursue future career paths, as they have acquired the experience to stand out in both college and job applications. In turn, our team has contributed hundreds of volunteer hours to help promote our sponsors' outreach and marketing efforts.

### Assisting FIRST Events

Our team has consistently assisted NIWC and the South Carolina Aquarium in hosting the FLL kick-off, and we volunteered with mentor training and performed robot demonstrations with FRC information for the current game season for many years. Since 2015, we have mentored 25 FLL teams. One of which we have mentored for three consecutive years. Team members continually met with FLL students to help them design and program their robot, research their project, and model FIRST Core Values. Our help has guided students to develop strong interpersonal and team working skills. Through mentoring these teams, we have been able to strengthen our bond with the young individuals throughout the community, in hopes that we grow their love of FIRST robotics, so that they will continue their FIRST career. We are already experiencing some of this success, as we have five Category 5 members that were once on an elementary school FLL team that we mentored. In addition to mentoring FLL teams, our team has supported and volunteered at many FLL qualifiers. Our volunteer services for our FLL community include but are not limited to trophy making (for four seasons for many different qualifiers), game table building (construction of 16 game tables in 2018), refereeing, building field kits, judging, game table scoring, and running concessions. For many of the qualifiers we attend, we bring our t-shirt launcher and sometimes a competition robot, to demonstrate and inspire the younger kids. We played a critical role in 27 FLL qualifiers in South Carolina. Last season alone, Category 5 team members and mentors had: one Head Referee, two certified Judge Advisors, six certified Referees, and at least six certified Judges. Furthermore, our efforts helped to establish new state level policies of operation within FLL- we developed a Memorandum of Understanding for the use with Tournament Directors. Using the MOU clarifies responsibilities between SC FLL partners and the TD, which ultimately leads to more organized communication and successful events. We developed a FLL Scoring System for Judging that uses a macro-enabled spreadsheet to help Judge Advisors and help Judges deliberate awards. Our scoring system was shared throughout SC and has proven easier and more informative than the Judging Lite provided by FIRST for FLL qualifiers.

Since the beginning, our team has run many FIRST events, including the Charleston Qualifier for the past four years. Our team conducted all aspects of planning and running a qualifier as well as making it a successful fundraiser for our team through lunch service, concessions, and a raffle. The Charleston Qualifier brings approximately 25 teams annually. Meaning we have reached over 1500 students and families through these events. The events that we participate in would not be possible without the dedication of our team of students, mentors, and parents.

However, running and volunteering at FLL qualifiers is not the only thing we have done!, we started an FTC team at Cross Middle and High School, a school in rural Berkeley County. This was the first FIRST program within that district. We consider this a major accomplishment because we were able to introduce their district to FIRST. As a result, we have expanded science and technology into their community, furthering FIRST values.

### Reaching Beyond FIRST

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One of our team goals, to assist every branch of FIRST as much as possible; expanding our reach beyond FIRST is just as important to us. Last year, after rigorous work we were awarded a \$2000 BE3ST Bosch teacher grant. With the grant we created STEM kits for fifth graders. Each STEM kit has four 45-minute activities that support South Carolina science and mathematics standards. The lab activities that we developed use Legos and friction planes made by our team. The kits explore the principles of force, gravity, and simple machines. Flowertown Elementary has been using one of our 5th Grade STEM kits for the past two school years. Moreover, we were also awarded a \$4000 Volvo Community Enhancement grant. With this grant, we acquired materials to enhance our ability to mentor other FIRST programs (Jr FLL, FLL, and FTC) in our community. Our team is working to construct demonstration FLL and FTC robots that we can use for outreach events as well as having examples for mentoring. Having these working FLL and FTC robots in our shop will help us become better FIRST mentors. These grants are helping us to promote STEM knowledge and experience in our community. With these grants we are taking a proactive role in inspiring the next generation of engineers and scientists. We also ran the Bot-toberFest fundraiser in 2016 and 2017. It was an authentic German Oktoberfest with a robot twist.

Robots are an essential part of our team and we make it our priority to use our ambassador robots at as many outreach events as possible. For instance, Hugo was originally created for the 2013 Ultimate Ascent game. We repurposed Hugo to interact with our audiences; Hugo throws frisbees and helps us teach about hurricane preparedness. In addition to Hugo, we built a t-shirt launching robot that was commissioned by South Carolina FLL in 2015. These ambassador robots help us interact with our audience. The Boeing Air and Space Expo, for example, had estimated 80,000 attendees. We were invited by Boeing to attend with our Power Up robot as part of the event's STEM Expo. Many local schools and organizations brought students to the STEM Expo which is targeted at teaching children and young adults about science and engineering programs. Taking our ambassador robots to events like these provides an effective tool to inspire our audience on the next level.

As you can see

Considering our history and the extent of relationship that we have developed in South Carolina and our community, we proudly believe that we have achieved our goal of facilitating knowledge and experience with science and technology within our community. By reaching over 231,800 people, with 13,451 volunteer hours spent, we have definitely helped make a difference in our community and developed long-lasting relationships that will help us grow and improve ourselves as well as our team. We have created our very own brand of FIRST inspiration through our ambassador robots. Through these robots, we provide a hands-on experience and show that STEM is not only interesting but fun. We work to establish relationships with our community, so we can continue to inspire others around us. We will strive to push ourselves beyond our limits to grow as a team together. We are Team 3489 Category 5, and we are making a difference.