

FIRST Impact Award - Team 3489

2023 - Team 3489
Team Number
3489
Team Nickname
Category 5
Team Location
Summerville, SC - USA
Describe the impact of the <i>FIRST</i> 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 <i>FIRST</i> programs as mentors/sponsors.
Cat 5 has a 100% high school graduation rate. Alumni are currently enrolled in but not limited to Kettering University, Clemson University, University of South Carolina, University of Florida, etc. Many Cat 5 alumni have interned/apprenticed at the following industry partners: Bosch, Boeing, Thorne, Blanchard Machinery, NIWC, and U.S. Armed forces. Several alumni have returned to mentor the team, bringing back invaluable knowledge. Their return increased alumni mentorship on Cat 5 by 100%.
Describe your community along with how your team addresses its unique opportunities and circumstances.
Category 5 is community-based, integrating students from 5 schools, allowing the team to welcome students from all backgrounds, thus creating a diverse and inclusive learning environment. Subsequently, students have helped create several opportunities for the team to use numerous facilities, have developed relationships with various district leaderships, alumni, school administrations, and assisted educators champion FIRST into their classrooms.
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?
The team uses three strategies to impact our community through FIRST. The team believes in reaching people with a strong brand and social media presence. Second, we impact our community through outreach: attending STEM events, FLL/FTC competitions, camps, etc. We are repurposing a trailer to transport outreach materials. Finally, we sustain our team's efforts through the pipeline. Our cross-program involvement helps actively develop the next generation and recruit for our team in the process.
Please provide specific examples of how your team members act as role models within the FIRST community with emphasis on the past 3 years.
One example is the establishment of the FIRST South Carolina Youth Advisory Council by two of our members, which helps to provide a voice for students across the state. The team does not hesitate to support local FIRST events across all programs and volunteer to take on diverse roles. The team also

mentors numerous teams across the FIRST pipeline and always makes an effort to remain connected with our local communities, thus gaining Cat 5 a reputation for being consistent and reliable.

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

The team has numerous FIRST connections across the Lowcountry of SC. Our team's sustained impact starts young, mentoring 2 FLL Explore teams and coaching two more. The team holds FLL in the highest regard, as we have been heavily involved with 11 FLL Challenge teams in the past 3 years. Cat 5 places heavy emphasis on pipeline implementation, so we have also started 2 FTC teams as well as coach 3 teams. We delegate multiple team members to each team so we can attend every meeting possible.

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?

We believe classroom resources are essential to inspiring the future; the team has stem kits with lessons on force and motion, friction, balance beams, catapults, spinning tops, and racecars, which are available for 4th-8th grade teachers in our area. Cat 5 realizes that to further create equitable opportunities within our communities, we must go mobile and bring those opportunities to our underserved communities. We plan on doing so through the implementation of our STEM on-the-go trailer.

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 closest connection is with Young Scientists of South Carolina, who helps us drive STEM accessibility in as many communities as possible. YSoSC aids in accomplishing our community initiatives, like funding the STEM on the Go trailer. The team boasts three South Carolina Youth Advisory Council members, including the two female founders. Cat 5 builds strong relations with school districts, such as Dorchester District 2; we have plans to host various STEM events and implement 64 FLL class packs.

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

We make an intense effort to promote ED&I on our team. We encourage inclusion and acceptance amongst our team members, so we have a noticeably diverse team. This year, we took it a step further and are currently in the process of taking ED&I training. By the end of the season, our plan is that each and every student and mentor will have taken the ED&I classes. That means they'll be well-versed in what we need to continue to be a beacon for SC FRC teams; accepting to all, fun, and diverse.

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

We have a six-division student leadership system. Our divisions are Business, Design, Mechanical, Multimedia, Programming, and Strategy. We elect one or two student leads for each division to help make decisions and work actively toward the team's goals. The leadership concept is structured to encourage student mentorship; the upperclassmen take younger students under their wing and teach them throughout the season. This plan is an accessible and effective way to encourage sustainability.

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

past 3 years

Tracking student involvement with our per annum spreadsheet, the team recognizes the importance of sponsors to development and sustainability; each student is encouraged to spread sponsorships ubiquitously. Lately, the search has broadened to outreach events, student grant writing, and engagement on various media platforms. Our newly revamped, branded donor letters outline how multiple parties avail from team sustainment and how each maintains the goals of each donor reaching category 5 level.

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

As a team, Category 5 is working to broaden its sustainability ideals. Subsequently, the team has determined that to maintain success in the future; we must establish roots and goals in the now. In pursuance of such goals, we have reevaluated our recruitment strategies, including making them eye-catching and engaging through social media, and have emphasized underclassmen training in order to to keep a well-rounded team in the future.

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

The team worked on continuing to expand our impact by spreading FIRST and STEM awareness wherever we can and having a sustained focus on strengthening the FIRST pipeline in our community. Our goal goes hand in hand with our FLL implementation project in our local school districts; Cat 5 is able to do this due to receiving an education grant from the LEGO foundation, allowing the team to implement 54 FLL Discover class packs, 8 FLL Explore class packs, and 2 FLL Challenge class packs.

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.

Cat 5 truly focuses on letting students take ownership of their work through the implementation of our leadership structure. This allows students to be held accountable as well as be able to focus their energy and resources on projects they are invested in. Our student investment and management is why Cat 5 is able to do the initiatives that it is able to do, such as a focus on educational resources, strengthening of the FIRST pipeline, and the extension of STEM into underserved communities.

Essay

STORM'S A BREWIN' Team 3489: Category 5 (Cat 5) was established in 2010 and has a mission to inspire younger generations by spreading STEM through innovative methods while promoting ED&I and Gracious Professionalism throughout the lowcountry of South Carolina. Besides building robots, Cat 5 creates team initiatives to get all members involved in building a consistent community presence over the last 13 years. We have accumulated 4800+ man-hours over the past 3 years through working with our local and FIRST communities. Cat 5 has proven that STEM can be fun for everyone through various interactive activities at community events, impacting over 186,000 people. We strive to improve in our efforts to inspire the people around us while upholding FIRST values. Just as hurricanes evolve in strength, so do we. Evolution is key to our success as it provides us with the willingness to embrace new ideas. MAKING LANDFALL To make an impact in our communities, Cat 5 must maintain sustainable relationships locally and with sponsors. Young Scientists of South Carolina (YSoSC), a local non-profit, continues to be one of our strongest relationships with them, supporting us in a variety of ways: providing insurance, helping fundraise, and providing project funding. We also make an effort to sustain relations with surrounding school districts. In Dorchester District 2 (DD2), we work out of Summerville High School (SHS), host FLL qualifiers at SHS and Ashley Ridge High School (ARHS), and mentor various district FLL teams. Cat 5 also partners with Colleton County School District (CCSD), having run the Ace Basin FLL Qualifier for 10 years, and has started and currently coaches their first FTC teams. Cat 5 has worked with Charleston Dragon Robotics (CDR) to mentor and coach FLL Explore and Challenge teams. Our goals are not limited to one organization. In addition to community contributions, team members worked to establish the FIRST Youth Advisory Council (YAC), thus providing youth leadership in SC. To continue the learning experience beyond students, we have directly supported FIRST's education Professional Development (PD) team by training 30+ teachers. The magnitude of Cat 5's outreach would not be possible without our sponsors. Team 3489 has obtained various sponsors, from corporations including Boeing, Bosch, and Naval Information Warfare Center (NIWC), to local ones like Charleston Rubber & Gasket, Signarama, and Coastal Coffee Roasters. For other sponsors like NASA, BAE Systems, Siemens, REV, Gene Haas Foundation, LEGO Foundation, Kettering, etc, sponsorships were attained through student written grants. Grants have brought in over \$41,000 in funding for the team, with 75% of it written by students. We maintain our relationships with sponsors through emails, social media, and press releases. Category 5 has been actively improving our social media presence and engagement by creating numerous media initiatives: weekly vlogs that have increased Youtube engagement by 72%, participation in Community FIRST Day, and creating collaborations with FRC 7565, FIRST SC, and Haas. We also established #ConnecttheLink, which acts as a way for us to recognize those who inspire us in hopes of encouraging others to do the same. Within the past month alone, we have seen a 425% increase in accounts reached and a 625% increase in engagement on our Instagram. We can also proudly announce that our social media campaign flourished and raised over \$20,000.

WINDS OF CHANGE Cat 5 is building the future generation through FIRST AWARENESS. We place a huge emphasis on FIRST outreach, actively working across all programs in the FIRST pipeline: FLL Explore: -Started 1 team -Mentor 2 teams -Coach 3 teams -Volunteer & review at events -Volunteer at CDR summer camps FLL Challenge: -Started 1 -Mentor 11 teams -Coach 1 team -Impacted 33 events - Donated EV3s & student mentors for camps FTC: -Started 2 teams to introduce STEM & FIRST -Coach 3 teams -Volunteered/impacted 5 events. FRC: -Manufactured parts for 4533 -Support scrimmages with 342 -Collaborating with 4451 on design and strategy YAC: -Founded by two diverse female Cat 5 members -Leadership opportunity for FIRST SC Youth -Presentation at World Championship 2022 Event Support: -Supported SC FLL kick-off for 8 years -Created 16 FLL game tables that are still in use -Built FLL trophies -Refereeing -Judging -Building field kits -Tech & AV -Running concessions -Developed a Memorandum of Understanding with Tournament Directors -Annual SCRAP set-up, take down, & MCing

-Volunteer at all SC FLL Lowcountry events -Hosted and ran 2/3 of the Lowcountry FLL events this year - Assisted with 7 FLL and STEM camps Cat 5 does more than just FIRST outreach; we make sure to continue promoting STEM AWARENESS in the community: Major Community Events: -Flowertown Festival -Boeing Air and Space Expo -STEM Festivals -NIWC STEM Corn Maze -VOI -Stem Hanger at Charleston Air Show -Boeing Family Day -Collin's Aerospace Education Resources: -Awarded a \$2000 Bosch Best Teacher grant, which was used to create 45-minute STEM kit activities that explore friction, force, gravity, and simple machines. -Awarded a \$4000 Volvo Community Enhancement grant, which was used to construct FLL & FTC demo bots. -Partnered with FRC 8027 to create FTC Share & Learn videos to ease the FLL to FTC transition. -Hosted online CAD training for FTC & FRC students over COVID-19 -Created STEM kits containing activities such as Binary Bracelets and Playdough Circuits with additional kit plans containing lego tops/cars, paper rockets, etc. Ambassador Robots: Robots are an essential part of our team, so we make it our priority to use our ambassador robots at as much outreach as possible. 1.Hugo -Created for 2013 Ultimate Ascent -Repurposed to interact with the audience by throwing frisbees -Helps teach about hurricane preparedness 2.St. Elmo (T-shirt Launching Robot) - Commissioned by SC FLL in 2015 -Used to engage audiences -Shoots educational t-shirts at STEM events 3.Romi Robots -Awarded from student-written grant -Lent to PBS summer camp with CyberSC - Plan to use in future coding camps 4.Tempest -Donated by Cat 5 alumni -Repurposed for themed outreach -Used at trunk or treats in the off-season 5.Saffir -Created for 2022 Rapid Reacts - Demonstrated at various outreach events to draw interest -Used at club fairs, recruitment events, FLL events, STEM festivals, etc.

BACKYARD AND BEYOND Category 5 works to continue broadening our cone of impact; we emphasized how we can influence beyond our local communities and created initiatives to reach our goals. 1.STEM on the Go trailer One of our most exciting initiatives is our STEM on the Go Trailer! It is a mobile outreach trailer equipped with STEM kits and activities, tools and equipment, educational demo bots, a lending robot closet with spare parts and resources readily available for any FIRST team, and our ambassador robots. Implementing the trailer allows Cat 5 to bring opportunities to areas that may not have accessibility, especially due to the many underserved communities in the Lowcountry of SC. To further efforts towards sustainability, the STEM on the Go Trailer was repurposed from Cat 5's old competition trailer. Students wrote for the FIRST Equity and Access Grant to help fund the initiative; when YSoSC caught wind of our project, they offered to fund as well. The grant proposal was accepted, and of the \$8,000 cost estimate, the team was awarded \$5,000, with the rest covered by YSoSC. The impact potential of a mobile STEM trailer is huge! We can take it anywhere; the options are limitless! 2.Project Tropical Storm Project Tropical Storm is Cat 5's initiative to strengthen the FIRST pipeline. Due to many local elementary and middle schools having scarce opportunities in FLL Explore/Discover, students are not exposed to FIRST until 4th/5th grade, leading Cat 5 to develop ways to grow engagement of FIRST in local schools. To achieve such goals, students wrote for a LEGO Foundation Education grant and received 64 FLL class packs: 54 Discover, 8 Explore, and 2 Challenge. The provided materials, robots, and covered registration fees estimate to over \$60,000. We are working with local school districts: DD2, DD4, CCSD, Charleston County, and Berkley County to implement class packs and provide guidance to teachers and students through camps. The project can potentially impact 600+ kids in its first year of implementation and will only continue to grow! 3.ED&I AWARENESS Category 5 works to create a comfortable, safe, and fun learning environment for all. To ensure this, Cat 5 had a big diversity push, especially at recruitment events. Our hard work paid off. Cat 5 consists of 39% people of color, 33% females, and 12% LGBTQ+. Preparing for a more diverse team, we required all participants to complete the FIRST ED&I and Safety training. In addition, Cat 5 volunteered at numerous events promoting female participation in STEM: Girl Powered at East Edisto Middle School

and STEMINIST Girls camp. We also partnered with Ladies in FIRST to become an ambassador promoting girls in STEM. Other partnerships include FRC 1868, Space Cookies, on their Menstrual Equity (M.E.) Initiative and FIRST SC on their Menstrual Products Initiative (M.P.I.) to guarantee access to free menstrual products at FIRST events.

SURGING AHEAD Category 5 is always looking to the future and making plans for how we can surge ahead and continue ramping up our impact. To be successful, Cat 5 plans to continue developing education resources, specifically focusing on additional FLL curriculum to accompany the class packs implemented with Project Tropical Storm. We are working with ARHS to host a STEM festival to showcase teams from across the FIRST Pipeline. We aim to maintain a partnership with FIRST Ladies by hosting at least 2 ED&I events this year. We are the winds of change making landfall in our backyard and beyond! We are Category 5! We are FIRST!;

