

Chairman's Award - Team 1648

[Print](#)[Close](#)

2020 - Team 1648

Team Number

1648

Team Name, Corporate/University Sponsors

GE Volunteers/Motorola Solutions Foundation/Mailchimp/Earthly Dynamics/Women in Transportation Atlanta/Atlanta Public Schools CTAE&Grady High School

Briefly describe the impact of the *FIRST* program on team participants within the last five years.

FIRST has helped our students define their own paths within STEM and even spark interest in fields they were not previously engaged in. This is shown by our alumni: of the 99% percent who attended college, 87.5% entered STEM fields. This growth in our members' realm of knowledge and experience builds confidence in their technical and personal skills. Our alumni go on to serve our community by becoming FIRST mentors and lifelong STEM advocates.

Describe the impact of the *FIRST* program on your community within the last five years.

FIRST has inspired us to establish FRC teams at 4 high schools in Atlanta Public Schools and create a thriving community around our statewide K-8 program, Drones for Good (DFG). FIRST has also given G3 a platform to promote special needs inclusivity: we've put quiet rooms in every 2020 PCH FRC event, become a hub for special needs STEM outreach through Adaptive Maker Faires, networked at events like the GA Race for Autism, and taught STEM lessons within Grady's own special education classes.

Describe the team's methods for spreading the *FIRST* message in ways that are effective, scalable, sustainable, and creative.

Our Drones For Good competition accompanies FLL as an off-season event, keeping kids interested in FIRST all year. We've made DFG scalable and replicable by expanding into underserved communities with the help of partners like 100 Black Men & Women. We continue to pursue new scalable outreach opportunities. Last year, for example, we started a special needs outreach program which has included 3 Adaptive Maker Faire events, an FRC Quiet Room initiative, a program at our own school, and more.

Describe examples of how your team members act as role models and inspire other *FIRST* team members to emulate

By hearing the ideas of all members, our student-led team allows new members to jump right into important objectives, including: -A new member led the creation of a special needs outreach program -A new member designed a mechanism that earned our first Industrial Design Award -Members noticed the lack of STEM activities during the FLL off-season, so they created Drones For Good to engage FIRST students year-round By constantly sharing new ideas, we inspire innovation in FIRST.

Describe the team's initiatives to help start or form other FRC teams

We have helped start 6 teams in total, including: -Every other FRC team in Atlanta Public Schools (1795, 3694, 5651, 6177) -Robobibb (4941) out of Macon -DISCBOTS (6023), a team of refugees We continue to support five of these teams, and are now in the process of getting the remaining APS high schools involved with FIRST. We support 20 GAFIRST teams through the Georgia Robotics Alliance, which we founded in 2007. GRA provides teams with 501(c)(3) status and financial support.

Describe the team's initiatives to help start or form other FIRST teams (including Jr.FLL, FLL, & FTC)

As the first FRC team in Atlanta Public Schools, G3 has helped start a FIRST team at every elementary and middle school in the Grady cluster, and we've continued to support them ever since. We introduce younger students to FIRST through our outreach, and we host an FLL competition every year. We also promote FLL through our Drones for Good program, which was designed to run during the FLL off-season and introduce students to FIRST. In fact, many of our local FLL teams started out as DFG teams.

Describe the team's initiatives on assisting other FIRST teams (including Jr.FLL, FLL, FTC, & FRC) with progressing through the FIRST program

G3 Robotics promotes the growth and successful performance of FIRST programs. We have supported over 73 FLL teams via training sessions and scrimmages to prepare and advise students on their strategies and presentations in preparation for our annually hosted regional competition. We support FRC teams 1795, 4941, 5651, 6023, and 6177 through fundraising and student-to-student mentor support, providing them with shop space, fabrication access, and logistical support in their respective seasons.

Describe how your team works with other FIRST teams to serve as mentors to younger or less experienced FIRST teams (includes Jr.FLL, FLL, FTC, & FRC teams)

We support 5 FRC teams with mentor guidance, technical assistance, financials, and travel support. They're our FRC family; we ride the bus with them and share our meals at competitions. Our alumni mentor these teams, with 2 of them mentoring 4941 and another mentoring a fellow Atlanta Public Schools team, 6177. We have also provided mentor and funding support to the DISCBOTS (6023), composed of refugees, in addition to helping with cultural immersion and the English language.

Describe your Corporate/University Sponsors

Sponsors such as ATKINS Global, Women in Transportation Seminar, Motorola, and Lockheed Martin have all dedicated time and funding to G3, expanding their outreach to match the needs of our program. We also receive immense support from Georgia Tech and Diversified Metal Fabricators, who provide devoted mentors and machinery. Our other sponsors include Mailchimp, Department of Defense, GE, Know Agency, NASA, CTAE GA, Earthly Dynamics, Georgia's Own Foundation, and individual donors.

Describe the strength of your partnership with your sponsors within the last five years.

G3's partners are instrumental in supporting our programs and students. In addition to engineering mentors, Georgia Tech offers yearly access to their advanced machining facility, allowing waterjet, CNC machine, and 3D printer capabilities. ATKINS Global and Motorola assist us from a national level, and Diversified Metal Fabricators joined us in 2017 to offer professional metal fabricator mentor support. We have recruited mentors from AECOM and Thrive to assist us in expanding our business team.

Describe how your team would explain what FIRST is to someone who has never heard of it

More than just robots, FIRST is a worldwide non-profit organization created to transform our culture into a society where STEM can flourish. FIRST offers a unique blend of competition and hands-on learning to motivate K-12 students to pursue STEM careers and helps develop the life skills necessary for success in their future professions. FIRST dares us to use creative solutions to solve technical puzzles, ultimately producing leaders who are ready to tackle the issues of the next century.

Briefly describe other matters of interest to the FIRST judges, if any

As well as sustaining our past outreach, G3 continues taking on challenges. This year, we hosted an afterschool STEM program at The Nicholas House, a local shelter for homeless children, and plan to grow this into a long-term afterschool program. We also go where people don't expect us by promoting the FIRST message in all we do, whether we're demoing our robot to kids at local homeless shelters or volunteering at the Little 5 Points Halloween Parade or the ASF Race Through Space.

For FRC teams older than 5 years, briefly describe your team's broader impact from its inception.

Throughout our history, we have supported 6 FRC team start-ups and inspired the formation of numerous Jr.FLL and FLL teams. In 2007, we founded the Georgia Robotics Alliance to provide banking support and 501(c)(3) status to local teams. GRA has been a catalyst for growth in our state and now supports 11 FIRST programs. As the oldest FRC team in our school district, we've helped to lay the foundation for FIRST growth across Metro Atlanta and the state.

Team Captain/Student Representative that has double-checked this submission.

Cate Crutcher

Essay

G3 Robotics, Team 1648, has created a communal FIRST family which is constantly growing. By taking FIRST further into spaces not yet reached, G3 has become a hub in Georgia for unique STEM programs. From drone competitions to Adaptive Maker Faires, our efforts are devoted to using FIRST to create a direct path into STEM for people who are disadvantaged in or unaware of the field. We build on FIRST's community foundation by organizing inclusive outreach and addressing STEM accessibility gaps through our innovative special needs program.

Our FIRST Family

As an established FRC team in GA, we see it as our duty to use our resources to spread FIRST throughout the state. In 15 years, we have started 4 FRC teams at fellow Atlanta public schools (1795, 3694, 5651, and 6177) and 2 community FRC teams (4941 and 6023). Today, we ride the bus with them to competitions, stay in the same hotels, and share meals.

These teams and many others thrive thanks to our 2007 founding of a personal and financial support network, the Georgia Robotics Alliance (GRA), which provides 501(c)(3) status to 20 FIRST teams. Without GRA, hundreds of students would not have had access to the opportunities of FIRST. Our commitment to our relationships has inspired many of our alumni to give back to our FIRST family: 3 past leaders currently mentor 6177, and 2 have mentored 4941.

G3 supports FLL directly by mentoring FLL Teams 12016 & 18703 every week and running an annual FLL tournament. G3 members referee, MC, and coordinate volunteers while mentors and parents serve as judges. Robert Hill, an FLL coach of 6 years, commented on our service, saying, "The level of student involvement at Grady has always inspired me and the [FLL] kids - the students of G3 have year after year [served] with the utmost professionalism."

Over our past 4 tournaments, we have hosted 118 total teams, and we continue to make FLL a fun and gratifying experience for teams and volunteers. For these reasons, FLL is a cornerstone of our FIRST family.

To foster deep interest in STEM in our community, G3 seeks to diversify platforms for local STEM engagement. We noticed that after annual FLL tournaments, some participants lost interest in FIRST between competition seasons. In 2014, we filled this gap with Drones for Good (DFG), a competitive drones program modelled after and designed to complement FLL. We run DFG in the spring off-season so that students participating in both programs retain interest year round. This introduces unique STEM topics such as aviation and flight mechanics.

DFG is critical to our local STEM ecosystem. To support teams year-round, we run weekend Flight Checks where our "Drone Doctors" and mentors assist teams in flying, programming, and building drones. G3 members contributed over 700 volunteer hours at DFG competitions and Flight Checks in 2019 alone.

DFG began with 5 teams and has grown exponentially, with 97 registered teams across the last two seasons. Its growth has increased student interest in FIRST; we have current team members who participated in FLL and DFG in middle school. DFG alum and active G3 member, Alek, commented that he "felt more comfortable entering the FRC environment having a background in both FLL and DFG." DFG also brings adults to FIRST: Robert Hill discovered FLL through coaching DFG, and was also inspired to mentor G3 after visiting our help sessions.

STEM Inspiration

G3 established itself as a STEM hub in the broader Atlanta community, and we maintain this by consistently attending elementary school science nights, and volunteering at numerous community events to inspire STEM in future FIRST participants. Throughout the past 5 years, we've participated in approximately 150 outreach events. In 2019 alone, our team members participated in 31 outreach events, impacted 15240 people, and contributed 2743 total volunteer hours, not including countless hours of preparation.

Volunteering is another cornerstone of our FIRST family; it is how we connect with our team and community. All team members volunteer at FLL and DFG tournaments, as well as our biannual Gaming Gauntlet. They also participate in numerous community partner events each semester, such as Coca-Cola STEM Day, NCR Community Partners Day, GE Day, and youth outreach. Volunteering extends to all aspects of our family, inspiring our programmers to create an "Outreach Mode" for our robot so youth can test-drive it at a slower speed.

Essay - page 2

Outreach in elementary schools is vital to inspiring young students to engage in STEM. Otherwise they are often unaware of STEM opportunities available to them. For the past 5 years, we've attended annual science nights at 4 local elementary schools. Because we have established FIRST programs at every school in our cluster, when students at science nights show interest in our robot, we are able to direct them to join their own school's FIRST team.

The resources and connections we've gained through participation in FIRST have allowed us to focus on serving local disadvantaged communities. We volunteer at The Nicholas House, a local homeless shelter, where we set up STEM activities, teach the kids how to drive our robot, and donate activity kits for their afterschool programs. In general, we reach out to places we aren't expected to be, such as building houses for disadvantaged families through Habitat for Humanity, representing the planet Mars in the Atlanta Science Festival Race Through Space 5K, and marshaling for the Little 5 Points Halloween Parade.

We continue to reach out to our community because we believe putting a controller in a child's hand and teaching them how to drive a robot can awaken their interest in STEM and change their future. We have a perpetual commitment to community service that, to us, is just as important as building robots.

Special Needs Outreach

On G3, we know that people with special needs have the same potential as anyone else to make valuable contributions to FIRST and the advancement of STEM. Through innovative Adaptive Maker Faires (AMFs), partnerships with special needs nonprofits, and our GAFIRST Quiet Room project, our team is pioneering a program to integrate this audience with enormous untapped potential into the FIRST community.

Our program began in 2018 with our first AMF, an event with various STEM and arts stations specifically designed to be accessible to special needs students. It was held in partnership with the MDE School for students with communication disorders, and was a success. We then held 3 more of the same model, including one with the statewide nonprofit FOCUS + Fragile Kids, which drew 70 participants from around GA. One participant's mother later said she planned to enroll her son in STEM classes because he was so excited about our activities. Through these events, we've also connected with the Dancing Bears (46035), a special needs FLL team. We believe that if we provide outlets for young special needs students to get involved with STEM, we can encourage them towards lifelong contribution to the community.

Working with Kimberly Portee, our coach who teaches special education, we've held 2 AMFs just for students from our cluster. We also give monthly STEM lessons in our school's special ed. classrooms.

At all AMFs, we make sure volunteers, both students and adults, are fully prepared to work with participants. Team members and coaches with prior special needs volunteer experience wrote a training guide detailing how to engage with this community. It includes ways to improve communication and guidelines for safety and privacy.

In addition to these events, team members accompanied our school's special ed. students through athletic courses at the APS Special Olympics in 2019. We also attended the GA Race for Autism, a charitable race for all abilities, where we set up STEM activities and connected with other special needs families and organizations across GA. We further networked with the community by introducing our program to families at the FOCUS Information Fair.

Not only have we brought special needs outreach across GA and into our own school district; we've also brought it into FIRST. Along with welcoming special needs members onto our team, we have used FIRST as a platform to advocate for special needs inclusion in all areas of life. For example, we gave a seminar at the 2019 GAFIRST Symposium about special needs inclusion in FRC, where we taught strategies for accessibility and explained how integrating special needs members onto FIRST teams not only exemplifies FIRST Core Values, but is an essential benefit to the engineering process.

We took this initiative a step further by working with GAFIRST to add fully-stocked quiet rooms to all 6 PCH FRC events in 2020, allowing participants with special needs and mental health conditions to retreat from stressful stimulus. Quiet rooms improve FRC accessibility for these students by providing a place to go if they feel overwhelmed. The rooms have a bilateral effect—they give respite to those in need, but they also inspire accessibility awareness across the whole FIRST community. Information pamphlets about the quiet rooms, distributed during competitions, contain additional information on how to engage with students with special needs.

Our special needs program is a unique blend of efforts to deepen FIRST's reach and promote inclusive outreach. From our own school to across the state, all our team's projects are connected by the common goal of creating new STEM opportunities. We believe everyone should have equal access to STEM because everyone has something valuable to contribute to the conversation. Using our resources and reach, we make sure everyone is included in the FIRST family.