

Chairman's Award - Team 4188

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2019 - Team 4188

Team Number

4188

Team Name, Corporate/University Sponsors

UTC/AFLAC/WestRock/Synovus/Lockheed Martin/WC Bradley/CharBroil/U.S. Army&Columbus High School&Hardaway High School

Briefly describe the impact of the *FIRST* program on team participants with special emphasis on the 2018/2019 year and the preceding two to five years

CSP, a community team, is the largest team to offer FRC opportunities in West Georgia. As an alliance team of 4 high schools (37 students and 12 mentors), we open our doors to everyone for all skill levels. We train real engineers, going through full engineering life cycles with robotics. We train real scientists with DREAMS, experimenting with real science that reaches beyond Earth. We train real entrepreneurs, developing projects and programs that inspire everyone around us.

Describe the impact of the *FIRST* program on your community with special emphasis on the 2018/2019 year and the preceding two to five years

Since 2016, CSP has grown *FIRST* in Columbus through the annual Tech It Out Challenge (TIOC), a program of workshops and stations that introduced *FIRST* to 53 area schools, 2,000+ students, and 90+ teachers. Through TIOC and Muscogee County School District's (MCSD) initiative to include FTC, FLL, and FLL Jr. EXPOs, Columbus has grown from 0 *FIRST* teams beyond CSP in 2015 to 51 teams in the Chattahoochee Valley in 2019. CSP also worked with 32 pre-service teachers to increase awareness of *FIRST*.

Team's innovative or creative method to spread the *FIRST* message

Embodying *FIRST*'s values, CSP's core values strive to grow champions. Through our FLL training program, we have developed a model to grow not only FLL but also FTC and FLL Jr. in the community. We focus on training and enabling our champions so that they learn how to grow successful teams. Additionally, by inviting our FLL teams to listen in on our status meetings, we give those rising champions a chance to see their next step towards success, becoming better team members and engineers.

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

CSP is managed like an engineering company. Emphasizing both engineering and operations functions, our students develop both hard and soft skills in the process, from welding and programming, to video and leadership. Both skill sets are vital to impact our community and allow students with diverse passions to join. "CSP's presence is massive- not only because they're competitive, but they also have fun. It's the most inspiring quality that an FRC team can have" (Hallie, FRC 1902 Mentor).

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

CSP's Shadow Program, with its 2 year launch model, specifically supports and guides rural FRC teams who lack experiences and resources necessary for a full season. School districts at Manchester, GA and Greenville, GA are currently undergoing this initiative, who will now have FIRST and STEM education that was never seen before. Additionally, we invite teachers and potential future FRC teams to our annual scrimmages and to TIOC, where they are inspired and encouraged to become champions.

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

Our biggest fan is our superintendent. Regularly meeting with him to strategize over the past 3 years has resulted in: making the Columbus Event a field trip for MCSD schools; developing our FIRST Class School District (FCSD); increasing funds for teachers and teams to reduce financial restrictions; and providing monetary incentives all teachers who launch teams. Together we work to expand the FCSD (currently open to 39 elementary, 12 middle and 9 high schools) within Columbus and beyond.

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

As members of the FIRST Alliance (162+ teams) and the Compass Alliance (40+ teams), CSP actively mentors younger teams on their own paths to success. We supported 6 FLL teams on their projects for Into Orbit through DREAMS. Reaching out beyond GA FIRST, we train teams in Korea, Japan, and Taiwan - from FLL to FRC. We offer full practice fields and more industrial machinery (CNC router, lathe, TIG welder etc) to 10+ FRC teams, who are now capable to personally manufacture parts.

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)

CSP actively mentors an FRC team in Opelika, 2 local FTC teams and 4 FLL teams - 3 of which progressed on to State. We also support FRC 5701 in Tokyo by visiting them during the summer; we consult with FRC 7636 (a rookie team in Taiwan) by contacting them regularly, discussing solutions for engineering and management challenges that they encounter. "OGRE looks up to Columbus Space Program. Along with in-kind support, teams like them also inspire us to be better and do more" (Alex, FRC 7072).

Describe your Corporate/University Sponsors

Every CSP sponsor is a multi-year supporter, with 50% of our finances supported by local sponsors. 8 out of 12 of our mentors are from Synovus and Kodak, along with 10 other sponsors, who strengthen CSP with diverse skill sets. Aflac provides equipment, furniture, and movable whiteboards for our buildsite, to make team meetings efficient and comfortable. Over the years, our students have continually been offered internships during the summer and through college from TSYS and Pratt & Whitney.

Describe the strength of your partnership with your sponsors with special emphasis on the 2018/2019 year and the preceding two to five years

Our Build Brave Girls (BBG) program are led our sponsors' female executives, exemplifying leadership in a male dominated field. CharBroil has built full fields for the past two years as team building exercises, working with our team to set them up in our FCSD. Before we gained our CNC router, ONEDA and CharBroil physically produced our chassis for the competition robot for two and three years, respectively. Aflac provides computers and furniture, for both business and technical uses.

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

The name Columbus Space Program is inspired from our DREAMS program. With DREAMS, we send FIRST values to the sky. We have over 10 years of experience building and flying projects with organizations all over the world, from Australia to California to Brazil. We have added DREAMS to the curriculum for Georgia's Governor's Honors Program since 2017. In 2018, we added brand-building options for FRC teams across the world, with 11 FRC teams joining us in our 30th launch.

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

The workforce development program that is FIRST is a fun sample of working in an engineering company. Working on specialized teams, students solve real-life projects, including systems engineering, marketing & communications, presentations, and safety programs, as well as solving engineering problems. Any student's interest is encouraged and can be incorporated into their team. FIRST foment an environment where both success and failure are embraced, translating into improvement and learning.

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

Seok Hee "Christine" Hong

Essay

Welcome to CSP, where we're just getting started.

How were you first introduced to FIRST? Was it your physics teacher who happened to coach a robotics team? Was it your sister who was an alumna of a team? Or were you simply recruited at freshman orientation? No matter how you join FIRST, once you've joined, you've joined the pathway - the pathway to success. CSP strives to expand this pathway for all students and to enhance the pathway for all participants.

We recognize that every student has different circumstances which may not have allowed them to have the same opportunities FIRST students have, and we decided to make a change: because FIRST is for everyone, not just us.

Launch Level I: Discover

Not everyone knows about FIRST and not everyone understands the value of robotics. This realization motivated us to initiate original programs that contribute to increasing the awareness of our presence within the community.

Our most direct approach to inform our community about FIRST is our Tech It Out Challenge (TIOC). TIOC is conducted with local schools, as part of the PCH Columbus (CSG) District Event since 2016. Participants are encouraged to practice engineering and design processes of building a robot like an FRC team, which became a program we have perfected with local classroom visits to schools. Students participate in workshops, spend time watching competitions, interact with pits of 38 Georgia (GA) teams at the Columbus Qualifier, and meet FLL teams. In their tours, CSP demonstrates qualities of a FIRST event, explaining the diverse parts of FIRST.

'What if I can't come to robotics meetings after school?' CSP understands that circumstances may not allow some students to enjoy FIRST activities as they should, so in response, we implemented Robotics in the Classroom (RIC). This initiative, implemented in middle and high schools in CSG, allows students to explore robotics-related questions within their physics and computer science curriculums. RIC is formalized with the release of a website with problems and examples to be used in the classroom, which have been tested with students at Columbus High School. RIC not only allows students to learn about FIRST in their classrooms, but also introduces them to a new genre of activities where they discover beyond the ordinary.

Launch Level II: Reach

CSP wants to become an inspirational team to our community: inspiring students to join our pathway, inspiring teachers to lead their students on the pathway, and inspiring companies to help develop these pathways. Continual support is what our community can expect from CSP, as we firmly believe that once we commit to something, we should be with it to the end.

STEM is known to be a male-dominated industry, but CSP works to oppose the status quo. This is why CSP is a strong supporter of FRC 1902's #FIRSTLikeAGirl campaign, striving to empower girls by showcasing amazing female FIRST leaders. Many girls have interest to take part in the STEM-intensive community; however, most often lack the confidence to make mistakes needed for success. "We're raising our girls to be perfect, and we're raising our boys to be brave" (Reshma Saujani, 2016), which is why our Build Brave Girls (BBG) program was created. CSP has highlighted examples of our own girls being brave and has now launched a 3-day extensive BBG camp that focuses on 4th-7th grade girls who want to find their courage. We have consulted with top female technology executives from Kodak and Synovus and with artistic women who have faced failure to advise our plans and volunteer to meet with young middle school-aged girls. The camp is designed not only for hard skills (mechanical, electrical, programming), but also soft skills (communications, leadership, teamwork) to allow girls to pursue their bravery. The pilot camp is scheduled for Summer 2019 with 20 students attending.

Launch Level III: Expand

When 4188 started, we formed from 6 high schools with 19 members. Within 2 years, we were reduced to 2 schools and 13 students. By 2019, we have grown back to 4 schools and 37 members, with 12 mentors. However, we decided it was not enough for CSP. Despite the fact that CSG is still in recession, CSP strives to build upon robotics wherever we can.

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CSP is an example of advocating on behalf of coaches and mentors of FIRST in non-CTAE programs, whom we firmly believe deserve the same stipends that mentors from CTAE schools earn. CSP meets with leaders of the MCSD, discussing the importance of equality among the mentors of FIRST in GA. Leading one of the largest school districts in GA, the MCSD superintendent comes over several times per year, and we have meetings with him about direction. He's implemented a program to provide local monetary support not originally available to elementary, middle, and high schools to join robotics. MCSD is now designated as a FIRST Class School District (FCSD) and made FIRST part of the education program for the county, along with offering pay for coaches. Through our discussions with Albany, they are now pursuing their own implementation of FCSD.

Nevertheless, MCSD has a lot of room to grow. CSP has created a network where all local teams are able to practice all aspects of FIRST, including a practice field and workshops. CSP is an ongoing supporter for teams in town, volunteering at Regional, Super-Regional, and State Championship FLL events and inviting all teams to our DE facility for Saturday workshops. We arrange summer workshops and on-site visits to the teams, not to mention the organization of several scrimmages to help the teams practice like they would at real competitions, including robot and core value judging, as well as support for project research.

We expand our assistance to teams beyond GA, and even beyond the United States. FRC7072 in Opelika, AL, was founded in 2017 by CSP alumni, and we offered assistance and became mentors on FIRST, robot building, branding, and operations systems. By inviting them to our workspace, our mentors, professionals, and team members helped build a solid foundation for 7072 to begin their journey as a fellow FRC team. In 2018, we assisted them on their Rocket City Regional event with scouting, safety, awards, strategy, and communications. With FRC5701 in Tokyo, Japan, we have become examples of design, mechanical, and electrical engineers, and encourage them to recruit females. We are also assisting FRC6666 in Mexico, and helping aid their growth and development in FIRST, particularly with girls.

Launch Level IV: Amplify

One of the most challenging initiatives for growth of FIRST in small, rural communities that make up the majority of Central and South GA goes beyond money. In fact, GA FIRST has many programs that offer financial support to teams. The bigger issue we've observed is the lack of champions within this region. Students in rural areas are interested and are willing to work hard to grow FIRST teams. We found that the main issue was the lack of confidence from teachers in starting and maintaining teams to grow a team successfully. To support this, we started two new programs in 2018 - 2019.

The Shadow program was started as a two-year launch program, rather than the traditional FIRST approach to launch new teams via "mentorship" and basic support in the build function. This requires a coach or mentor that has some engineering or technological background and some general FIRST knowledge. However, for communities where industry is limited and schools lack in education opportunities like advanced math and physics, the teachers are often overwhelmed by what is required as a FIRST team. It is not just a matter of starting a team, teaching kids how to build a robot, and program it in LabView or Java. In fact, finding someone who knows this language is hard in such communities. Our shadow program offers one season working with an existing FRC team to talk through every step of a season - from their team's launch and fundraising, to rules evaluation and competition strategy, as well as building and competing. After the initial year with CSP, we offer the traditional support of a new team.

Our second program is a pre-service support program with Columbus State University (CSU) education majors. As part of CSU's pre-service training, CSP meets with college seniors in elementary and middle school education to discuss opportunities in FIRST and how to start and run FLL teams. Since the Superintendent has agreed to hire all education majors from CSU, this will lead directly to growing FIRST in the Valley, as well as other communities.

Launch Level V: Mentor

It is important that our pathway not just expand to more students but that it allows the students who are part of the program to be their best possible selves. Students who participate in DREAMS (Doing Research at Extreme Altitudes with Motivated Students) send science to the edge of space. To date, 3 dozen students designed and built experiments which have been tested in space on NASA rockets, shuttles, the International Space Station, and high altitude balloons. In addition, we have had 2 funded invention projects by the Lemelson-MIT Foundation and 5 student experiments on the NASA Vomit Comet aircraft. One recent DREAMS launch was during the 2017 Solar Eclipse, which Aflac used to support an advertising campaign.

Launch Level VI: Success

At the end of the pathway comes success. CSP alumni have become great leaders, from forming and mentoring teams, to studying and working at prestigious universities and companies. CSP believes that this pathway is meant for anyone, anywhere, regardless of background, circumstance, or status.

We are CSP, and we are GO for Launch.