

## Chairman's Award - Team 2468

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

2018 - Team 2468

### Team Number

2468

### Team Name, Corporate/University Sponsors

Cirrus Logic/Qualcomm/NXP/Berry Consultants/Intel/National Instruments/Pixels and Verbs, LLC/BAE Systems/Westlake & Eanes Science & Technology Association/IBM/Westlake High School PTO/Austin Waterjet/SolidWorks/FIRST in Texas/Texas Workforce Commission/Eanes Independent School District&Westlake H S

### Briefly describe the impact of the *FIRST* program on team participants with special emphasis on the 2017/2018 year and the preceding two to five years

Team Appreciate inspires students to reach for the stars—literally. From building rockets at Caltech to launching satellites with NASA, our alumni continue their passion for STEM beyond their 2468 years. Nearly 1/3 of our high schoolers intern at companies like Silicon Labs, Intel & TxDPS. "As a 2468 team member, I worked with engineers who taught me real-world skills, helping me get top internships in college. Now, I use these skills on a daily basis working at NASA," Jake Cooper (2468 alum).

### Describe the impact of the *FIRST* program on your community with special emphasis on the 2017/2018 year and the preceding two to five years

We directly impacted 1.3 million people through 310+ events. We're changing USA STEM education through political advocacy (SACOT). We help teams grow with STEMConnect, providing funding & stronger corporate partnerships. We promote culture change via FIRST Signing Day, recognizing hundreds of seniors "going pro" in the sport of the mind. We put smiles on ailing children's faces through the Lilypad Project. We empower the underrepresented through our Girls Initiative and Breakthrough.

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

Our media impact goes well beyond 1.3 million; since our inception, we've spread the FIRST message to 42+ million worldwide. To showcase the importance of STEM and give robotics students recognition, we created FIRST Signing Day (akin to athletic signing days). Chap Research—our R&D department—developed RoBox, a low-cost robotics kit we utilize in STEMConnect sessions. Students take the kits home and continue learning after camp, which ignites their excitement and interest in robots and FIRST.

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

As the originating founders of the STEM Advocacy Conference of Texas (SACOT), we modeled the way for 75+ Texas FIRST teams to join voices in STEM education political advocacy. Using us as a role model, FRC 1165 launched FACTA in AZ; we helped them build infrastructure & host their first conference. We coached dozens of teams on Chairman's tips with 7 presentations and mentored 3 rookie FRC teams directly. When looking for a FIRST team to demo at a SXSW IEEE event, FIRST HQ reached out to 2468.

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

Anticipating the Texas FRC-district model transition, we took the initiative to focus on starting more local teams. We've mentored 6377 since 2016 and "provided foundational support and were instrumental to [their] success" (Evan Marchman, Lead Mentor). Also, we started 6800 in 2017, giving them \$2500 via the TARP grant system. Twice we've hosted Batbots—a mock build season & competition—for rookie teams. We have 2 more teams ready to start for the next 2 seasons, starting with St. Stephens HS.

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

In our 11 years, we've started 2 Jr. FLL, 39 FLL, and 12 FTC teams. Our members provide mentorship and facilities for their seasons. We financed \$6600 in fees for Jr. FLL and FLL teams this year alone and grant additional funds through our nonprofit. STEMConnect also provides the experience of building & programming, inspiring kids to start their own FIRST teams. Since STEMConnect began, it's formed 4 FLL teams across Austin; two rookies advanced to Worlds due to their STEMConnect head start.

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

2468 is a founding member of FIRST Pathways, helping teams bridge the gap from Jr. FLL through FRC. We're a partner on The Compass Alliance providing accessible resources for all teams. Locally, we introduced Vandegriff HS to FIRST & helped them expand their FTC program to include FRC; we've started the same with St. Stephen's. Our own program is built on a model of fostering FLL and FTC transitions to the next levels. We've helped hundreds of teams at tournaments, which led to a 2017 GP award.

**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)**

"The inspiration to develop and fund the Texas Active Rookie Partnership (TARP) grant originated from a conversation [with 2468]," Patrick Felty (FIRST in TX Development Dir.). Over 3 summers, we traveled with >25 other US teams to co-host workshops in Australia & China for rookie FTC and FRC teams. By hosting events like our MLK day camp with FTC 9053, we help FTC kids learn to mentor younger kids & also help the Jr. FLL/FLL girls expand their skill sets, encouraging both in their STEM journey.

**Describe your Corporate/University Sponsors**

Our sponsors supply funds, mentorship, corporate event participation opportunities & resources. Austin Waterjet cuts robot parts BAE Systems, Berry Consultants, FIRST in Texas & IBM fund grants Concurrent Design reviews robot designs Intel, NXP & Qualcomm allow us to host STEMConnect on campuses (Cirrus Logic next year) National Instruments provides LabVIEW, sensors, mentors & grants Slack, TeamGantt & Zapier donate tools for team communication SolidWorks provides CAD licenses

**Describe the strength of your partnership with your sponsors with special emphasis on the 2017/2018 year and the preceding two to five years**

We participate in unique events with our sponsors and maintain strong connections with all. Silicon Labs and Wolfram Manufacturing offer our students internships. In 2013, we built a robot for the Freescale (now NXP) Austin Marathon. Sustaining this partnership for 5+ years, NXP invited our senior girls to its 2017 Women's STEM Leadership Forum. We form new partnerships; this year, we worked with Cirrus Logic and their Edinburgh branch to organize the first "Kids in Engineering Day" in the USA.

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

"FIRST is a unique opportunity to allow high-school students to not only be engaged in STEM, but also be leaders. The experiences you get in FIRST will last well beyond high-school, as you get into college and real-world jobs," Ryan Nazaretian (2468 mentor, FIRST Alum). From day one, 2468 instills in their members that FIRST is more than building robots. FIRST builds confidence, teamwork skills, technical aptitude, and a lifelong passion for STEM—shaping the most successful leaders of tomorrow.

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

Our program is designed to encourage student leadership, empowerment, and meaningful contribution. We ensure every team member is involved, whether through designing and manufacturing the robot, pitching for sponsorships, volunteering at outreach events, or helping with essential management tasks. "The inspirational environment created by the leadership of 2468 fosters the team development and spirit. It is a key to the continued success of the program," Brently Cooper (Alum parent and mentor).

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

Shrey Majmudar

## Essay

Philip

2-4-6-8! Who do we appreciate!

For me and my 70 teammates, these words are a call to action, a symbol of FRC 2468 Team Appreciate's enduring mission: to inspire future STEM leaders worldwide through mentorship, political advocacy, service, and lifelong learning. Since 2007, we've promoted STEM to thousands of students. We've started 2 Jr. FLL and 39 FLL teams at the elementary school level. Creating a pipeline to develop better prepared students, we've mentored 63 FIRST teams, providing funding, shop access and technical feedback.

Upon entering high school, I enrolled in a robotics class and joined one of our school's six FTC teams. Interest in robotics created demand for a rigorous STEM curriculum at our school, and we also extended our curriculum to both middle schools in our district, which now teach basic programming to every student and offer robotics as electives. Our district now offers over 15 STEM classes serving 850+ students. Over 115 educators from 39 districts have approached us about emulating our model.

In 2015, I contributed to the VersaSwerve project, our team's affordable swerve-drive design for novice teams featured on the VEX website. It's just one of the many products our program has developed, including an affordable string potentiometer sold by AndyMark (1000+ units in three years) and the ChapR, a patented Bluetooth remote control for FTC and FRC robots. Through product development, our students have obtained 52 professional certificates in SolidWorks/LabVIEW.

The same summer, I attended the National Advocacy Conference in Washington, D.C., marking our team's third year of congressional dialogue regarding bills (SB1177 & ESSA) for increased STEM funding. With this experience, 2468 formed the STEM Advocacy Conference of Texas (SACOT), our own political advocacy program at the state level. In October 2016, we hosted the Founders Conference at the Texas Capitol where 80+ students from 12 invited teams met with legislators to introduce SACOT. With sponsorship from FIRST in Texas, we hosted the SACOT Inaugural Conference in January at the start of the 2017 Texas Legislative Session. Another 50 attendees from 10 teams held 22 legislative meetings to promote a partnership between UIL and FIRST as well as HB395, a bill to increase funding for Technology Application Courses like robotics. Today, SACOT's general membership has expanded to 670+ members from over 75 teams.

Outside of conferences, we kick-started SACOT on Tour, a series of weekend excursions to introduce STEM in underserved areas of Texas. We made our first trip to East Austin—a traditionally low-income community—and invited legislators, school board members, robotics teams, parents and students to further STEM awareness. Other SACOT teams across Texas are adopting this model. In addition, 2468 is fulfilling one of its goals: to help FIRST teams in other states create statewide advocacy organizations of their own. We've accomplished this with FRC 1165's development of FACTA: the FIRST Arizona Conference for Technology Advocacy. As President of SACOT, I flew out to FACTA this past December, delivering a keynote speech and providing guidance on their infrastructure. It'll be exciting to watch SACOT grow to its full potential!

William

Little did I know I'd been impacted by Team Appreciate before I even knew who they were! It all started with my 2010 elementary school Science Day, where three 2468 students taught me to build a racing bot from a pile of LEGO parts. Upon joining 2468, I learned that we've been presenting at our district elementary schools since our rookie season. Now, we spread the message of FIRST to all six of our elementary schools every year.

In the past five years, we've participated in 310+ community events, including Dell Family Day, NIWeek and the Design Automation Conference. Often, we're invited to return, allowing us to involve other teams. In 2013, we attended the Freescale Technology Forum; the next year, we included 11 teams in this event. Our program frequently receives media coverage: articles in Sparkfun and ROBOT magazine, radio ads, interviews with CBS, Fox, and Time Warner Cable, and more.

In 2013, we presented workshops in Australia to help form FTC teams. Then in 2014, we started our first international FTC team in South Korea; continuing the trend, we started another in Germany the next year. We shifted our focus in 2016 to the development of FRC teams, inspiring—and subsequently receiving—the FIRST Texas Active Rookie Partnership grant; since then, we've focused on starting local FRC teams. Our efforts to support FRC teams also transcend national borders, reaching teams in Israel and China. Following both of our trips to the China Robotics Challenge, we held mentorship video calls, created a Chinese-English dictionary of FIRST terms and hosted 12 workshops for seven Chinese teams before the Alamo Regional.

**Essay - page 2**

In addition to individual events, our team shapes the next generation by establishing our own initiatives. For six years, we've hosted STEMConnect, our series of week-long STEM education programs for the children of our sponsors' employees at companies like NXP, Intel and Qualcomm. Also, for the students like myself who run these sessions, it's a great way to give back. Enrollment has skyrocketed from 74 students in 2012, to 175 in 2015, to 337 in 2017, with a projected 400+ next year. STEMConnect seeded the formation of 4 FLL teams, 2 of which are all-girl teams. Our success at the corporate level motivated our team to expand the model to our local community: this past summer, we held an additional 11 sessions at our facilities in Eanes ISD. STEMConnect proceeds enabled us to donate over \$45,000 in resources to other schools. In the last three years, teams in Arizona (2583), California (1538 and 4159), North Carolina (3459), and back home in Texas, have adopted our STEMConnect model.

Since 2015, we've partnered our STEMConnect model with Breakthrough, a non-profit providing support to first-generation college students. We helped Breakthrough integrate our curriculum into their summer program for 75 students. Last year, we donated \$15,000 of our STEMConnect proceeds and provided student leadership to make the camp happen.

Our structure allows students of all backgrounds to learn and contribute in meaningful ways. This learning process begins with our mindset of student empowerment. All our students learn technical skills like CAD, programming, electronics, and machining, as well as non-technical skills like fundraising, entrepreneurship, and PR. This has enabled this year's students alone to land 35 internships at companies like Intel, NI, Silicon Labs, and VEX, equipping them for college, industry and beyond.

**Riya**

I joined robotics in middle school knowing I'd be the only girl on the team; over time, though, the experiences I had in robotics were priceless. I wanted other girls to share the fun I had, so I helped 2468 start an all-girl FTC team. This team served as a vehicle for increasing involvement among a previously underrepresented group in our program: girls. Three years ago, we started an annual day-long mock competition on MLK Day where we introduce 90+ girls to the exciting atmosphere of FIRST. This, in addition to grade-school exhibitions, enabled us to create and mentor 2 all-girl FLL teams. In the past 5 years, the number of girls on 2468 has increased by a factor of 7; our roster is now 31% female. We continue to promote female participation in our program by having Girls' Lunches where veteran girls meet with rookie girls to foster lasting relationships and aid their transition into our program.

In 2015, one of my role models encouraged me to participate in our team's R&D department: Chap Research. After joining, I learned quickly and was soon appointed CEO, following in her footsteps. I oversaw the Chap Research Outreach Management Application, a 2468 web application that facilitates outreach documentation for FTC and FRC teams. Starting last spring, our team developed RoBox ("Robot in a Box") to make robotics-based, childhood STEM education affordable. We conducted a week-long pilot camp, receiving positive feedback from both kids and parents. Currently, we're finalizing a second version of the kit and have a patent pending.

As I rose to a leadership position on the team, so did my friends, who took initiative in our outreach, design, manufacturing and Lilypad subteams. The Lilypad Project, adopted by 2468, provides hand-painted wooden attachments for IV poles. Kids sit on lilypad-shaped seats while their parents walk them down hospital halls, giving kids mobility and putting smiles on their faces. We cut, prepare, hand-paint, and deliver these lilypads to hospitals across Austin and near every regional we attend, having donated 80 so far.

Two years ago, we created FIRST Signing Day, a national initiative where seniors in FIRST sign a letter of intent. We were inspired by the tradition observed by sports teams and athletes across the nation. This allows schools and local communities to celebrate their FIRST students while spreading the word through social media platforms. Last year was our second annual FIRST Signing Day with dozens of teams participating around the nation. It'll be exciting signing the letter I helped create.

Now, as a senior, I'm surrounded by ambitious girls on a daily basis; we represent a wide range of experiences and interests, empowered and brought together by 2468. Philip, William, and I are simply three of the many individuals impacted by our team. Through mentorship, political advocacy, service, and lifelong learning, our efforts represent the FIRST ideals and build passion and excitement for STEM culture. Although we may not be in high school much longer, we will always be FIRST students and a part of the 2468 family. As we enter the next chapter of our lives, our mantra will forever hold true: 2-4-6-8! Who do we appreciate!