Chairman's Award - Team 2468

Print Close

2020 - Team 2468

Team Number

2468

Team Name, Corporate/University Sponsors

Apple/NXP/National Instruments/Intel/Qualcomm/Charles Schwab/RFD & Associates/Berry Consultants/Pixels and Verbs, LLC/EnerChoice/BAE Systems/Westlake & Eanes Science & Technology Association/PlastiVac Inc./Google/Westlake High School PTO/Cirrus Logic/SolidWorks/FIRST in Texas/Texas Workforce Commission/Mythic/Clear Guidance/Clean Cause/Eanes Independent School District&Westlake High School

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

Through FIRST, students are exposed to experiences that shape their futures in ways not possible through traditional education. Our students work with professional engineers, business leaders, politicians & authors to learn SolidWorks & Labview (69 students w/ professional certifications), presenting, advocacy & writing. In 2019, the Bart Kamen Scholarship supported a 2468 member at college. The FIRST program prepares students to succeed in their internships & careers (SpaceX, NI, NASA, Dell).

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

—Hosted 30+ Science Days at our elementary schools, 5 STEMGirls MLK Day Workshops, 3 socials for 100+ girls, & hundreds of community outreach events—Our district adopted our STEMConnect model to grow community education programs—Donated $100K to establish an endowment for 2nd full-time robotics teaching position at our school—CTE curriculum includes 8 STEM/Robotics classes for 568 students this yr—Campaigned for 2 bonds granting $3.69M towards increasing robotics space from 1080 to 11700 sq. ft.

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

—Helped others adopt STEMConnect, SACOT, FIRST Signing Day & Lilypad Project by providing resources & mentorship—Developed RoBox, a 100% student designed & built take-home robotics kit, making STEM opportunities accessible to more students—Introduced FIRST to underserved communities through ClubZ & Breakthrough—Created #FIRSTSigningDay campaign to raise FIRST awareness & recognize 572 FIRST seniors—Organized 83 legislative meetings, advocating for FIRST & STEM—5800+ social media followers

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

—Led 6 SACOT events, like the FIRST State Advocacy Summit, uniting 6 FIRST state advocacy groups—Share knowledge w/ FIRST teams as a Help Hub in Central TX on Compass Alliance—Mentored 1 FRC, 11 FTC, 49 FLL & 14 FLL Jr. teams in our school district—15 presentations at Kickoffs & 8 at Champs in past 5 yrs—Often invited to promote FIRST through media: Good Morning America, FUN, local news & SolidProfessor—Assisted 50+ teams at competitions last season—Technical & outreach resources on our website

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

—Mentored FRC teams 6377, 6800, 7424 & 7511 since their inception, "provid[ing] foundational support and were instrumental in [their] success" (Evan M., 6377 Lead Mentor)—Was "the inspiration to develop & find funding for the TARP grant," which assists veteran teams in TX to start & mentor FRC rookie teams (P. Felty, FIRST in TX Pres.)—Started a JV team, FRC 2687, at our school to support a growing interest in robotics & STEM—Introduced robotics program to 94 educators in 34 school districts

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

—$13.5K of STEMConnect profit used to start 32 FLL & 12 FLL Jr. teams in 3 years—STEMConnect inspired the start of 2 FLL teams this year; "It was exciting to see so many STEMConnect kids on teams at the FLL events" (E. McKaskle)—In memory of mentor Linda McMahon, WESTA began the Legacy of Linda Scholarship, which donated $2K to start the all-girls FTC 17161—Started FTC 11549 in 2016, totaling 9 FTC teams in 9 years, including FTC 8338 in South Korea & FTC 10796 in Germany

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

In working with our school district, we established a pipeline through the FIRST program from FLL Jr. to FRC. 80% of current 2468 students went through our FTC program. FRC 2687 is an additional option for students progressing to FRC. We helped FLL 14938 transition to FTC 17161 by giving them funds & mentorship. We spent 125 hours last summer training new FTC students & mentors. To help other teams progress, 2468 has hosted and volunteered at 7 FLL events this season and mentored 13 FTC teams.

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)

—Visited China twice to mentor Chinese rookies with 25+ other FRC teams; hosted 3 of the rookie teams in Austin & mentored them through the Alamo Regional—With FRC 5449, we led a customized STEMConnect session in Beijing, introducing 18 students to FIRST—Worked w/ FRC 6377 to mentor FRC 6800—Worked with FLL 14938 to run 3 camps for other FLL teams, including 1 in Costa Rica which started 4 int'l FLL teams (1 all girls); some of these FLL teams credit their success at Regionals to these camps

Describe your Corporate/University Sponsors

—Total $206K (incl. in-kind) raised this season from 24 sponsors—Effort to increase sponsors, pitching to 19 companies this year—Partnered w/ NXP & Qualcomm to host camps for underserved communities—Sustained long-term sponsors like Pixels & Verbs (13 yrs) & National Instruments (12 yrs)—Beyond funds, sponsors support 2468 through mentorship, event partnerships, supplies & grants—SolidWorks provides CAD licenses for team use—Plastivac Inc. donates materials & helps w/ field elements & Lilypads

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

—Since 2015, partnered with our sponsors for 93+ events; 34 events since May—Organized & taught STEMConnect at 4 sponsor sites, strengthening our relationships w/ each over 7 years—Painted Lilypads with Charles Schwab & Mythic—Present annually at sponsor events such as NXP's Tech Forum, NIWeek, Dell's Robot Round-Up, ARM's Lunch & Learn and Design Automation Conference booth—Served as LabView beta testers for FIRST 4x—2468 student inspired AuSTEM high school intern program at Silicon Labs

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

On the surface, FIRST is a robotics competition. But FIRST transcends robots. It's a community for students to share & develop their passions; a vehicle to learn lifelong skills like teamwork, leadership, communication, integrity, sportsmanship, creativity, safety & confidence. FIRST encourages students to push their limits, explore new interests in exciting environments & directly engage with a network of passionate professionals, transforming today's students into tomorrow's leaders.

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

Our team is 100% student-led & 110% committed to using STEM for good. We represent the values of FIRST in unexpected ways: by training 22 students in CPR, by spending 3K hours developing RoBox for the underserved, by creating & manufacturing a new Lilypad design to accommodate different IV poles, by joining in a toy drive w/ FRC 6144, & by 3D printing assistive technology for special needs students at our school. We Appreciate the opportunity to Rise as a part of FIRST's Force for Change.

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

Team Appreciate's impact is driven by our culture. From our head Coach to our newest freshman members, we're all aligned with 2468 Philosophy. Working together to make a change starts with having team dinners; becoming STEM leaders starts with pursuing off-season projects; organizing international outreach starts with fostering an inclusive community in and outside of our team. 2468 is committed to helping others, but that starts at home, with the culture we practice & the passion we manifest.

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

Mark Hodges

Essay

Thirteen years ago, Team Appreciate began as a group of physics students working in a storage closet. This year, we are 58 students, supported by our mentors & sponsors, leading a movement dedicated to driving passion for STEM within our local, national & global communities through 27359 outreach hours. This does not capture all that we are. 2468 is also a(n)...

VOICE FOR STEM
2468 raises FIRST awareness in diverse communities. We founded the STEM Advocacy Conference of Texas (SACOT), giving students a political voice in their STEM-education. Since 2016, we've mobilized 1026 members, developed annual advocacy platforms & organized 6 conferences, where we teach our members how to effectively lobby their legislators. Through 83 legislative meetings, we successfully advocated for the Classroom Connectivity Initiative, bringing broadband WiFi to all TX schools, & for a 35% increase in funding for middle school Tech Ed courses, building a strong & sustainable STEM pipeline. In November, we organized the SACOT Summit at the Texas Capitol, inviting expert panelists (including FIRST in Texas's [FiT] Susan Ashmore & State Rep. Goodwin) to speak with 17 teams about STEM-education policy.

Team Appreciate started FIRST Signing Day (FSD) to celebrate graduating seniors & create a culture change around STEM. FSD is a nationwide campaign that gives FIRST seniors an opportunity to be recognized for their efforts & achievements, similar to college-bound athletes. Promoting the initiative through social media, we have celebrated 572 graduates from 66 teams in 21 states since 2016. We began the FSD Scholarship program in 2019, giving 2 FIRST graduates funds for their education. "We are so thankful that [2468] recognizes the importance of bringing awareness to the STEM community," said Cathy Schulz, mentor of FRC 1538 The Holy Cows.

In 5 years, 2468 has hosted or attended 318 outreach events to promote FIRST, our team & our initiatives. In 2017, we gave a keynote speech to over 5000 attendees at National Instruments' NIWeek. We presented our robot and spoke to 900 STEM leaders at Time Machine 2019, a tech-innovation summit, & invited FRC 148 to do the same. At UT's Girls in STEM Summit, we gave 2 presentations on empowering female leadership.

Inspired by a child with neuroblastoma in our district, we adopted the Lilypad Project. We manufacture & paint wooden platform seats that attach to IV poles, giving hospitalized children greater mobility. Through painting sessions, Appreciate has connected with cultural communities, charity foundations, team sponsors like Charles Schwab & hundreds of families. In doing so, we've introduced these groups to FIRST while pursuing a good cause. The Project is now nationwide: our Lilypads have floated their way to 13 states. At each FRC competition we attend, we donate Lilypads to nearby hospitals & invite their staff to the event. In response to requests from social media platforms, we make custom Lilypads for children around the country. In total, we have donated 180 Lilypads.

INNOVATION INCUBATOR
2468 strives to develop creative sustainability & community-impact models. The growth of our program has largely been enabled by funds from STEMConnect, week-long education programs offered to children, totaling $480K over 5 years for our program and for 6 teams who've adopted this model. This success prompted our school district to adopt the model for their own community education summer programs. Funding is also generated by our pitching efforts; in the past year, we've pitched to 19 companies, raising $87K in cash & in-kind donations.

To impact a broader community, Appreciate innovates beyond our school district. In 2017, students on our team began to develop "RoBox," a $35 robotics kit. Our goal was simple: give all children, regardless of their economic status, an opportunity to engage with & foster an interest in STEM. Each component of RoBox, including its programming interface, electronics & educational curriculum, was designed, built & compiled by 2468 students. We've used RoBox at 3 STEMConnect sessions at 3 different sponsors.

As the founder & leader of SACOT, 2468 aims to maximize students' ability to engage in political advocacy. In December 2018, we hosted the SACOT: Gone Virtual! conference—featuring guest speaker Don Bossi—where members from across TX attended online & in-person in Austin, Houston or San Antonio. Over 50 FIRST teams learned about advocacy & our platform. We used a similar model to organize the FIRST State Advocacy Summit this February in partnership with FIRST Updates Now, uniting FIRST advocacy groups from MI, NC, PA, VA & NY to develop a strategic plan for state-level legislative action. With this innovative model, we've made political advocacy an open-source effort; today, 146 teams participate in SACOT, a 95% increase from 2018.

LEADERSHIP PIPELINE

Essay - page 2

2468 prepares students to be the leaders of tomorrow. This begins with our annual Science Days in our district's 6 elementary schools, where we've reached 5625 students in the past 5 years. Furthering this early engagement, we started and gave $13.5K to 44 FLL & FLL Jr. teams in the past 3 years. For older students, we implemented robotics curricula for our middle & high schools; 568 students are currently enrolled in these courses. Our district also has 28 students on 4 middle school FTC teams. In high school, these students have the opportunity to join our 4 FTC teams or our new "JV" FRC team. Team Apprentice, composed of 29 rookie students mentored by 2468, makes us the first single high school in TX to house 2 FRC teams.

Due to our pipeline, our team is sustained with talented students, 80% of whom have prior FIRST experience. In the past 5 years, we've celebrated 5 Dean's List Finalists & 1 Winner. Our teammates have also interned at Dell, NASA & more while on 2468. Alumni continue this pipeline beyond our school: they are mentoring FIRST teams, have started FIRST alumni clubs at Duke & Rice & ~85% are pursuing STEM majors.

2468 developed STEMConnect to complement our pipeline. The program began in 2014 at our sponsors' campuses for their employees' children & later expanded to our school. Through STEMConnect, 2468 students taught 50 sessions for 1167 participants with 5 sponsors in the past 5 years. We've also taught sessions in India, Costa Rica, Mexico & China.

We encourage female participation in robotics with our STEMGirls initiative. Our annual Ice Cream Socials allow young women to meet female professionals. Our MLK Day Camps give these girls an opportunity to build & compete with FTC kits. 330 girls from across Austin have attended these events since their start. Because of STEMGirls, one of our all-girls FLL teams was a Champion Award finalist, 44% of our FTC students are girls, and Team Appreciate has achieved >50% female leadership.

Team Appreciate is dedicated to helping economically-underserved communities. In 2015, we began our partnership with Breakthrough, a non-profit dedicated to helping low-income youths become first-generation college students. Over 4 years, we hosted STEMConnect for 291 of their students. This year, we began working with ClubZ, an after-school program for disadvantaged students. For 6 weeks, we introduced 32 children to STEM using RoBox and a newly developed curriculum. According to ClubZ's director, "not a week goes by without the kiddos asking about 2468 coming back."

ROLE MODEL
2468 gives FIRST teams a roadmap for technical & outreach success. Since 2016, 3 of the 5 rookies we've mentored have been recognized as Rookie All-Stars. "Working with 2468 has exceeded all of my expectations of what a good mentor team should be," said Jenny Miller, lead mentor of FRC 7424. In the past 5 years, we have started 47 FIRST teams, mentored 55 & given $7K to 5 FRC teams. These are funded by products we designed & sold through AndyMark & by STEMConnect.

Our team actively seeks to be helpful at competitions. Last season, 2468 programmers developed an app that used The Blue Alliance to identify teams experiencing issues during gameplay and assisted >50 teams. This year, the app has been expanded to include a troubleshooting guide for common problems and a virtual balance calculator for endgame . Our mentors have dedicated 2740 hours towards volunteering at 137 competitions. According to FiT's Logistics Director, "without 2468's help, last season's introduction to the District Model would not have been a success."

Team Appreciate has been a role model beyond technical assistance. Each of our initiatives are designed to be widely accessible & easily adopted. SACOT, for example, has been emulated by FRC 1165 in AZ & FRC 5740 in PA. We've helped 6 other teams organize STEMConnect events of their own. In 2017, FRC 4159 asked us to help them organize STEMConnect with their new sponsor, Uber. "Due to the success of this session, Uber is now our largest corporate sponsor, granting us $12,000 each year. Our relationship with Uber benefits them while also providing our members with the opportunity to act as mentors," said Naomi C., student on FRC 4159. In 2018, we began working with FRC 842 Falcon Robotics. We purchased EV3 kits on their behalf, provided the curriculum, found a sponsor & managed registration & payment. Over 2 years, they have made over $13K in profit using our model. In total, 6 other teams have hosted 11 sessions for 290 students.

Though proud of what we've done and who we've become, Team Appreciate is determined to do more, to be more, to impact more. By embodying these 4 pillars—Voice for STEM, Innovation Incubator, Leadership Pipeline, Role Model—FRC 2468 has built a powerful structure for driving change. Combining this framework with our passion for STEM, we've impacted & spread FIRST to hundreds of thousands, making lasting changes as we continue to construct our legacy of excellence.