Chairman's Award - Team 4013

Print Close

2018 - Team 4013

Team Number

4013

Team Name, Corporate/University Sponsors

Walt Disney World Co Design & Engineering/Florida Fluid Power Society/Lockheed Martin/State of Florida&Orlando Science Middle High Charter

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

FIRST allows our members to hone in on traits like responsibility and leadership. Our alumni were inspired to major in engineering and accepted into schools like Virginia Tech, Purdue, University of Notre Dame, Georgia Tech, Tuskegee and MIT. Our team members get hands on experience in CAD, programming, and machining. Many members have overcome their fear of public speaking and have presented to hundreds of people. The CEO of VEI Systems, a past mentor, has offered team members paid internships.

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

From our team's success in FIRST, our school added engineering based classes like programming, CAD, CIM, 3D Animation, Aerospace Engineering, an Engineering Academy, and an Autodesk Inventor certification testing center. This has helped increase the student body from 225 to 1900 students; our efforts inspired the opening of 5 STEM schools. Through the District 5 Youth Advisory Board, we introduce underprivileged youth to STEM. In total, our team has clocked 7900 hours of community service.

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

To spread the FIRST message we use Twitter, Facebook, Instagram, our website, newspapers, magazines, and news channels. We present for schools, organizations, demos and conventions like I/ITSEC to instill FIRST in the community. Our most unique methods are our STEM club for homeschooled kids, our work to provide robotics and STEM themed therapeutic equipment to public schools, and VR headsets with STEM apps and 360-degree videos of FIRST events for foster children and children in hospitals.

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

Our members serve as role models to local and international youth. Many look up to our alumni member that is a 2015 World Championship Dean's List Winner and a member that is a Dean's List Finalist. We've also had team members talk in official FIRST Panels at Orlando MakerFaire and Elliott Massie's Learning Convention about education and FIRST. 8 of our alumni mentor FLL, FTC, and FRC teams. We also helped start the District 5 Youth Advisory board to educate kids and establish STEM programs.

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

We attend Otronicon, I/ITSEC, NASA events and MakerFaire with our FRC robots to demo and spark interests. Members were also interviewed by news channels to explain FRC. We've helped FTC 6090 progress through FLL to FTC to FRC and still mentor their team. For their 1st year in FRC, we presented tips for a successful FRC year, held a FIRST demo at a local Boys & Girls Club to interest kids in joining FRC team 6473, helped with programming and mechanics, and provided tools and space to work.

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

We've started 31 FIRST teams; to start teams, we demo our robots and introduce parents and students to FIRST at open houses and different schools. We've held workshops for FLL coaches to help them start teams and hosted 5 robotics camps that introduce youth to FIRST and peak interests. We helped Olympia High School start FTC, provided them with a Kit of Parts for 3 seasons and let them use our workspace and machinery. We also give fliers and business cards to people interested in starting teams.

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

In total we've mentored 36 teams, graduating them through the FIRST programs; some examples include Techno-Turtles, who we've helped progress from Jr.FLL through FTC, Rock Star Robotics from FLL through FRC, and Nerdvana, from FLL to FTC. We give presentations to explain the program transitions. We also help many students transition from FLL to FTC to FRC. We think it is important to keep the students interested in the program so they progress through the programs and apply what they've learned.

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)

When we host FTC Build-It Days, FTC Scrimmages and FRC Practice Days, we work with other teams to help mentor the younger teams. We provide teams such as FRC Rockstar Robotics and FTC Robotic Titans assistance with programming issues, access to tools, and a workspace. We also do workshops; one example was a Chairman's Workshop we did at our FRC kickoff to teach teams how to prepare a submission for the Chairman's Award. We also hold Q&A sessions for inquiring teams when hosting FRC kickoffs.

Describe your Corporate/University Sponsors

We appreciate the continued support of our corporate sponsors. Our sponsors provide us with more than financial support. For example, we have a mentor from Lockheed Martin, and members from Fluid Power Society have helped us with pneumatics. Mill & Nebraska gave us a building workspace for free for 2 years. Our school provides us with workspace, event space, equipment, and outreach chances since we represent them at events. Cues Inc. gave us storage bins, scrap metal, and access to machinery.

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

When our sponsors host events, we make it a priority to attend. We've held a FIRST demo for 2 years at NASA's Tom Joyner Family Reunion, held a demo at NASA's Dreamflight event this year, volunteered at Lockheed Martin's FLL tournaments for 2 years, worked with VEI Systems' CEO, who let us to use the company's machine shop, and attended Eweek with Lockheed Martin for 2 years. Every year we also hold demos for our school at multiple public events like open houses and conventions.

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

FIRST is a compilation of robotics competitions that aims to excite and introduce students to engineering. It's an opportunity for kids to learn skills and traits essential to be successful in their future careers. However, it is more than just an educational program. FIRST is about giving back to the community, and this creates a family of members and volunteers dedicated to positively impacting people's lives by introducing and sustaining STEM programs in a warm, inviting environment.

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

With members from different ethnicities and religions, our team exhibits diversity. We inspire minorities to succeed, and one member will be the first person in his family to attend college. When a new student from Puerto Rico joined, our members spoke Spanish to help in the transition. We have many opportunities to bond and learn different cultures, especially with our volunteer dinner system, where every student family signs up to bring dinner at least one night during the build season.

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

Christina Ta

Essay

The world we live in is ever evolving, our minds constantly striving for improvements. We live in an era of innovation, where a practical education must prepare you for future innovative careers. Education is the most powerful weapon you can utilize to change the world, and we, FRC 4013 Clockwork Mania, are an army of dedicated students who push for new methods of education through FIRST.

Our team comes from a variety of ethnicities and backgrounds, and we exhibit diversity on a daily basis. We aim to introduce young women and minorities to the opportunities that FIRST provides. Clockwork Mania starts with a strong bond within the team; we are one big family, composed of dedicated alumni, members, mentors, and sponsors. We work with a system of student team leaders, who teach and guide newer members. In the off-season, we have weeks of preparation and learning, with student and mentor led workshops for safety, CAD, machinery, and the Theory of Inventive Problem solving. The year before we began FRC, we were an FLL team. That same year, Dean Kamen personally challenged us to expand and we jumped headfirst to be a team that participates in FTC and FRC every year.

We have a 3-part outreach program called "Making the Clock Work." Our "Making the Community Tick" program engages the local community with student run programs. In "Meshing with Public Figures," we collaborate with major media and political figures to create self-sustaining STEM programs connecting to a larger audience. With "Winding up the World," we introduce, expand, and sustain STEM programs in foreign countries to inspire an international community of problem solvers.

Making the Community Tick

Clockwork Mania is well known in our school's community, and we play a major role in revolutionizing our school's curriculum. Our team's success and requests have inspired our school to add an engineering academy and an Autodesk Inventor certification testing center. The enriched curriculum has attracted students and grown our school's student body from 225 to 1,900 with 2,000 new applicants this year. Through STEM presentations, we've influenced the opening of 5 STEM campuses, such as the one we held for the Seminole County Public Schools Board. We hold robotic demos for open houses at all 5 campuses to excite students about FIRST. In recognition of our team's work with our school to impact the community, the mayor of Orlando has dedicated November 4th as Orlando Science Schools day.

We reach out to the local community by hosting annual robotics camps; many kids who attend join a FIRST team afterwards. We're also helping to run a 10 week-long STEM club for 25 students who are home-schooled. Many don't have the chance to explore the sciences, and this club exposes them to a variety of science and engineering topics. We're working to expand this curriculum into another STEM club for refugee students in the area.

Beyond just inspiring the next generation of engineers, Clockwork Mania also helps sustain existing FIRST teams. For the past 7 years, we've volunteered and hosted annual FIRST events such as: FLL & FTC Tournaments, FTC Judgement Days, FTC Practice Days, and FRC Kickoffs. In total, we've hosted 281 local and international teams in 25 events, 4 events from this year. Hosting these events allow us to communicate with teams and provide assistance, such as helping FTC Error 404 with an engineering notebook and providing teams an FRC Award Submission Q&A at our kickoffs. We've also started 31 FIRST teams and mentored 36 by helping them register and apply for grants, and by providing continued guidance, resources, and access to our workshop. At events we host, we provide teams such as Hazmat and Fetch with materials and programming assistance. We also help various teams graduate through the FIRST programs; an example is helping Rockstar Robotics from FLL to FTC to FRC by providing resources and guidance for each transition.

Meshing with Public Figures

Our team went to a Charter and Private School Expo to explain to educators what FIRST is and why it's so important to incorporate it into everyday learning. We gave a presentation at the Elliot Masie's Learning Convention, a massive conference in education, with the biggest names, innovators, and educators of our time. We were invited by District 5 Commissioner, Regina Hill, to attend the Back to School Fair to promote STEM education and FIRST. We are working with her and other council members to design and start STEM programs across the district, which is a low-income area. For example, we helped form the District 5 Youth Advisory Board in 2014, a program designed to help underprivileged youth receive a positive influence from their peers. With team members that are still on the board, we work closely with Regina to spread FIRST at events for low income families. We attended the District 5 STEM Expo, Community Spring Bash, and Forever Family Christmas, where we got the chance to demo our robots to underprivileged youth and expose them to real world applications of engineering. We also work with local Boys & Girls Clubs and Boy and Girl Scouts to teach them the basics of robotics and engineering.

We look into attracting political support for STEM education. We had the mayor of Orlando and Senator Darren Soto come to our school, where we introduced them to FIRST and its applications on STEM education. We've met with Mayor Dyer 3 times since, discussing the importance of STEM programs in the community. We've also met with Senator Soto 2 times since. Our most recent interaction with him was at our STEM campus in Osceola County, where we held a demo about FRC for elementary students. During our demo, our team members were interviewed by Channel 9 and Channel 13 to explain what FIRST is, how it's impacted our team members, and our performance. We've also met with Senator Bill Nelson and the Mayor of Lake Mary at the grand opening of our Seminole County STEM school, whose creation was encouraged by our robotics demo that illustrated the impact of science and engineering on students' education. We also look into attracting engineers to FIRST. We've attended conferences such as the Engineering and Construction Contracting Association Conference, Emmerson Exchange, and Association for Advancing Automation Conference, where we had the opportunity to interact with thousands of professional engineers from all over the world to demonstrate our robots and introduce FIRST. We've also had a booth at I/ITSEC for 3 years, MakerFaire for 3 years, and Otronicon for 5 years, where we've interacted with over 120,000 exhibitors, professionals, and students.

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This year, NASA offered us our own FIRST booth at an event dedicated to providing ill and disabled children from the UK the experience of a lifetime. Interacting with the underprivileged children inspired us to cooperate with professionals for our newest project: #STEMPowered. Through this project, we're working with the occupational therapy team for Orange County Public Schools to provide ESE (Exceptional Student Education) children with therapeutic equipment that public schools lack; to include FIRST and STEM themes, we designed and prototyped our own equipment to distribute. To achieve our mission to provide children from all backgrounds with a STEM education, we're also working to distribute VR headsets to foster care locations and children's hospitals. To immerse kids who can't make it, the VR brings FIRST and STEM to them through educational STEM apps and 360-degree videos of FIRST events and STEM expos.

Winding up the World

In addition to holding demos for local officials, this year we held a FIRST presentation to members from the Ministry of Education of Singapore to show how FIRST impacts our STEM education. This is also the 4th year that students from Meizen High School, a STEM school in Fukuoka, Japan, are visiting our campus. Each year, the Japanese students and our team exchange cultural and scientific knowledge before showing how our machinery and robots work. We also stretched across the globe to Izmir, Turkey, where we held a robotics summer camp for 10 local high schools to inspire them to pursue STEM education. Our work helped start a robotics club at Gediz University. We've also met with FLL Flying Pandas from Beijing, China to help them grow as a team. We've also had Brazilian and Columbian FIRST teams attend our past kickoffs. With a contact we made from hosting a kickoff, we mentored 2 Brazilian teams through Skype.

Our team has been featured on local, national, and international news multiple times, such as the time our coach was interviewed for Latina Magazine in a featured "Girls in STEM" article. We've been featured on "Good Day, Orlando" displaying our robot, our accomplishments, and how the team works, as well as a FOX News segment on the grand opening of our new STEM school. While in Turkey, their local and national news channels broadcasted our event live. Two of our members were also featured on a European news channel, talking about the importance of STEM and FIRST.

Through our community outreach and media sites, our team has reached over 6.7 million people. This number comes from 4.2 million through magazines and newspapers, 1.7 million through television, 800,000 through direct outreach, and 40,000 through our social media.

Our impact on our community is timeless, having clocked over 7,900 hours of community service, 1,600 from this year alone. With 2 mentors recognized as Woodie Flowers Finalists and a team member as 2015 Championship Dean's List, our team always strives to serve as a role model team and exemplify the true meaning of FIRST. It is our mission to change our culture by introducing and sustaining STEM programs around the world to improve the lives of underprivileged youth. Since we know all the work we do amount to great things, we believe that even the smallest gear makes the clock work!