

## Chairman's Award - Team 226

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2019 - Team 226

### Team Number

226

### Team Name, Corporate/University Sponsors

General Motors ME Vehicle Systems/Delphi Foundation/DENSO/Michigan Department of Education/Department of Defence: National Defense Education Program of TARDEC/Kelly Services/Troy Parent Teacher Organization/Troy Foundation for Educational Excellence&Troy High School&Athens 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

Our team's diverse and open nature allows 100+ students (with 32% females) each year to participate and explore STEAM through specialized teams in engineering and business. This allowed many students who would otherwise not have the opportunity to change their career aspiration towards STEAM. In the past five years, 100% of 226 members earned their highschool diploma, with 95% of those graduates went on to college.

### 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

In 2017, Troy Youth Robotics was formed to promote FIRST programs resulting in an increase of teams from 17 to 61, allowing for greater community participation in STEAM activities. This year, we expanded our event hosting with an inaugural FTC qualifier to complete all 4 stages of FIRST competition. We've also developed our community by supporting charitable organizations such as Build-On, Ignite Hope, Locks of Love, St. Michael's Food Pantry and the Salvation Army.

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

We formed Troy Youth Robotics to coordinate and promote robotics activities. With its success, TYR is the foundation that will allow us to scale further to cities beyond Troy. In addition we have hosted competitions for all 4 levels of FIRST. We built an innovative bell-ringing robot for the Salvation Army to increase donations and promote FIRST. This innovation attracted TV and newspaper coverage. Additionally, we take part in F4 which is a student run FIRST webcast.

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

In the past 3 years, our student leaders have won one Dean's List award and two Dean's List Finalist awards. Their dedication and leadership created a culture for our team in inspiring members to emulate and win district Chairman's awards in the past two years. Over 50+ 226 students mentored 40 FTC/FLL teams paving the way for more students to follow their leadership and provide greater STEM experience to youths in FTC/FLL teams.

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

We founded Team 7211 Hollywood along with notable mentor Andrew Spiece. FIRST Rookie Road Trip is a new initiative where a small group of students and mentors will travel to different cities in the midwest and help out rookie teams with design and strategy concepts. We run these road trips every weekend. We are making a technical binder this year and plan to release it for teams to learn from. We also beta tested the 2019 control system and reported our findings to other teams.

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

Our team started the Troy Youth Robotics program to coordinate FIRST robotics programs in our city. In its first 18 months, we grew the number of FIRST teams from 17 in 2016 to 61 in 2018, plus 11 other Vex IQ elementary school teams. Of the 24 FTC teams, a record number of 6 teams advanced to State Championship and one moving on to World Championship. We also host qualifying events across all 4 levels of the program to increase awareness of FIRST in our community.

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

We hosted 3 town hall meetings, an FTC kickoff, and over 15 FTC build and practice sessions for teams to work with each other. We also provided 50+ student mentors to 40 FTC/FLL teams. Support help were provided to Team 7211 Hollywood and rookie team 7692 AGBU Manoogian Robotics. We also provide assistance to FRC teams internationally through a call center in partnership with Team 3132. We are currently in the development of FIRST International Network a global FLL call center.

**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)**

Our team provides student mentors to 95% of teams in TYR. We also host programming seminars for teams in need of assistance. Couple of our members have gone on to win mentor awards at both FLL, and FTC state competitions. Through our assistance, six FTC teams from Troy advanced to Michigan State Championship with one team on the eventual winning alliance.

**Describe your Corporate/University Sponsors**

We are thankful to GM's generous support since we were founded 20 years ago. Our other corporate sponsors include DENSO, FCA, Delphi Foundation, TARDEC, SMR, Kelly Services, Mastercard, and 3M. Additionally we receive funding from Michigan Department of Education and Troy School District through various education and PTO grants.

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

The key strengths in our partnership with sponsors are constant communication through Slack instant messaging and weekly emails, plus engagement through sponsor volunteer mentors where students and mentors learn from each other through business, engineering, and team social activities such as company picnic, team year-end banquet, and holiday gathering. Through these activities, we were able to maintain our main sponsors since our team's inception in 1999.

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

FIRST is more than just building robots. It is about student, parents and mentors coming together to inspire the community around them. From outreach events to mentoring; FIRST is about helping your community for one common cause to promote STEAM. It is also about leadership development as an individual and making memories and friendship that last a lifetime.

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

We are launching a new quarterly seminar series on STEAM topics starting with the Apollo space program to educate and inspire adults and youths. This is a departure from our traditional robotics outreach activities. We are also very involved with supporting non-profits. From building a robot for the Salvation Army, to donating food and clothes to local student run organizations, to raking leaves for senior citizens, we are helping our community not only in terms of STEAM but in charitable ways.

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

Akhil Tatineni

## Essay

### OUR TEAM

We are Team 226, the Hammerheads, celebrating our 20th season! Our team consists of 112 students from crosstown rivals, Troy and Athens High Schools. Our members form the largest student-run organization in our district. New initiatives include hosting both in-season and off-season FTC competitions, growing our Troy Youth Robotics city-wide program, Adopt-A-Road volunteering, and launching a new series of STEAM seminars on the Apollo space program. Our multicultural team is run like a business, making room for photographers, writers, artists and engineers. We emphasize that anyone can become a part of FIRST! Everyday we direct the flow of culture towards a better tomorrow where youth of all kinds can visualize themselves in science, technology, engineering, art and math careers.

### Girls in STEAM

Our steps to ensure that all types of youth find a passion in STEAM is to provide opportunities for girls to explore STEAM. 32% of Team 226 is female, and we also reach out to many girls of different ages in the community to help establish a future generation where women are equally represented in the STEAM workforce. Annually, our team attends the Bloomfield All Girls event, empowering our girls while also supporting fellow FRC teams. Team 226 also takes part in Girls In STEAM presentations, where girls from all 4 levels of FIRST showcase their team's robotic programs. To further encourage females in our community, our team helped establish The STEAM Sisters, an organization where young girls are introduced to STEAM through free weekly workshops.

### Robofest

Team 226 participates in Robofest, a robotics program sponsored by Lawrence Tech. Team Pegasus, comprised of two individual teams, formed by our students, introduces the basic principles of STEM and Computer Science. These fundamentals are used to create fully autonomous robots.

### Advocacy

For the past 2 years, we have influenced the political aspect of STEAM. We were 1 of the 6 teams to participate in the 1st Annual Michigan Advocacy Conference. During this program, our members addressed Michigan State Senator Marty Knollenberg and State Representative Martin Howrylak on the benefits of STEAM education for students and the importance of continued support of FIRST funding. This experience allowed our team to explain why FIRST and STEAM funding should be a top priority in the upcoming congress.

### INVOLVEMENT WITH FIRST

In 2017 we launched a new citywide youth program, dubbed "Troy Youth Robotics". In its first 18 months, TYR roster increased from 17 to 61 Troy teams, including 21 Jr. FLL, 16 FLL, and 24 FTC teams. Along with 2 Michigan mentors, we started rookie team FRC 7211, Hollywood, and we also mentor rookie team 7692 AGBU Manoojian Robotics. To further support TYR, we held 3 Town Hall events, an FTC kickoff and programming seminar followed by more than 15 FTC practice sessions. Our team mentored more than 70% of these Troy FTC teams; 6 teams advanced to the Michigan State Championship and 1 team to the World Championship, while one of our alumni was awarded the Mentor Award.

### All Levels of FIRST

We continue to inspire parents and children of all ages by hosting events for all the levels of FIRST. Each year since 2009, we have hosted the student-run Troy District FRC. We also host Sharkfest, an FLL qualifying event and Jr.FLL exhibition in conjunction with the Troy Science Festival, allowing new individuals to explore STEAM related activities and to be introduced to FIRST through demonstrations of FLL, FTC, and FRC robots all in one place. In order to promote FTC, we host an FTC kick-off, an inaugural FINale FTC qualifying event, and MAYhem, an off-season event.

Our leadership team founded F4 in 2016 along with students internationally. F4 enriches the FIRST community through online video content. Most notably, we help host a weekly live talk show. This occurs every Sunday, where four hosts from different teams discuss a topic, spreading their knowledge and ensuring the continuity of FIRST.

Team 226 brings FIRST to completely new audiences through our annual week-long FLL summer camp where hundreds of kids and parents are exposed to basic programming and robot engineering.

Advocating and spreading STEAM is embodied in our team's culture. For the past three consecutive years, three of our outstanding and dedicated student leaders have won a Dean's List Award and two Dean's List Finalist Awards at FIRST Championship. Under their leadership, our team has steadily progressed resulting in winning many district awards in the past two seasons, showing our team's commitment to the mission of FIRST.

### OUR COMMUNITY

Troy School District

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The Hammerheads appreciate our school district's support, and work to influence and improve our local schools. In cooperation with administration, we created a robotics class to add to our school's STEAM curriculum. We also set up a robot demonstration for all computer science classes during National Computer Science Week. Our team also participates in other school affiliated activities, such as Trunk and Treat, Charity Week Festival, and the homecoming parades. With events like these, our team has become an integral part of our school's community.

### Our Society

In an effort to best help our community, we partnered with the Troy High Chapter of Step On Poverty to rake leaves for economically disadvantaged neighborhoods in our area. Along with this, we adopted a mile of Dequindre Road through the Road Commission for Oakland County. In an effort to directly impact the people of our community, we participate in events such as Beaumont's Moonbeams for Sweet Dreams, where members of the community shine flashlights at hospitalized kids as the kids flash them back through the window during the holiday season. Events like these allow us to selflessly contribute towards the welfare of our community.

### Outreach

Every year, our team holds outreach events at after school care programs at all of the elementary schools in our district. At these events, students are given the chance to drive robots, learn simple programming concepts and understand the importance behind safety. Meanwhile at our high school we host a biannual event named Troy Hacks, in which our team members work along with alumni to teach the community about programming.

In an effort to inspire curious minds of all ages to discover and appreciate STEAM, our team hosts many events at local museums, bookstores, and libraries. Each year, we partner with Barnes and Noble and the Hands-On Museum in Ann Arbor to host workshops and safety awareness for kids and adults.

We also participated in the Selfridge Air Show which attracts over 100,000 people, and the Detroit Maker Faire, exposing our members to potential careers as well as bringing us closer to our mission. Kids and teens interested in STEAM fields and those new to STEAM and the FIRST family were able to interact with our robots, 3D scanner, Microsoft Hololens augmented reality glasses, and other technology.

To further the spread of STEAM, in concert with the 50th anniversary of landing a man on the moon, our team will be launching an educational seminar series for youths and adults on the Apollo Space Program.

### Media

Team 226 greatly values philanthropy. For the past two holiday seasons, we noticed the difficulty faced by Salvation Army bell ringers during the harsh weather. Our team resolved this issue by building a bell-ringing robot. This innovative idea received media coverage from FOX 2, Local 4 and the Troy Times. As a result, our team raised over 5x of what would have been raised with human bell ringers, helping towards the betterment of society's welfare and gaining publicity for FIRST.

### Partnerships

All of these unique programs would not be possible without our loyal corporate sponsors. We advertise our team and FIRST to current and prospective partners, effectively building a professional network of organizations united under a single cause. Our sponsor interactions at DENSO, Continental Automotive and MAGNA served as major opportunities for us to reach industry leaders from the community level. We also attended a picnic hosted by Continental Automotive and demonstrated two of our robots to express our gratitude and display what we have accomplished with their help. This event allowed us to reach a different age group, and many employees there expressed an interest in FIRST. The sponsor-Hammerhead relationship is two-way, in the sense that they act as an extension of our own mission that helps us reach a broader audience.

### FIRST INTERNATIONAL ENGAGEMENT

Our partnership with The Ashwini Charitable Trust (ACT) enables us to provide resources, presentations and a STEAM education for at-risk children and orphanages in India. During one of our events, our students came together for a greater cause: The Good Robot Challenge. We believe that no child should be deprived of an education and we strive to provide opportunities to students all around the world. We also partner with BuildOn, an organization that works to improve education in third world countries. For the past two years, our students have raised money to build a school and travel to start the foundation in Haiti. When our members were in Haiti, they brought STEM activities to share with kids.

Through our growing international FRC call center, we are able to reach out to other teams and share the knowledge we have accumulated over the past 20 years, thus fulfilling the mission of FIRST and Team 226: spreading STEAM to youth everywhere. In the next few months, we intend on expanding on this framework by launching our FLL call center.

Being a Hammerhead is more than just having greasy hands, working in the shop, or building robots. It is about displaying an unbridled passion for STEM and the founding principles of FIRST like no other. But most importantly, it is about working as a team; because individually we are a drop, but together we are an ocean.