

## Chairman's Award - Team 226

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2020 - Team 226

### Team Number

226

### Team Name, Corporate/University Sponsors

General Motors/Bosch/Delphi Technologies/Michigan Department of Education/Department of Defence: National Defense Education Program of TARDEC/Continental Automotive Systems/Altair Engineering&Troy High School&Athens High School

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

With our open-door policy, our team provides opportunities to 100+ members from diverse backgrounds to develop a wide range of technical, interpersonal and leadership skills. Members harness these skills through our student-led culture, developing proficiency in event-planning, entrepreneurship, and project management. 100% of our graduates attend college, and some continue to stay involved through the FIRST Rookie Road Trip initiative, where they spread our resources to rookie teams.

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

We make sure to apply skills we've learned towards community welfare by building a bell-ringing robot for the Salvation Army and Moonbeams for Sweet Dreams. Our members have served through/helped raise funds for Adopt-A-Road, Adopt-A-Beach, Build-On, Ignite Hope, Step on Poverty, Girls Scouts, She's the First, Locks of Love and St. Michael's Food Pantry. Extending further, we have created a feeder program fostering 57 FIRST teams through the incorporation of 22 FIRST-related events in our city.

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

Our team strives to spread FIRST and STEAM exponentially, meaning that we enable others to spread the message as well! We have hosted/attended 55+ events in the past year, our efforts being covered by numerous media entities. After the creation of our feeder program, we conducted a seminar at Worlds to help other teams promote FIRST. Through events such as the Michigan State Fair, we have been able to interact with people who might otherwise remain unexposed to the world of FIRST.

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

Over the years, we have ensured a team culture rich in FIRST values. Our students show Gracious Professionalism and initiative by volunteering at other FIRST competitions as well as hosting our own. Hammerheads have also started their own programs such as the STEAM Sisters, a non-profit that organizes STEAM activities for young girls. Our strong track record with Dean's List over the past 4 years (1 Winner, 2 Finalists, and 1 Semifinalist) is a testament to our dedication in this area.

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

In the spirit of Coopertition, we work to help start and sustain FRC teams through our comprehensive resources and support. We formed a Slack workspace where we communicate with other teams, providing 24/7 help. We also send specialized groups of student leaders to assist other teams, such as FRC 8362, in addition to inviting them to our workspace. Our team beta tested FRC control systems, and sent data to other teams.

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

Our feeder program, Troy Youth Robotics (TYR), has been a primary contributing factor to the 235% increase in *FIRST* teams in Troy over the past 2.5 years. We begin by educating our community members on how to join *FIRST* and at our Town Hall meetings. Through our RoboCARE initiative, we provide students with hands-on STEAM experiences, and many of these students join our FLL Summer Camp, where we recreate the FLL experience, inspiring others to participate in the upcoming season.

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

To help sustain the teams we started, we host numerous programs throughout the year. Our members mentor TYR teams, providing them with continued support and we also host weekly drop-in sessions, where teams work with our members and utilize our field. We host leadership and public speaking seminars for teams within our city and we further help new/ developing teams by publishing our FTC resources. We also host competitions for all four levels of *FIRST*, giving every TYR team a chance to compete.

### **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)**

Encouraged to support other *FIRST* teams in our community, 226 students mentor many TYR teams! To have a larger impact, we also publish many FTC resources online and our students have shared this knowledge by mentoring teams in Pontiac and Detroit. Through our TYR Slack Channel, we are able to provide help 24/7. As a result of this assistance, 14 TYR teams advanced to the FTC Michigan State Championship, where a 226 member was awarded the Youth Mentor Award, and 2 teams advanced to the Worlds.

### **Describe your Corporate/University Sponsors**

Our sponsors are a cornerstone of our sustainability. Since our inception 21 years ago, General Motors has generously supported us through monetary, capital, and human resources. Our other sponsors, who help us in various capacities, include Bosch, TARDEC, Altair Engineering, Delphi Technologies, Continental Automotive Systems, and Pi Square. Additionally, we receive funding from the Michigan Department of Education and Troy School District through various educational and PTO grants.

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

To us, our sponsors are a vital part of the Hammerhead family. We constantly keep them notified of our endeavors through Slack instant messaging, video updates, and frequent newsletters. We also invite them to our own events like our banquets and holiday parties, as well as attend company events such as the Continental Automotive Picnic. Additionally, we annually host a Sponsor Showcase and Robot Reveal where our sponsors are able to see what we achieved due to their support.

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

*FIRST* is an organization that brings together people from all backgrounds to promote the love of STEAM and inspire their community. *FIRST* is a family of thinkers and innovators who wish to leave the world better than when they found it. It raises generations of technically adept students as they grow to be leaders who will guide the world towards a brighter future. However, more than just this, *FIRST* is all about having fun, making memories, and creating bonds that will last for years to come.

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

We are constantly working to promote and sustain STEAM and *FIRST* through new events and initiatives. Recently, we held a STEM Fest event, in partnership with the Detroit Red Wings, to expose STEAM to students from lower socioeconomic backgrounds. In addition, we collaborated with other teams to create an audiobook version of the FRC Game Manual for students with disabilities. We truly believe in giving everyone the opportunity to be involved with *FIRST* and STEAM, no matter their circumstances.

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

Team 226 has made a mission of spreading STEAM and *FIRST* to all. Knowing that our community is only the first step, we impact students internationally. Through our partnership with the Ashwini Charitable Trust, we send STEAM resources to underprivileged kids in India. We also work with other similar organizations such as Yspaniola in the Dominican Republic. We also strongly believe in empowering women in STEAM, presenting at events such as Troy Talks and the International Day of the Girl.

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

Harshini Padala

## Essay

### OUR MISSION

Being a member of The Hammerheads means working hard, having fun, and always striving for improvement! We prepare our members with leadership and technical skills, which carry over into the real world. Our team is grateful for the opportunities FIRST has given us; together we spread our joy by striving to provide STEAM opportunities to everyone through a ripple effect. We do this through 2 main steps: sustenance and promotion of FIRST and STEAM.

### SUSTENANCE

#### The Hammerheads

We are proud to have developed an inclusive team of 100+ students from crosstown rivals, Troy and Athens High Schools, forming the largest student-run organization in our district. Our team's structure provides opportunities for photographers, writers, artists, and engineers. To ensure all students are given the chance to improve their skills, we have an intensive training bootcamp of 15 hours per subgroup, followed by multiple leadership seminars. Regardless of anyone's area of specialty on 226, we encourage them to explore other subgroups, establishing a spread of knowledge to all members and preparing them for beyond high school. Majority of our alumni have selected STEAM-related majors, and many return to mentor and volunteer. Some of our former members have continued to impact FIRST through the FIRST Rookie Road Trip, a 226 alumni initiative where they spread our team's resources and help out rookie teams in the Midwest firsthand. This commitment to the mission of FIRST is embodied in our culture: in 4 years, we have had 2 Dean's List finalists and 1 winner.

#### School District

With our district's support, we aim to spread awareness of FIRST to 100% of Troy students through activities such as Trunk or Treat, Charity Week Festival, National Computer Science Week, club fairs, and homecoming parades. In collaboration with the administration, we added a robotics class to the STEAM curriculum. They also attend and have spoken at our competitions and events. We further spread awareness by being featured in the school's yearbook and website, as well as the local newspaper. Due to this partnership, our team has become an integral part of our school's community.

#### Progression of FIRST

Along with inspiring students in our school district, we aim to provide them with STEAM opportunities, by helping them create and sustain their own robotics teams. Since 2017, our feeder program, Troy Youth Robotics (TYR), has fostered new and existing teams by providing kids with a friendly environment with both resources and mentors to sustain them. Through our efforts, TYR has grown from 17 to 57 teams (15 Jr. FLL, 15 FLL and 27 FTC). We sustain these teams by hosting annual town halls, an FTC kick-off, a week-long FLL summer camp, and over 15 FTC weekly drop-in sessions. We further provide help 24/7 through our TYR slack channel and 226 student mentors. Hence, we are proud that 14 of these teams have advanced to Michigan State Championship, and 2 teams to the World Championship, while a 226 member and alumnus were awarded a Youth Mentor Award.

Our team annually hosts events and competitions for all 4 levels of FIRST. During our FLL qualifier, Sharkfest, we host a Jr. FLL expo, the Troy Science Festival as well as FTC and FRC demonstrations, providing students with the ability to explore the applicability of STEAM skills and be introduced to all the FIRST programs. We focused largely on FTC growth, newly hosting classes that cover business and engineering skills while continuing to host an FTC kick-off and FTC qualifying event, the Hammerhead Sharknado. During the off-season, we also held the MAYhem FTC qualifier to provide more opportunities for teams. Furthermore, we have hosted the Troy FRC District event since 2009 and made resources available through our website and a slack channel. We personally helped teams such as FRC rookie team 8362 Cyber Tigers West through our slack channel and by inviting them to our workspace. Additionally, our team is a founder of F4, a weekly live talk show centered around spreading STEAM concepts within the FIRST community. We understand the importance of making STEAM opportunities available to everyone, so in collaboration with FRC teams 245, 33, 51 & 5436, we created an audiobook version of the 2020 FRC Game Manual that is accessible for students with disabilities.

#### Advocacy

In order to sustain STEAM beyond our community, for 4 years we have attended the Michigan Advocacy Conference, during which our members spoke with State Senator Marty Knollenberg, Representative Martin Howrylark, Senator Mallory McMorrow and Representative Padma Kuppa, regarding the importance of generating STEAM support and funding across Michigan. Following our meeting, our current legislators have attended our events and competitions, where they presented during the opening ceremonies, displaying their support for the Hammerheads and FIRST.

#### Sponsors

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The sponsor-Hammerhead relationship is multi-purposeful, where they act as an extension of our mission, helping us reach a larger audience. Our sponsor interactions at General Motors, DENSO, Continental Automotive, and MAGNA, among others, served as major opportunities for us to reach industry leaders from the community level. In addition to obtaining sponsorship, we visited the Magna facility and the Continental Automotive Picnic, where we generated interest and encouraged employees to get involved with FIRST in the community. Through our Sponsor Showcase, we showed our sponsors and school district how their contributions have allowed our team to achieve our endeavors. We maintain this relationship throughout the year by sending emails, video updates of our events, and our annual sponsorship video, consisting of a recap of our team's biggest accomplishments and events.

### Community

Our team contributes to the welfare of our community through events such as Beaumont's Moonbeams for Sweet Dreams, where community members shine flashlights at hospitalized kids during the holiday season. During this event, we incorporated STEAM by programming an LED panel on our robot with holiday greetings, which fascinated many children. Along with this, we partnered with Step On Poverty to rake leaves for economically disadvantaged neighborhoods in our area. This year we adopted a second mile stretch of road through the Adopt-A-Road program and even hosted a beach and park clean up at Lake St. Clair Metropark.

### PROMOTION

#### Outreach

This season we focused on new and larger audiences, expanding our outreach program to 41 distinct events and 15 FTC drop-in sessions. We partnered with the Detroit Red Wings to host the first annual STEM day at Little Caesars Arena, in Metro Detroit, where we invited companies like GM and Chevy, as well as other local FIRST teams to join us in promoting STEAM to students from all socioeconomic backgrounds. We also participated in the Michigan State Fair, which had 175,000 people attending, as well as the Detroit Maker Faire, Selfridge Air Show, Willow Run Air Show, Woodward Dream Cruise, Clawson Parade, Royal Oak Jingle Parade and Troy DAZE Fair. At these outreach events, the public was introduced to robots from different programs of FIRST, our 3D scanner, and Microsoft HoloLens. Through our RoboCARE initiative, we visit all the elementary and middle schools in our district and introduce students to programming concepts and teach them to drive the robot. Troy Hacks is a similar event at our high school, a hackathon where we also taught programming to the general public. To further inspire people of all ages, our team partners with Barnes and Noble and the Hands-on Museum in Ann Arbor to host a STEAM workshop.

#### Girls In STEAM

We continue to actively look for new avenues to increase the presence of girls in STEAM. On our team, we provide plentiful opportunities for our girls through participation in the Bloomfield and Grand Rapids Girls competitions, and various leadership opportunities. We also reach out to many young girls to help establish a future where women are equally represented in the STEAM workforce. We are proud to say that -- of our leaders are females, serving as role models in our community. They have presented at numerous events, such as Troy Talks and the Day of the Girl events, emphasizing the value of empowering girls in STEAM to our community. Our team also helped establish The STEAM Sisters, an organization started by 226 female leaders, where middle and elementary school girls are introduced to STEAM through free weekly workshops.

#### Media

Our innovative methods of spreading STEAM have been publicized by many forms of media. For 3 years, we have aided The Salvation Army by substituting a human bell ringer with a bell-ringing robot. Our creative idea received coverage from FOX 2, Channel 4, the Troy Times, the Detroit News and C&G News, spreading awareness for The Salvation Army and FIRST. We extend our impact beyond the attendees of our events and competitions by speaking to channels, such as ESPN, at the FRC District Forest Hills Competition and the Detroit Maker Faire.

#### International Engagement

Partnering with The Ashwini Charitable Trust in India enables us to provide necessities, resources, and STEAM education for at-risk orphanages and children. For 3 years, we teamed with BuildOn to raise money and build a school in Haiti. Our members also traveled there to introduce STEAM to kids through fun activities. We also helped out with the Compass Alliance Call Center, sharing the knowledge we accumulated over 20 years.

#### TOGETHER AN OCEAN

No matter what career they choose, Hammerheads learn much more than how to build a robot! Through our 55+ annual events, our members are prepared with leadership, communication, and teamwork skills. We hope to direct the flow of culture toward a better tomorrow through sustaining and promoting STEAM together: since individually we are just a drop, but together we are an ocean!