

# Chairman's Award - Team 503

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2016 - Team 503

## Team Number

503

## Team Name, Corporate/University Sponsors

Magna Seating Systems (Primary Sponsor) / Autoliv / Ford / Denso / NGK / TechShop / Renesas / Numatics Inc. / BrightHouse / Softura & Novi High School

## Briefly describe the impact of the *FIRST* program on team participants with special emphasis on the 2015/2016 year and the preceding two to five years

Team 503's efforts have paved the way for 6 Dean's List Finalists, 3 Woodie Flowers Finalists, 7 Outstanding Young Mentor Awards, a World Championship title, and a world record 9 Regional Chairman's Awards. Over 98% of our alumni pursue STEM or business degrees, earning over \$314,000 in FIRST scholarships, using this funding to attend prestigious institutions including the University of Michigan, Johns Hopkins University, and Harvard University.

## Describe the impact of the *FIRST* program on your community with special emphasis on the 2015/2016 year and the preceding two to five years

We helped design and build the Robotics Engineering Center of Detroit, located in the DHDC. We partnered with e-NABLE to make 3D printed prosthetics for children. We have helped 36 children regain dexterity in their hands so far! We have participated in Relay for Life, the Rouge River cleanup, Habitat for Humanity, Maker Faire, and Engineers Without Borders. We successfully advocated for the addition of Python and Java programming classes, and made our school a certified Michigan Green School.

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

We worked with the Detroit Tigers and created Cy-ber Young, the first FIRST robot to throw a first pitch at a Major League Baseball game, with a "super alliance" of local FRC teams. The media buzz exposed robotics to over 30 million people nationwide over 3 events. We've demonstrated at the Detroit Aircraft Corporation, the Michigan Education and Economics Summit, the Detroit Science Center, a Tech248 Meetup, the Manufacturing in America Symposium, local parades, and high school sporting events.

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

Frog Force is centered around a steering committee model that gives a voice to students and equalizes mentor workload. Students take on leadership roles that require them to train their younger counterparts, ensuring preservation of institutional knowledge. We also spent 20,066 hours volunteering at FIRST events and competitions in the last 6 years. Frog Force has hosted the longest running local kickoff in FRC. We regularly provide 1/3 of the volunteers at Michigan FTC events across the state.

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

We helped start and mentor teams 5577 and 5756 - the first FRC teams housed at the DHDC. This season, this has grown to 7 teams. We ran our second annual FRC Rookie Workshop the day after kickoff at the DHDC. This year, 10 rookie FRC teams attended, including 3 new teams from DHDC. We worked with TechShop and Ford to create a voucher system used by 15 teams this year for classes and materials. Frog Force founded team 3641 in 2011.

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

One of our biggest ongoing initiatives is the Novi Robotics Boosters Program, NBot. Since NBot launched in 2011, we have started 15 FTC teams, 36 FLL teams, and 15 Jr. FLL teams in Novi and raised over \$80,000 in tax exempt funds. Under Frog Force's leadership, Michigan Middle School FTC has grown from 33 to 274 teams in 5 years! This year, we helped start and mentor 4 new FTC teams at the DHDC and 2 others in Detroit.

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

Over 95% of Novi FTC alumni and over 70% of Novi FLL alumni join Team 503. Frog Force was one of the initial FRC teams to adopt the FIRST Progression of Programs model, creating a pipeline to funnel students from FLL through FRC. Since 2009, 503 has hosted Frog Force Frenzy, our annual FLL State qualifying competition with 32 FLL teams

attending and added a Jr. FLL Expo in 2014 with 12 teams. 503 has spent 1,525 hours mentoring teams in the past 6 years.

**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)**

Since 2010, we have mentored 84 and assisted 511 Jr. FLL, FLL, and FTC teams. We held 1 FLL and 5 FTC workshops this year. 503 mastered the new FTC Android Control system, becoming mentors for teams statewide. This year, we assisted 30 FTC teams with control system troubleshooting, and 196 through our CSAs/FTAs. We are doing the same for Jr. FLL teams as they migrate to the WeDo 2.0 platform. We are producing video tutorials on using the new control system, building programs and using sensors.

**Describe your Corporate/University Sponsors**

503 emphasizes obtaining new sponsors while maintaining strong ties with our current sponsors. Our founding sponsor, Magna Seating has been with us for 16 years. This year our sponsors include Magna Seating, Autoliv, Novi Community School District, Cornerstone Environmental, Ford, Comcast, West Automation Solutions, Schindler, NGK, Renesas, Softura, Denso, TechShop, Numatics, Jackson National, and Rainbow Loom.

**Describe the strength of your partnership with your sponsors with special emphasis on the 2015/2016 year and the preceding two to five years**

Our founding sponsor Magna has provided us with mentorship and resources for 16 years. Organizations like TechShop and the Altshuller Institute enrich our team by teaching valuable skills like metalworking and the TRIZ problem-solving method. Rainbow Loom has provided us with 3D printers which have been vital in expanding our e-NABLE hands initiative. We strengthen existing relationships through open houses, newsletters, networking, and community exposure.

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

FIRST is the program that will guide the future not for million dollar players, but million dollar ideas. The "varsity sport for the mind," FIRST is the organization that shows future generations the fun and excitement in STEM careers. Changing culture one team at a time, FIRST successfully prepares students for the real world, by teaching students engineering and communication skills - all while staying graciously professional and having fun. Hop on board!

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

503 may have 127 Frogs, but each Frog is critical for success and is ready to leap at every opportunity. We are not just a team, we're a family of dedicated Frogs, working together to achieve success. Over 80% of our team are first generation Americans, and over 15% are immigrants themselves. More than 20 unique ethnicities create a work environment with diverse outlooks.

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

Andrew Pospeshil

**Essay**

Leadership isn't what you do, it's who you are. Leaders do more than hop down the well-traveled path; they leap at the opportunity to create their own. Frog Force lives by the words of John C. Maxwell; "A good leader is one that knows the way, goes the way, and shows the way." 127 Frogs at Novi High School know that leadership is who you are. Frog Force goes the extra mile in everything we do. We are a family who shows everyone the power of STEM and the power to succeed.

Frog Force has had a lasting effect on the FIRST community. In 2002, we pitched the idea of a local Kickoff to FIRST HQ as a way for all teams to experience the excitement firsthand. Frog Force hosted the inaugural local kickoff the next year - and every year since. This resulted in FIRST's current network of 114 events spanning 4 continents, 8 countries, and 39 states. By working with FIRST to turn our idea into a reality, Frog Force "Made It Loud," spreading FIRST Robotics around the world.

Team 503's efforts paved the way for 6 Dean's List Finalists, 3 Woodie Flowers Finalists, 7 Outstanding Young Mentor Awards, a World Championship title, and a world record 9 Regional Chairman's Awards. Our students have earned over \$314,000 in FIRST scholarships alone, using this funding to attend prestigious institutions including the University of Michigan, Johns Hopkins University, and Harvard University. Through our outreach and achievements, Frog Force knows the path to a brighter future.

Excited to have the chance to give others a "literal" hand, Frog Force leaped at the opportunity to partner with e-NABLE, a nonprofit organization that builds 3D printed prosthetic hands for children worldwide. Last season we formed a coalition with 12 FRC teams, the University of Michigan Research Hospital, and a local makerspace to produce 36

prosthetic hands, e-NABLING 3 dozen children to regain mobility and dexterity! After meeting a child who received one of our prosthetics, Team 503 was inspired to expand this partnership, catalyzing the start of a two-semester multidisciplinary project at the University of Michigan. Set up in the Gorguze Family Laboratory, a Frog Force alumnus created a myoelectric version of the prosthetic hand we manufactured last year. Seeing a large demand for 3D printed prosthetic arms, Frog Force is now prioritizing their construction during the 2016 season.

Frog Force goes the extra mile to be active members of our community. We have participated in Relay for Life, the Rouge River cleanup, Habitat for Humanity, Maker Faire, and Engineers Without Borders. We've impacted the NHS curriculum by successfully advocating for the addition of Python and Java programming classes and made our school a certified Michigan Green School. We've demonstrated at the Detroit Aircraft Corporation, the Michigan Education and Economics Summit, the Detroit Science Center, a Tech248 Meetup, the Manufacturing in America Symposium, local parades, and high school sporting events. We even spread the message of FIRST and STEM to those outside our "swamp" with FIRST Pitch, the original partnership between FIRST and Major League Baseball. Team 503's Cy-ber Young robot threw the first pitch at a Detroit Tigers game in 2012. Three "Robots in the D" events have been held, showcasing all levels of FIRST to over 30 million people through media coverage! Our FIRST Pitch model has been replicated by several teams all across the nation, from California to Texas.

Our frogs come from many international backgrounds to form one big Frog family. Over 80% of our team are first generation Americans, and 15% are immigrants themselves. More than 20 unique ethnicities create a work environment with diverse outlooks that cultivate respect and inclusion. This prepares our students to be contributors in a global economy.

Frog Force's strength relies on relationships with our sponsors who continually help us to excel in our goals. Magna Seating, our generous founding sponsor, has been with us for the past 16 years. To ensure sustainability, we have diversified our sponsor base by adding 15 sponsors over the last 5 years. Organizations like TechShop and the Altshuler Institute enrich our team by teaching valuable skills like metalworking, screen printing, and the TRIZ problem-solving method. Our head coach is a member of the Ford FIRST board, serving as the expert on pre-high school FIRST programs and advising on the allocation of funds to maximize FIRST support.

Frog Force strives to give every FIRST team the best experience possible. Last year, we partnered with makerspace TechShop Detroit to achieve a common goal of making advanced technology accessible to the entire Motor City. Our initial model included a set curriculum for FRC teams. This year, the program evolved into a voucher system to use sponsor dollars more effectively. This allows more than 15 teams to utilize services as needed; including classes, technical support, materials, and machine shop facilities.

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Team 503 believes we can create a stronger FIRST community by showing others the path we've taken to success. One of our biggest ongoing initiatives is the Novi Robotics Boosters Program, NBot. Since NBot launched in 2011, Frog Force has started 15 FTC teams, 36 FLL teams, and 15 Jr. FLL teams in Novi. The success of our teams can be attributed to our dedicated mentorship, with the Novi Black Frogs FTC team winning the State Inspire Award for the past five years. Since 2010, we have mentored 84 and assisted 511 Jr. FLL, FLL, and FTC teams.

In 2004, we started our first FLL team, the Rapid Robots. We ensure sustainability of our program by providing a linear progression through the different levels of FIRST. According to Gail Alpert, President of FIRST in Michigan, Frog Force is a "model team for the whole progression of programs." This model has been emulated in communities throughout our state, building a foundation upon which FIRST teams can grow and thrive. In 2009, we started Frog Force Frenzy, our annual FLL regional competition. Introduced in 2014, we continued our Jr. FLL Expo with 12 teams attending this year. In the past 6 years, Frog Force has spent 20,066 man-hours volunteering at FIRST competitions and events. The enthusiasm that younger participants have for robotics motivates them to continue on to higher levels of FIRST and pursue careers in STEM.

Frog Force's commitment to changing culture is evident in our dedicated support of Michigan Middle School FTC. We believe this positioning creates a pipeline through which students can seamlessly flow from one program to another. Under our leadership, the program has grown from 33 to 274 teams in 5 years! Our team supports every aspect of the program - from running and hosting 5 workshops across the state to filling key roles at every event throughout the season. Frog Force supplies almost a third of the volunteers at the events we support, such as FTAs and CSAs, Judges & Judge Advisors, Referees, and Scorekeepers.

Frog Force mastered the new FTC Android Control system, becoming mentors for teams across the state adjusting to the new system. Throughout the season, we assisted over 30 FTC teams with control system troubleshooting, and 196 through our CSAs and FTAs providing individualized support at competitions. One FTC coach stated that Frog Force was, "an invaluable programming resource and... [did] a fantastic job helping teams make progress no matter how prepared or unprepared [the teams] were." Because of our support for FTC, we are poised to do the same for Jr. FLL teams as they migrate to the WeDo 2.0 platform. We are producing video tutorials on using the new control system, building programs and using sensors.

The Detroit Hispanic Development Corporation (DHDC) is a community center in the heart of Mexicantown, Detroit " [whose] mission is to make a difference by creating life-changing opportunities for youth and their families." Last year, Frog Force helped the DHDC create a new community build site named the Robotics Engineering Center of Detroit, or REC'D. Team 503 designed the layout for the REC'D machine shop, sourced equipment, and helped in construction of the center. Teams 5577 and 5756 were the very first FRC teams housed at the DHDC. For the 2016 season, this has grown to 7 FRC and 4 FTC teams. Because of their participation, multiple DHDC students received scholarships from various colleges, and many students have internships lined up at General Motors. Frog Force's involvement with the DHDC isn't just about building teams, but also building a sustainable future in Detroit.

Frog Force doesn't just host events - we develop programs! We ran our second annual FRC Rookie Workshop the day after kickoff at the REC'D. We co-hosted with the DHDC FRC teams so that this type of workshop can be a component in building sustainable area teams. This year, 10 rookie FRC teams attended, including 3 new teams from DHDC. Each team walked away with a rolling chassis, an electrical board, and a thorough understanding of the game. Additionally, Frog Force hosted and ran an FTC Kickoff Event, and 2 FTC workshops at the REC'D. These workshops are key components of implementing a progression of programs to ensure sustainability of FIRST in Detroit.

Frog Force KNOWS the keys to success and leadership. Our team GOES the extra mile in changing the culture and spreading the benefits of STEM. In everything we do, we SHOW future innovators the merits of Gracious Professionalism and industrial excellence inspired by FIRST. Frog Force KNOWS, GOES, and SHOWS the way - unifying leadership, passion, and cutting edge innovation under one green banner.

WHO ARE WE? 503!

2016 - Team 503

Picture 1



2016 - Team 503

Picture 2