

Chairman's Award - Team 2500

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2019 - Team 2500

Team Number

2500

Team Name, Corporate/University Sponsors

Coloplast/Boston Scientific/General Mills/The Bakken Museum/Medtronic/Ajax Metal Forming Solutions/Seagate/St. Thomas University/NASA/Carlson Advisors LLP/Siwiek Lumber/Big Bob's Flooring Outlet/Install This Sign and Awning Co./Shingle Creek Neighborhood Association/Minneapolis Public Schools Career and Technical Education/Girl Scouts of Minnesota and Wisconsin River Valleys/Dunwoody College of Technology/Patrick Henry High School Booster Club/GOFIRST/Patrick Henry High School Foundation&Henry Senior High

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

-Members acquire skills in leadership, problem solving & public speaking. -Strong mentor-student relationships are mutually beneficial. -Former exchange student started a team & is growing FIRST in Japan. -Nearly 100% of team alumni pursue STEM/business careers. -Involvement in FIRST provided 25 internships, giving students real-life experience working in STEM industry. -Students receive scholarships (many first in family to attend college) & explore college/career pathways through FIRST.

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

-Founded Minneapolis Urban Robotics Alliance (MURA) to strengthen the sustainability of urban teams. MURA includes 21 FIRST Teams, & has resulted in near 95% retention rate. -Developed pathway from FLL to FRC in Minneapolis. New FTC program provided experiences to 75+ urban youth. -Recruited for our school's STEM programs through outreach. -IBCP program enrollment up 250% since first offered. -Formed Engineering Advisory Board with partners to bring STEM curriculum to industry standards.

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

-Founded American Urban Robotics Alliance (AURA), uniting 10 teams from 6 cities to promote sustainability of urban FIRST teams nationally. Teams from cities including N.Y.C., Philadelphia, Chicago, Richmond, & L.A. -Engaged in 170+ STEM/Non-STEM events over 5 years. -Promoted FIRST to 100,000+ people over 5 years. -10,000+ hours of community outreach over 5 years. -Hosted 4 exchange students on team, helping promote FIRST internationally. -Received grant to expand FIRST pathway in Minneapolis.

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

-Presented numerous workshops on diversity & inclusion at regionals & Championship. -Composed of diverse team background (50% female & 17 languages spoken) -Promote sustainability of urban FIRST teams through MURA & AURA. -Coined "Each One, Teach Two" as a core value of our team. -Stayed tenacious through adversity to keep moving forward & remain sustainable & successful. -Presented to K-8 students at various outreach events, including parades, FLL tournaments, and even on public television.

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

-Started Japanese FRC Team 6909 SAKURA Tempesta through exchange student involvement on our team. Continued support enabled 6909 to start an additional team in Japan this year. -With all but one high school in Minneapolis having an FRC team, we've focused our efforts instead on promoting and securing the sustainability of urban FRC teams locally through MURA. -Visited schools to recruit and keep teams sustainable. -Created AURA to promote and support sustainability of urban FRC teams nationally.

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

-Started 5 FTC teams in local middle schools after receiving FIRST STEM Equity Community Innovation Grant in 2016. -Continued support of FTC programs in Minneapolis allowed MURA FTC to expand to include 4 more teams, for a total of 9 in 2019 through additional fundraising and support. -Encouraged urban parents & faculty at MPS FLL tournament & STEM Expo to form FIRST teams in their own schools & neighborhoods. -Started FLL team at local community center to engage urban youth in FIRST programs.

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

-Created a full-sized FRC and FTC practice facility (MURA Field), aiding in success & sustainability of FIRST teams across the region. -Hosted open houses, FTC workshops, and an FTC League meet at MURA Field. -Served as judges & promoted FTC & FRC at FLL tournament encouraging continued youth involvement in FIRST. -Increased engagement of middle-school youth in FIRST beyond FLL through formation of FTC teams. -Hosted statewide workshops to FRC teams on awards, diversity & inclusion, & outreach.

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)

-Founded & organized MURA to include 12 FRC and 9 FTC teams to foster the sustainability, collaboration, & competitiveness of urban FIRST teams in our area. -Mentored local FLL & FTC teams through their first seasons to support their success. -Hosted & mentored 10+ FIRST teams in our facility in areas of build, programming, leadership, imagery, & awards. -Mentored & supplied resources to FIRST Team 6909 SAKURA Tempesta, supporting the start & continued growth of their team & FIRST in Japan.

Describe your Corporate/University Sponsors

-Corporate Partners: Coloplast, Boston Scientific, Medtronic, NASA, Seagate, Ajax Metal Forming, LB Carlson, LLP. -Community Partners: Shingle Creek Neighborhood Association, GOFIRST, Install This, Girl Scouts of Minnesota and Wisconsin River Valleys, Patrick Henry High School Foundation, Patrick Henry High School Booster Club, Siwek Lumber. -Education Partners: Minneapolis Public Schools, St. Thomas University, Patrick Henry High School, Dunwoody College of Technology.

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

-Secured grants to build and continue to operate a FRC/FTC practice facility for MURA and metrowide teams. -Established strong mutual partnerships with 10 business partners for at least 10 years. -Collaborated with partners on strategic STEM advocacy & events. -Strengthened partner relationships with on-site company visits. -Offered 25 professional internships to team members through partner support. -Formed Engineering Advisory Board with 8 partners to advance our school's engineering programs.

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

FIRST is a life-changing, worldwide robotics competition for K-12 youth; it transforms culture & expands innovation in STEM. However, it's more than just robots; through partnerships with 3500+ sponsors, FIRST grants participants a solid pathway for the future. FIRST benefits all students by creating scholarships, college opportunities, & careers in STEM. Together with over 10,000 teams from around the globe, FIRST is moving forward and building the future generation of innovators & leaders.

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

Herobotics has always sought to have an impact beyond our team & contribute to our global community. We seek to transform the culture of STEM by advocating for new FIRST opportunities for underserved youth & encouraging the success of urban teams nationwide. We don't only serve within FIRST; we also support our community through outreach events, & student-led charity fundraising campaigns. This impact has helped us empower urban youth to keep moving forward, & build people, not just robots!

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

Britta Pearson

Essay

"Around here, however, we don't look backwards for very long. We keep moving forward, opening up new doors & doing new things, because we're curious...& curiosity keeps leading us down new paths." -Walt Disney

Tenacity & innovation are FIRST Team 2500 Herobotics' greatest values. We Keep Moving Forward through adversity, challenges, & setbacks, developing innovative solutions that advance our mission. By fostering strong connections & partnerships, we strive to change the face of Science, Technology, Engineering, & Math (STEM) & give underrepresented, urban youth the tools to succeed.

A constant struggle urban teams face is sustainability. Urban engagement in FIRST is hindered due to a lack of resources, funding, & mentors. Over the years, Herobotics has also faced these challenges, but we kept moving forward & built a structure to keep our team sustainable. It begins with our belief that anyone, regardless of background or skill, is welcome, can learn & contribute. This is further fostered by our "Each One, Teach Two" motto, where veteran members of Herobotics pass on their knowledge to at least 2 new team members. With this model, as team members graduate, the abilities of the team continue to grow. Mentors & team alumni further this by sharing their experiences & knowledge they gained with members as well.

This structure has been a key reason that we've remained strong & sustainable in an urban area for 12 years, & it received its most significant test within this last year. Our lead mentor of 9 years suddenly left the team due to a family health crisis, & due to major construction in our school, all of our team's equipment, supplies, & resources were strewn across the city without any access! With these challenges, the start of our 2019 season was chaotic & unstable, but even in this time, we remembered to Keep Moving Forward & remain resilient & adaptable. We strived, in this difficult time, not only to succeed in our own team's sustainability, but to continue our mission to help other urban teams sustain & acquire the tools for success.

In observing the challenges that urban teams face within our own city, we founded the Minneapolis Urban Robotics Alliance (MURA) in 2015. Beginning as only 3 teams on the northside, MURA sought to promote the sustainability of urban teams. Since then, it has grown to include 21 FIRST teams across the city (9 FTC, & 12 FRC), sharing ideas, resources, & guidance to help each other sustain & succeed. As a result of the MURA network, FIRST in Minneapolis has had a near 95% retention rate.

A major accomplishment of MURA is the creation of a full-sized FRC & FTC practice facility. Our vision began with Herobotics' team members advocating to the school district for designated workspace; after raising thousands of dollars through grants & fundraisers, & dedicating 400+ hours of build time in the last year alone, MURA Field was born. Since its creation, MURA Field has transformed into a resource that has aided teams from all across the state, improving their robot competitiveness & design. The elements of our practice field were also used at the Minne Mini Regional off-season event this year, benefiting 36 teams.

This year, we assisted in the addition of a full-sized workshop & robot parts depot to the facility, greater supporting the success of both FTC & FRC teams. As a result of these additions, MURA Field has become more than just a practice field, evolving into a community workspace for all teams in the metro. The facility has allowed us to host several FIRST events, including FRC open houses, FTC workshops, & even an FTC league meet, engaging teams from across the metro.

Recognizing the value of MURA in Minneapolis, we sought to expand our urban sustainability initiative nationally. Last year, Herobotics founded the American Urban Robotics Alliance (AURA), which also initially began as a coalition of 3 teams. After reaching out to several FRC teams at the 2018 FIRST Championship, the coalition has already expanded to include 10 teams this year from 6 major metropolitan areas around the US. Currently, we are developing an urban resource library & contact list, & plan to host quarterly video conference calls for teams to collaborate with each other & remain sustainable. Our vision for AURA is to develop connections & provide urban teams with grants & financial support.

There are many people still unaware of the benefits of FIRST. Throughout our history, Herobotics has sought to expand the presence of FIRST within our reach, raising awareness of the great opportunities of the program. In the last 5 years, we've dedicated 10,000+ hours to community outreach, exposing 100,000+ people to the benefits of FIRST. By presenting information about FIRST at 170+ STEM & non-STEM events, we've reached an even broader audience & further generated interest in FIRST.

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A key focus of our team has been outreach to K-8 youth, aiming to inspire them to pursue their passion for STEM. Through STEM fairs, community events, & even an appearance on PBS television, we've given many interactive experiences to urban youth. A major, annual outreach event is our involvement at the Minneapolis FLL Tournament. Each year, we continue to support the event with team members volunteering as judges, running a concession stand, & demonstrating our robots to the 2,000+ youth & adults in attendance. Through our engagement with this event, we seek to encourage students in FLL to continue progressing through the FIRST program.

Before 2016, there was no solid pathway between FLL & FRC in Minneapolis, with only 1 FTC team citywide. To bridge this gap, Herobotics applied for & received a grant from FIRST, enabling us to start 5 FTC teams in local middle schools. Through the development of these teams, we were able to create a solid pathway for underserved youth to progress in the FIRST program all the way to graduation. Since 2016, the program has expanded to include 9 FTC teams, increasing the skill set of middle school students, & serving as strong feeder programs for the high school teams.

To further foster skills that students learn in FIRST, we sought to improve our school's STEM programs. Herobotics was instrumental in our school being 1 of 20 worldwide to pilot the IB Career-Related Programme (CP) in 2012, combining rigorous global minded coursework with hands-on STEM experience. As a result of Herobotics' integration with the program, we've helped expand its enrollment 250% since it was first offered. Another program at our school we recruit for is Project Lead The Way (PLTW), which helps students apply teamwork, design, & problem-solving skills that are central to FIRST. Herobotics also formed an Engineering Advisory Board, bringing together mentors & 8 of our business partners. This board aims to improve all of our school's engineering programs to meet progressive industry standards. By strengthening our triad of PLTW, CP, & FIRST, we enable the next generation of STEM innovators to Keep Moving Forward.

Herobotics has spent our entire history striving to change the face of STEM, believing that anyone, regardless of who they are, can participate in FIRST. Herobotics' dedicated focus on inclusion comes from within our own team culture. Along with historically having 50% female representation, our team members come from diverse backgrounds, collectively speaking 17 languages. Within the last few years, we've presented on diversity & inclusion at numerous FIRST events, including workshop days, regionals, & even the 2017 FIRST Championship St. Louis, inspiring teams across the world to create an inclusive culture within FIRST.

By building strong, local, national, & international connections, we seek to promote FIRST globally. Over the years, we've welcomed exchange students onto the team from several countries around the world, including The Netherlands, Malaysia, & Bangladesh, who discovered the magic of FIRST by being on the team. The impact of FIRST inspired our 2017 exchange student from Japan, Kanon, to return home & spark the development of FIRST in Japan. She founded FIRST Team 6909 SAKURA Tempesta in her home city of Chiba, & through Herobotics' mentoring & support, 6909 made it all the way to the 2018 FIRST Championship Detroit, even winning an award at the divisional level. This year, we've continued to support 6909 from halfway around the world, including their creation of an additional FRC team, & the expansion of FIRST in Japan.

As a result of our engagement in FIRST, Herobotics motivates team members to see a future for themselves in STEM. Through the development of both technical & non-technical skills learned on the team, students have received numerous scholarships & grants helping them pursue their post-secondary education. As a result, nearly 100% of team alumni have gone on to pursue careers in STEM or business, in fields such as computer science, environmental engineering, & graphic design. When alumni return to the team, they share the knowledge gained from their studies & careers to support current team members to Keep Moving Forward with their own education.

Our team fosters strong relationships with our business partners, & as a result they understand the value of our work providing youth with opportunities in FIRST & STEM. Through working with our partners, we've been able to offer 25 internships to team members, providing real-world experiences in the STEM industry. These enriching experiences grant team members with valuable connections that support them in college, careers, & life.

Herobotics strives to Keep Moving Forward, overcoming adversity & developing innovative solutions that change the face of STEM. By promoting the sustainability of urban robotics, diversity & inclusion, & the many benefits of FIRST, Herobotics is building people, not just robots. As we further advance opportunities for underrepresented youth in STEM, together we are building a new heroic future.