

FIRST Impact Award - Team 5166

2024 - Team 5166
Team Number
5166
Team Nickname
Fabricators
Team Location
Freeland, MI - USA
Describe the impact of the <i>FIRST</i> program on team participants within the last 3 years. This can include but is not limited to percentages of those graduating high school, attending college, in STEM careers, and in <i>FIRST</i> programs as mentors/sponsors.
At Freeland, we are encouraged to find our passion among the myriad opportunities FIRST offers. ALL (100% of) Fabricators take FIRST experience to the professional level, and many continue their commitment to FIRST. We have gone pro not only in engineering fields but others such as marketing/finance, graphic design, education, and skilled trades—even law. Two alumni started FRC8728 and another mentors FRC1504 and serves as a FIRST FTA; others give back by volunteering at FIRST events.
Describe your community along with how your team addresses its unique opportunities and circumstances.
Freeland is a small community surrounded by the larger Midland, Saginaw, and Bay City and centered in the lower peninsula of Michigan. In 2023 we updated our vision of “World Class Performance from a Small Town Team” to “Fabricating the Future” to remove any perceived limits to our potential to impact the world. Our central location in our region is ideal for hosting events and accessing sponsors from surrounding industries, and technology allows us to reach others on a global scale.
Describe the team's methods, with emphasis on the past 3 years, for spreading the <i>FIRST</i> message in ways that are effective, scalable, sustainable, and creative. How does your team measure results?
We start recruiting future Fabricators as early as daycare age. We invest in supporting our FLL/FTC teams and mentors technically and financially and teach FIRST’s core values and culture. We reach community leaders at impactful forums such as Midland Business Alliance. We promote FIRST by hosting events, volunteering, and helping teams. Our AUTO scaleup is self-sustaining with certified teams training other teams in turn to create a viral web of understanding to reach students around the globe.
Please provide specific examples of how your team members act as role models within the <i>FIRST</i> community with emphasis on the past 3 years.

We spent 1000 hours this season mentoring FTC and FLL teams in our Student Leadership Program and 1500 hours hosting, running, and volunteering at events or assisting and sponsoring FIRST teams. Our team members are sought for their expertise. We provided key volunteers to the North Branch FTC event when they reached out for help. Our Emcee and Game Announcer mentored students for these roles at other events. We are mentoring FRC9662 in their rookie season with student recruiting and guidance.

Describe your team's initiatives to Assist, Mentor, and/or Start other *FIRST* teams with emphasis on activities within the past 3 years.

We started and mentored 5 FLL-C teams, started and mentored one FTC team, and mentored 1 FTC team under Freeland Robotics umbrella leading to 107% increase in FTC and 96% club growth vs. 2021. Mentoring FRC9662 (recruiting, parts, guidance, safety audit). Financially sponsored FRC1504 as well as assisting with parts and graphic designs. Assisted FRC6020, FTC10615, FTC22881, and FTC10844 with programming and provided significant assistance to FTC10601 to help them qualify for state competition.

Beyond starting teams, what initiatives have you done to help inspire young people to be science and technology leaders and innovators? What results have you seen from your efforts in the past 3 years?

Recruiting efforts have doubled club participation. Beyond demonstrations at community events, we spend time with young people in many venues (STEM classrooms, Freeland STEAM Night, school open houses, FTC kickoff) to interact with, take apart, drive, and program FLL/FTC robots and include other activities and exhibits by local STEAM companies. Student leadership/mentoring of FLL/FTC teams has led to outstanding team performance, which inspires and motivates them to achieve even more.

Describe the partnerships you've created with other organizations (teams, sponsors, educational institutions, philanthropic entities, etc.) and what you have accomplished together with emphasis on the past 3 years

We partner with the Freeland Lions Club on projects such as monthly food drives. We are beta testing a new Semiconductor Technology career path with Delta College. Central Michigan University's clubs and departments have reviewed and validated our AUTO curriculum. Dow, a perennial sponsor, is partnering with us in 2024 with a project grant from their ALL-IN fund to certify 100 teams in our AUTO program with emphasis on Dow-sponsored teams and inclusion of employees as volunteers in the effort.

Describe your team's efforts in the past 3 years to promote equity, diversity, and inclusion within your team, *FIRST*, and your communities.

This year we became an ambassador for #FirstLikeAGirl, who formally recognized us for our advocacy for STEM equity for young women everywhere. We have organized custom button-making tables at all our events this year and handed out well over 1100 buttons. Our AUTO program aims to address inclusion and well-being of students with ASD in all of FIRST and beyond, training teams to become AUTO-Certified and train others in turn. Our goal is to blanket FIRST with this knowledge over the coming year.

Explain how you ensure your team and the initiatives you have created will continue to run effectively for the foreseeable future

We focus heavily on next generation Fabricator students and mentors and have moved our FLL/FTC pipeline from weakness to strength. We develop FLL teams by grade level cohort and use a repeatable

year-long development cycle for FTC with separate teams for rookies and veterans. This ensures gradual progression of both students and mentors through our system, supported by student mentoring and a “one-club” culture where all levels understand our vision and participate in our outreach activities.

Describe your team's innovative strategies to recruit, retain, and engage your sponsors within the past 3 years

We created a sponsor engagement video to aid students visiting perennial and potential sponsors. Grants from local and national foundations fund specific projects (FRC Field/AUTO). Sponsors are highlighted on social media and receive a newsletter and in-person updates. Started Robotics Boosters 501c3 to diversify fundraising (Euchre Tournament, concessions at minor league baseball). Students network with sponsors at business meetings such as Wake Up Midland, Chamber of Commerce, and Rotary Club.

Highlight one area in which your team needs to improve and describe the steps actively being taken to make those improvements.

We are a busy team throughout the year, but during FRC build season we have six to eight subteams and projects occurring in one space. We often do not take time to share our challenges, deadlines, and what we need from each other to be successful. To improve communication, we are piloting a weekly standup meeting where each subteam reports out to our group. It builds cohesiveness (the one-club mindset), focuses us, and identifies areas of need where people can jump in and lend a hand.

Describe your team's goals to fulfill the mission of *FIRST* and the progress you have made towards those goals.

We make robotics accessible to young people by fostering teams for 2nd-12th grades where students can find their passion while gaining life skills and confidence. Our community understands how our program impacts lives and reciprocates with strong sponsorship. We strengthen FIRST by hosting events and helping teams, impacting beyond the boundaries of Freeland. We challenge teams throughout the world to understand and include students with ASD through our AUTO program. We Fabricate the Future!

Briefly describe other matters of interest to the *FIRST* Judges, including items that may not fit into the above topics. The judges are interested in learning about aspects of your team that may be unique or particularly noteworthy.

Updating our vision of “World Class Performance from a Small Town Team” to “Fabricating the Future” was very important and symbolic for us. As an upstart small-town team, we followed the lead of our most admired teams to see how far we could go. As our team matures, we notice we are now being watched, measured, and emulated. It motivates us to remove the training wheels to set bigger goals, work even harder, and bring others along for the ride with no limitations on our leadership potential.

Judge Feedback

Who/When	Feedback
Apr 04, 2024 02:58:40 PM EST	<p>When you read our essay and summaries, which part you were most motivated to ask us about in the interview?</p> <p>An area the team has an opportunity to improve.</p> <p>Something that really impressed the judges.</p>

Essay

Freeland is a close-knit town centered in Michigan's Great Lakes Bay Region (GLBR). High community expectations and strong support are the bedrock of Freeland Robotics Club's impact. In a small town, sponsors are more than transactions; they are families, friends, and neighbors invested in our success. In 2023 we updated our vision to "Fabricating the Future" representing truly limitless potential to drive positive change. It provides the framework of our outreach as Freeland Robotics Fabricates the Future of Our Team, Our Community, FIRST, and Our World.

We Fabricate the Future of Our Team

Sustaining our pipeline of students and mentors began by focusing on elementary and middle grades. Starting and mentoring a second FTC team and 5 FLL-C teams has led to a 107% increase in FTC participation and 96% increase in overall club membership vs. 2021. This year, Team 5166 spent 1000 hours mentoring FTC and FLL teams and mentors in our Student Leadership Program where students mentor lower levels of robotics. An additional 300 hours were logged at other events aimed at sustainability of our teams.

Our third yearlong FTC recruiting/development/competition cycle has begun. In March we recruit students and mentors via media/announcements, STEM class visits, and Freeland STEAM Night. Recruits and mentors train in a spring build season and compete at our "GEAR-UP!" offseason event in May, preparing them for success in the fall season. FTC21672 is our Rookie/JV team and FTC5386 the Veteran/Varsity, allowing student and mentor cohorts to learn together.

Club financing has grown to nearly 400% (2023/24 est. \$119K) of our 2017-2020 run rate of \$27K-\$32K. Each member participates in fundraising via team dues and chocolate sales, and student groups solicit sponsorships throughout the community. Our social media team also created a video presentation to show sponsors the impact of their dollars.

Our first Freeland Robotics Euchre Tournament raised \$10K for our club and enabled us to personally reach community members with our message as they showed support while enjoying dinner, fun competition, and prizes. Students served at the event and gave demonstrations and presentations.

An inclusive environment where all are welcome is our goal; we believe every student can find their passion as a Freeland Fabricator. In 2023 we became a certified ambassador for #FirstLikeAGirl and hosted a button-making table at all events.

We Fabricate the Future of Our Community

This year we spent 600 volunteer hours spreading the message of FIRST and the value of inclusive STEAM education in our community.

Freeland Lions Club is a partner and longtime sponsor. We have helped distribute hundreds of thousands of pounds of food to families at their monthly food giveaways. We refurbished their bingo board and are helping to run a joint fundraiser at Freeland Walleye Festival; we also served at their 75th anniversary celebration.

Presentations at community organizations such as Midland Rotary Club have led to opportunities such as

partnering with Delta College to beta test their new Semiconductor Technology curriculum. Team 5166 sat on a panel with fellow STEAM leaders at Wake-Up Midland hosted by Midland Business Alliance to advocate for STEAM and Robotics education and network with business leaders to show what our program is all about.

We talk about FIRST and demonstrate our robots at community events including Saginaw Spirit hockey, Garber Twilite Cruise, Dow Great Lakes Bay Invitational LPGA Tournament, Great Lakes Loons baseball, Dow Tennis Classic, Consumers Energy Family Day, Freeland Homecoming Parade, and Society of Cable Telecommunications Engineers Trade Show.

Our events reach the children of Freeland and the surrounding area. At Freeland STEAM Night we dive into all levels of robotics with students and parents answering questions about our program with hands-on robot driving and programming. We take FTC and FLL robots to Freeland SportsZone's daycare program. At FTC kickoff we host a STEAM event open to the public with fun games like cup stacking and penny boats as well as hands-on FTC and FLL robots.

We ran a Veteran's food and clothing drive, volunteered at Spectrum Autism Center, and helped with cleanup after Freeland Arts in the Park.

The Fabricator Flyer reaches more than 400 stakeholders with team updates. Featured articles in Freeland Living magazine reach over 4000 homes. WNEM-TV5 has covered FIRST events we have hosted as well as World Championship participation.

We Fabricate the Future of FIRST

Our team has spent 1500 hours this year furthering FIRST's mission by hosting and running events, volunteering, helping teams, and advocating for FIRST and STEAM education.

We host GLBR's FTC Kickoff for area teams, enriching the game reveal with exhibits by local STEAM companies such as Dow, Nexteer, Consumers Energy, and Hemlock Semiconductor as well as FIRST vendors such as Andymark in addition to our own topics such as Blocks programming and 3D printing.

We host and run GLBR's Spring offseason FTC event known as "Freeland GEAR-UP!"; all non-judge positions are held by students. We host and run an in-season FTC qualifier and host an FLL-C event in partnership with Nexteer. We hosted FLL Referee training prior to the qualifier, and our FLL teams built the missions for the event. We co-hosted Midland's FRC qualifier as well as the offseason FRC Bay Bot Bash where we served as judge, field reset, and AV on top of competing with two robots.

Our club is known for expertise in FTC roles, serving at qualifying events and the MI FTC State Championship. Our Emcee and Game Announcer mentored and trained students for the Pellston event. We organized a booth for FTC World Championship teams to scrimmage and exhibit their robots at MI FRC State Championship.

We assist and mentor FIRST teams at all levels, assisting FRC9662 Chargers with student recruiting, parts, guidance, and a safety audit as they begin their rookie season. We sponsored FRC1504 Desperate Penguins with funds, parts, and design services. We significantly assisted FTC10601 Robokings to help them qualify for state competition.

We advocated with US Rep. Dan Kildee at MI State Championship sharing personal impacts of FIRST on team members and asking for continued support. A special tribute was presented by MI Rep. Matt Bierlein for inspiring our community through excellence in robotics. We advocated with Dow at FRC World Championship to show how their sponsorship enables our impact and encourage them to continue growing their relationship with FIRST for the benefit of all teams. We attended the Student Association for STEM Advocacy (SASA) conference to increase our skills and improve our advocacy efforts.

We Fabricate the Future of Our World

Our Autism Understanding Through Outreach (AUTO) program promotes inclusion of students with autism spectrum disorder (ASD) impacting one in 36 US children often inclined to choose STEM fields and majors. Better access to FIRST and other STEM programs will help them connect with their passion in an era where employers need to tap all available talent to develop a skilled engineering and technology workforce.

There are barriers and challenges in the learning environment and within FIRST itself that can limit the potential of these students if unaddressed. Mentors and students can overlook or miscalculate abilities, or worse, punish neurodiverse students or subject them to intolerance and microaggressions when behaviors do not match preconceived expectations. FIRST events are loud and build seasons are chaotic; this can lead to students shutting down and disengaging.

We addressed this by creating an educational track for FIRST teams. In AUTO Phase 1 we worked with and learned from teachers, mentors, and Freeland's own Spectrum Autism Center to gain knowledge and prepare course materials. The media team developed a marketing package with logos, T-shirts, posters, and promotional items to help communicate the message. We developed sensory first aid kits with headphones, fidget toys, whiteboards/markers, etc. and made them available at FIRST events, talking with anyone who would listen about these topics.

AUTO Phase 2 saturates FIRST with this knowledge to increase wellbeing of team members with ASD and inclusive behaviors among all FIRST participants. Following a train-the-trainer model other FIRST teams become AUTO-Certified. We challenge them to train other teams in turn, creating a viral web of understanding within FIRST and the broader STEM community. We are still ramping up, but today we have certified 27 teams adding more each week.

The AUTO Foundation, a 501(c)(3) nonprofit, was formed to raise money for kits and shirts as well as future funding ambitions. We sought media opportunities to spread the word: a Midland Daily News article was picked up by Newsela, a provider of classroom news reaching 90% of schools including 25 million students and over 2 million teachers. AUTO was featured on WNEM-TV's "Focus on 5" as well.

A fundraising breakthrough was achieved when Dow awarded The AUTO Foundation with a \$23K grant from their ALL IN Fund, which connects Dow employees with nonprofits in their communities to work together on projects that address important inclusion challenges. Not only will it fund sensory kits and shirts for at least 100 FIRST teams; it also connects us with Dow team members to help with program content, conduct training, assemble kits, and administer surveys.

AUTO Phase 3 encompasses the entire STEM community and beyond. We work with Central Michigan

University (CMU) Autism Social Club to get first person feedback on our training methods as well as CMU's Department of Communication Sciences and Disorders to validate our entire training protocol. Our dream is for AUTO to become a household name and an endowment providing scholarships to students and grants to related initiatives in the future. ;

