

FIRST Impact Award - Team 4930

2023 - Team 4930
Team Number
4930
Team Nickname
Electric Mayhem
Team Location
Buffalo, NY - 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.
100% of our alumni have matriculated, 79% are pursuing STEM, 31% are still involved with FIRST and 8 have mentored FIRST teams. Our founding Team Captain was featured in Forbes' 2023 "30 under 30 - Social Impact". Alumna Kayla Ricks used skills she learned on FRC4930 to start a STEM marketing company. Alumna Ava Karet came back to Nichols School (NS) to discuss engineering and FIRST scholarships, alum Thomas Kubiniec returned to mentor us, and alum John Tantillo is a founding mentor of FRC424.
Describe your community along with how your team addresses its unique opportunities and circumstances.
Buffalo is a historic city with lots of #BuffaLove despite a challenging year. Major Drive is our annual inter-FIRST charity drive where we work with our school, local and FIRST communities to combat an obstacle our city faces and a cause we're passionate about. This year, following a racially motivated attack in Buffalo's East Side, we sought to support that part of our community, including running a food drive to help mitigate the food desert in Buffalo's East Side, reaching 2.6K people.
Describe the team's methods, with emphasis on the past 3 years, for spreading the FIRST message in ways that are effective, scalable, sustainable, and creative. How does your team measure results?
We annually run a 2 week long demo at the Erie County Fair, the largest fair in New York State, and share this opportunity by hosting demos from our Buffalo FIRST Family members. We showcase every FIRST program reaching 378K people through our demos and 6 local news appearances. We demo student-made STEAM projects like our gravity-driven spirograph, fish-controlled robot, and RaspberryPi Mini Arcade. They invite us back every year to run larger demos and host more local teams.
Please provide specific examples of how your team members act as role models within the FIRST community with emphasis on the past 3 years.
We formed and lead the Buffalo First Family (BFF), which includes 5 FRC, 6 FTC and 7 FLL member teams that share resources and opportunities. We founded the BFF Leadership Board and our mentors

serve as the regional FLL, FTC and FRC Coordinators. We've started 77% of Buffalo FIRST teams and run every official FIRST event in Buffalo, including FLL and FTC Kickoffs, the Buffalo FLL Qualifier and Finger Lakes FLL Championship. We host our BFFs at demos like the Erie County Fair and Mayhem in May.

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

We have assisted 255 FIRST teams (104 FRC, 34 FTC & 116 FLL) and mentored 17 teams. At every competition we deploy "Shock Squads" that have provided assistance 62 times. At FLR 2022, we shocked 1 in 5 teams. At Mock Kickoff, we show a past game animation, read the rules, run a game simulation and analyze strategies. Every year we invite veteran and prospective teams to share this experience. Through this event we've started teams FRC5590 and FRC6870, and this year we hosted a demo from FRC424.

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?

We run EXPO, where we use STEAM energy to spark inspiration in our peers by showcasing non-FIRST engineering projects. We've hosted 35 STEM groups at 19 EXPOs, embracing STEAM by showing how skills from FIRST can be used artistically for unique projects. Howard, our fish-driven robot, is our most famous EXPO project and was featured at our Data Science Conference this year. Our Mini Arcade and Spirograph are always popular with young kids and inspire a lasting passion for STEAM.

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

Our main sponsor, NS, funds our 6 FIRST teams with \$48K annually and offers FTC as a class and FRC for sports credit. We demoed to NS Class of 1961, earning a \$6M donation that will result in a facility built on NS campus to house full sized fields for all FIRST programs and workspace for every BFF team in WNY. We've met with architects to finalize designs ahead of our projected 2026 opening. NS promoted a teacher to full time FIRST Program Director to oversee FIRST growth at NS and across WNY.

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

FRC4930 is 45% women and marginalized genders (WMG) & 50% minorities. We formed Voices In The Lab (VITL), our advocacy group for diversity, equity and inclusion of underrepresented voices in STEM. VITL brings WMG STEM professionals to speak on workplace inclusion. This year, VITL expanded into a NS club for 30+ WMG students, spreading our vital tenets beyond FRC4930. We reach diverse communities with STEM at West Hertel Academy, Global Concepts Charter School and Journey's End Refugee Services.

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

We take charge through our Student Leadership Team. Our Team Captain, 2 Department Coordinators, 5 Subteam Leaders, 2 FTC Captains & 3 FLL Mentors guide our teams with weekly planning meetings. Student Leaders earn credit in their roles. This year, NS grew our student leadership program to 13

roles, and will grow to 16 next year. These roles encompass outreach, leadership and growing FIRST locally with our BFFs, enabling students to invest further in the FIRST experience while earning credits.

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

Mayhem in May is Buffalo's FTC offseason competition, which we run annually at Infotech Niagara's Buffalo Emerging Technology Awards Showcase. We've hosted 15 FTC teams, showcasing FIRST to 1.3K+ STEM entrepreneurs looking to sponsor STEM education programs like FIRST. We use this opportunity to demo FIRST to potential sponsors, upping the voltage each year with more teams. This year, a connection from Mayhem in May became a sponsor contributing to the start of 2023 New Veteran FRC424.

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

After the retirement of the previous Affiliate Partner in 2021, FLL teams in the region were unable to attend in-person events and compete together. This year, we became the new Finger Lakes FLL Affiliate Partner, hosting and running the Regional FLL Kickoff, Buffalo FLL Qualifier and the inaugural Regional FLL Championship at NS, while supporting 190 FLL teams across the region. As Affiliate Partner, we enable all FLL teams in the Finger Lakes region to return to in-person competition.

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

This year, we started FRC424 Rust Belt Robotics, a community team open to all students in Buffalo. A connection from Mayhem in May led to a demo at a STEM start-up resulting in sponsorship for FRC424. Recognizing that all existing Buffalo FRC teams are based out of schools, FRC424 is independent and open to students of all backgrounds. We support FRC424's mission to make FIRST accessible for everyone by donating components and connecting them with mentors, demo opportunities and sponsors.

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.

The most personal of our 123 service events is EDGE, our annual charity video game tournament which supports the Juvenile Diabetes Research Foundation. This cause is close to our team because multiple students, mentors and alumni are Type 1 Diabetics. We work with our school's video game club to make each EDGE better than the last. Starting as a button sale, EDGE evolves with each class, growing into 4 tournaments and 3 electronics raffles, expanding our impact and raising \$2.5K in 6 years.

Essay

A Spark Felt Across the World

FRC4930 Electric Mayhem is a power grid, channeling electricity to empower FIRST in Western New York (WNY). Committed to building the next powerhouse FIRST region, we charge forward with our FIRST family, generating community interest in STEM and changing the world one person at a time. We've electrified Buffalo with STEM inspiration, reaching 786K+ people through 228 events. We are FRC4930 Electric Mayhem, and our mission is to charge up FIRST growth across WNY.

FRC4930 was founded in 2014 by 14 members working out of a closet, inspired to power FIRST in WNY. We've grown into a family of 40 students (45% women/marginalized gender (WMG) & 50% minority) collaborating in a shared space, mentored by 12 teachers, STEM professionals & FIRST alumni.

Nichols School (NS) is our motherboard, housing FRC4930, 2 FTC & 3 FLL teams who all share our "Electric Mayhem" branding. Fused together, we are the Nichols FIRST Alliance. NS provides a shared lab space and \$48K for our Alliance. We earn sports credit for being on FRC4930 and offer 2 FTC teams as classes, attracting new students to FIRST. 82 students (14.2% of NS student body) participate in FIRST. We recruit students by demoing annually at NS Open House and Club Fair. This year, we ran Mayhem in the Morning, a demo highlighting our FIRST programs.

Coming Full Circuit

We take charge through our Student Leadership Team. Our Team Captain, 2 Department Coordinators, 5 Subteam Leaders, 2 FTC Captains & 3 FLL Mentors work to develop skills by guiding our team with weekly planning meetings. These student leaders earn internship credit in their roles. This year, NS grew our student leadership program to 13 roles, and will expand to 16 next year. Together, we overcome obstacles, pass on expertise and empower ourselves and our team to change the world.

We formed Voices In The Lab (VITL), our advocacy group that bolsters diversity, equity and inclusion of underrepresented voices in STEM. VITL brings WMG STEM professionals to speak about inclusion in the workplace. This year, VITL expanded into a NS club for all WMG students, spreading our vital tenets beyond our team.

100% of our alumni have matriculated, 79% are pursuing STEM, 31% are still involved with FIRST and 8 have mentored FIRST teams. Our founding Team Captain was featured in Forbes' 2023 "30 under 30 - Social Impact". Alumna Ava Karet came back to NS to discuss engineering and FIRST scholarships, alum Thomas Kubinieć returned to mentor us, and alum John Tantillo is a founding mentor of FRC424.

Our Joule of a City

We closed the FIRST circuit in WNY when a founding mentor formed the Buffalo FIRST Family (BFF) with the goal to create and sustain new FIRST teams and events in WNY. Our family consists of 5 FRC, 6 FTC & 7 FLL teams who share resources, mentors and opportunities. We've charged up this family by forming the BFF Leadership Board, where our mentors serve as the regional FLL, FTC and FRC Coordinators. We are WNY's battery, running every official FIRST event, including FLL and FTC Kickoffs, the Buffalo FLL Qualifier and the Finger Lakes FLL Championship. We galvanize FIRST in WNY by hosting our BFFs at our Erie County Fair and Mayhem in May demos.

We've transformed the Buffalo FLL Qualifier with a scavenger hunt, costumed characters, and mini Maker Faire where FLL students showcase LEGO projects. We host FRC demos from our BFFs and run an FLL graduation to jumpstart further enrollment in FIRST. We set our graduates up for success by recognizing them and providing resources to join or start local FRC/FTC teams. Since 2017, we've run 5 qualifiers and 2 virtual championships. This year, we stepped up to become the Finger Lakes FLL Affiliate Partner, hosting and running the Regional FLL Kickoff, Buffalo FLL Qualifier and the inaugural Regional FLL Championship at NS, while supporting 190 FLL teams across the region.

On our way to green-lighting a Buffalo FRC Kickoff, we run and host an unofficial Kickoff, called UnKickoff. We annually host our BFFs at UnKickoff, where we run conferences, a human scavenger hunt and a live game simulation. We offer a surrogate Kit-of-Parts pickup to save our BFFs the hour-long trip. In 2023, every FRC team in Buffalo attended, and in the last 5 years we have hosted 8 teams.

Jumpstarting FIRST

We've started 77% of FIRST teams in Buffalo (100% of FRC, 60% of FTC & 80% of FLL), inducting them into FIRST and the BFF. This year, we started FRC424 Rust Belt Robotics, a community team open to all students in Buffalo, with a demo at a STEM start-up. Recognizing that all existing Buffalo FRC teams are based out of schools, we support FRC424's mission to make FIRST accessible to all students by donating components and connecting them with mentors, demo opportunities and sponsors.

Mock Kickoff is an annual event where we simulate the FRC Kickoff experience with new and prospective teams. We begin with a past game animation and rule analysis, then end with game strategy and a live game simulation. We started FRC5590 Alumiboti & FRC6870 BEAM Lightning through this event.

We have assisted 255 FIRST teams (104 FRC, 34 FTC & 116 FLL) from 4 continents. At every competition we deploy "Shock Squads" to help multiple teams in parallel by offering resources, tools and assistance. At FLR 2022, we shocked 1 in 5 teams, including helping to build a climber for a rookie team!

Spreading the Electric Feeling

Building a conduit to spread FIRST in our community, this year, we ran demos at the Strong National Museum of Play, NS Community Day, Buffalo Maker Faire and more. We share these opportunities with our BFFs by hosting them at demos. We've run 105 demos and hosted our BFFs 37 times. This year, we demoed at Explore & More Children's Museum and the Buffalo Museum of Science during Engineering Week, with an open invitation to return. This year in our lab, we advocated STEM to Sen. Sean Ryan and demoed to Channel 4 News about our trip to Champs.

We demoed to NS Class of 1961, earning a \$6M donation that will result in a facility built on NS campus to house full sized fields for every FIRST program and workspace for every BFF team in WNY. We've met with architects to finalize designs ahead of our projected 2026 opening. Our Alumni Magazine featured this demo, reaching readers internationally. NS promoted a teacher to full time FIRST Program Director to oversee FIRST growth at NS and across WNY.

We annually demo at the Erie County Fair, NY's largest fair, for 12 days, hosting BFF demos. Together,

we showcase every FIRST program using full field demos, reaching 378K people, including 6 features on the news.

Mayhem in May is Buffalo's FTC offseason competition, run annually at Infotech Niagara's Buffalo Emerging Technology Awards Showcase. We've hosted 15 FTC teams, displaying FIRST's amplitude to 1.3K+ STEM entrepreneurs looking to support STEM education. We use this opportunity to demo FIRST to potential sponsors, upping the voltage each year with more teams.

At EXPO, we use STEAM energy to spark inspiration in our peers by showcasing non-FIRST engineering projects. We've hosted 35 teams at 19 EXPOs, embracing STEAM by showing how skills from FIRST can be used artistically for unique projects. Howard, our fish-driven robot, is our most famous EXPO project and was featured at our Data Science Conference this year. Our popular pendulum spirograph allows kids to walk away with a unique piece of art they made and a future passion for STEAM.

Conducting Positive Impact

We ground ourselves in our community with 123 service events. We've done everything, from sorting clothes for families in need, to volunteering at a charity hockey tournament. We work extensively with refugees, running STEM activities at West Hertel Academy and tutoring sessions at West Side Community Center, transforming STEM enthusiasm into opportunity. We ran a drive for FeedMore WNY, collecting 802 lbs of food. This year, a sponsor matched our donation to Ukraine from a button and sunflower seed fundraiser.

We annually run EDGE, our charity video game tournament for the Juvenile Diabetes Research Foundation, a cause close to our team as multiple members have Type 1. With the help of the NS Gaming club, EDGE has evolved from a simple button sale to a video game tournament and technology raffle, raising \$2.5K over 6 years.

Major Drive is our annual inter-FIRST charity drive where we work with our school, local and FIRST communities to combat an obstacle our city faces. We come together to support a cause we're passionate about. Our first Major Drive supported Buffalo's refugee population. During COVID-19, we created 1K+ masks and face shields for frontliners, made care baskets for nurses and assembled at-home Science Kits for kids engaged in remote learning. This year, following a racially motivated attack at the Tops Supermarket in Buffalo's East Side, we sought to support that part of our community. We're running a book making activity for East Side students to make reading exciting. This year, we ran a food drive to help mitigate the food desert in Buffalo's East Side, reaching 2.6K people. We started and continue to assist FRC424, making FIRST accessible to East Side students. Major Drive empowers us to change the world, starting in our own backyard.

The E.N.D. (Energy Never Dies)

FRC4930 Electric Mayhem's mission has been realized, and our power grid of STEM enthusiasm and FIRST growth is surging. From expanding STEM inclusion via VITL, to fostering FIRST on Buffalo's East Side by starting FRC424, to becoming the Finger Lakes Region FLL Affiliate Partner, our current is surging and growing year over year. Sparks fly with all of our annual events and we continue to electrify our community, our family and ourselves in Western New York, spreading FIRST and STEM wherever we

go. FRC4930 Electric Mayhem is charging up an #ElectricalSpectacle, and we can't wait to see what our peak voltage will be!;

