

FIRST Impact Award - Team 3130

2023 - Team 3130
Team Number
3130
Team Nickname
The ERRORs
Team Location
Woodbury, MN - 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.
With the leadership and STEM skills gained from FIRST, our students have been accepted to prestigious colleges such as Stanford, M.I.T., and Berkeley. No matter where they go, our alumni excel in their respective fields, ranging from mechanical engineering to finance and marketing. Their work in robotics doesn't end with graduation, either: two alumni now help mentor our team and another started his own Robot in 3 Days Team in Montana and is looking to create an FRC team in the community.
Describe your community along with how your team addresses its unique opportunities and circumstances.
Our school district has 16 elementary schools, 4 middle schools, and 3 high schools, serving nearly 20,000 students. However, we noticed in 2021 that despite our district having around 10 FTC and FRC teams, there was virtually no access to FIRST at the elementary school level and the pandemic had stopped all the activity of all other local FIRST teams. So, we spearheaded outreach and engagement efforts to revitalize our local FIRST community and started 9 new FLL teams.
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?
After COVID, we spent two years re-engaging the youth with FIRST through our community outreach, school visits, FLL program, and summer camps. We're scaling up our initiatives, visiting more schools, expanding our FLL teams and camps, and reaching out to other FRC teams to work together. We measure our success by looking at our local FIRST participation: during COVID, the only students active in FIRST were our 32 team members, but now our community has around 450 FIRST members across 39 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.
With the support of High Tech Kids, we have hosted annual FLL tournaments for the past 2 years. They have noticed our students' exemplary passion and engagement with the kids and asked multiple

students to fill in as FLL judges and to host as an MC. Our team members' impact is obvious with the kids we've taught at our camps. They light up and run over upon seeing our students, excited to show off their innovative FLL bots and share their dreams of joining FRC, just like we once had.

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

In 2021 because of the pandemic, there were zero FLL teams active in our community, so we started our FLL initiative and started 9 new FLL teams. In the past two years, we have raised over \$12,000 to provide 175 students from 26 schools access to a FIRST team. We don't restrict our teams by school boundaries. As a result, our FLL kids can go on to be a part of 8 different FTC teams, demonstrating that our goal isn't to just get kids joining the ERRORS, but any FIRST team in the community.

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?

In 2021, we hosted and ran a coding camp to help 200 Girl Scouts receive their Coding Badges. We're working on making this a regular event that will also include Boy Scouts. We are also in our 2nd year of running an FLL summer camp, expanding to two camp sessions to teach 60 kids how to build and code robots and problem-solve through FLL challenges. Now, we're working with the school district's Community Education program to teach a programming camp for low-income students in our community.

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

Since our founding year in 2009, we opened our shop and classrooms to share with Team 2175, The Fighting Calculators, who didn't have facilities of their own. Now, we frequently collaborate as shop neighbors. Two years ago, we began hosting FLL tournaments with High Tech Kids, who have since asked us to be the perennial host of FLL tournaments in our community because of our success. This year, the Minnesota School Boards Association invited us to their conference to advocate for FIRST.

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

After COVID, our team helped restart our school's GSA, made a kiosk that provides LGBTQIA+ representation and resources, and created sensitivity seminars for teachers and coaches. At events, we don rainbow lanyards to show everyone we're firm allies to the LGBTQIA+ community. Our efforts were recognized with the Medtronic Inclusion, Diversity, and Equity Award. This year, we ran a Diversity in STEM night to help underprivileged and minority students overcome barriers in the STEM field.

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

Every year, captains and leads pass down guidebooks that document instructions, past experiences and lessons, and future plans, accumulating generations of knowledge. Every 3 years, our mentors and captains sit down to make a new 3-year plan of operations, ensuring that with new leadership we still stay grounded in our values and vision. We build on our existing foundations and initiatives year after year, iterating and building on successful models rather than creating brand-new ones.

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

The Woodbury Community Chamber of Commerce invites us to their annual Community EXPO, an exhibition of over 125 local businesses, so we can advertise our sponsors, connect with businesses, and entertain visitors. We also host an annual job fair, where sponsors and other local employers advertise and promote summer jobs and internships to our school students. By investing in us, we allow our sponsors to invest in their future workforce and give back to their community.

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

In 2020, our team launched a 3-year plan to revitalize FIRST in our community with engaging and exciting outreach for kids. Now that we have engagement, we want to prioritize adding more education to our outreach. This summer we added a coding activity to our FLL outreach table, giving kids instructional coding pamphlets for them to take home. We're also actively creating new curriculums for our summer camps and making more interactive and educational activities for our outreach.

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

Our ever-growing FIRST outreach and programs follow FIRST's mission to inspire our youth to be the next generation of STEM leaders and innovators. Our goal is to give all 20,000 students in our school district and beyond access to a FIRST team from kindergarten to 12th grade. We're establishing and expanding a base infrastructure so that students and coaches can easily access and participate in FIRST, serving as a model for other FIRST teams across the country to follow.

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.

We pride ourselves on being a student-led team. At last year's North Star Regional, there was a serious technical issue with our drivetrain. Baffling all 4 Orange Hats at the regional, another advisor was called over from the nearby 10,000 Lakes Regional and "the chief" was contacted. For hours, experts tried to diagnose the issue side-by-side with our software team without avail. Eventually, our software students resolved the issue alone, a feat that stumped a team of adults.

Essay

2023 has been a year of reflection and growth for the ERRORS. After 14 years of ambitious initiatives, goals, and success, our team finally took a moment to reflect on ourselves and our values. We first

looked inward on our team in order to best reach outward to our school, local, and FIRST community.

LOOKING INWARD:

This year, our team has a record high of 70 members, doubling our size since pre-pandemic levels, an unexpected achievement after such a long period of isolation. Of our members, we have 11 freshmen, 27 sophomores, 27 juniors, and 5 seniors, split with an equal number of rookies and veterans.

As a student-led team, our students are at the forefront of all operations of our three subteams. From coding and building the robot in Build, to writing grants and visiting businesses in Business, to reaching out to the community in Impact, our large size gives team members plenty of opportunities to learn and lead others. However, our size also makes it daunting to get to know everyone and get involved. That's why during the pre-season, we provide weekly mentoring and training for rookies and veterans alike, promoting inclusion and strengthening our teamwork and solidarity. Thanks to these efforts, our retention rate is nearly 80%, with interest only growing. Still, we plan on holding inclusivity training for our team to teach about the importance of diversity in STEM, ensuring that everyone, no matter their identity or background, feels welcome and safe on the ERRORS.

When reflecting on our team this year, we were inspired by FIRST's decision to rebrand Chairman's to Impact to reevaluate how we market our own impact. We restructured our team to form a new Impact branch, separate from Build and Business to emphasize community outreach as a key focus of the ERRORS. We were intentional in our school recruitment efforts to highlight our new Impact sector, making it clear in our marketing that FIRST Robotics was more than just robots. To this end, we recruited artists, performers, public speakers, and photographers, promoting the holistic FIRST values in both STEM education and community outreach.

REACHING OUTWARD:

Our School In the past three years, the ERRORS have focused on making our school community as inclusive as possible. In 2021, with a \$900 grant from FIRST Upper Midwest and \$3,000 of our funds, we built a book kiosk for our school library and purchased 40 books to provide our LGBTQIA+ student body with more representation and resources. Our school administration noticed our efforts and asked our former Business Captain to be the school's Gender Sexuality Alliance president to re-establish the club after the pandemic.

This year, we continued making our school an inclusive environment for all by utilizing our unique resources and skills as a robotics team. We noticed a lack of diversity and accessibility in our school's STEM classes, with women only making up 14% of our school's advanced engineering classes and Black and Latino students just 10%. But we couldn't tackle this systemic issue alone. Reaching out to eight other school clubs, we ran a Diversity in STEM fair to help our underprivileged and minority students in STEM. The ERRORS and other organizations like Diversity Club, Women in STEM, Black Student Union, Asian American Student Union, and GSA promoted their activities, presented STEM opportunities and resources, and hosted lectures on how to navigate the barriers in STEM.

In the same vein, the ERRORS helped start two new school clubs, Woodworking Club and Coding Club. Our team provided student leaders with the information, resources, and facilities to form these clubs, giving them access to our computer labs and woodshop and reaching out to school administration to help

set them up. By collaborating with other school organizations and providing our resources and skills as a FIRST team, we made STEM education in our school more accessible for all students.

Our Local Community Even at the height of the pandemic, we never stopped our efforts to reach out and help the community. In 2021, we spent over 2,000 hours 3D printing to donate around 3,200 face shields and ear savers to local healthcare workers and teachers. We also continued to actively participate in a food shelf several times a week, volunteering and providing entertainment to the families in need during such trying times.

As soon as it was safe to do so, we swiftly returned to our regular community outreach events. Every summer, we promote our team and the mission of FIRST to hundreds of kids and adults every week at weekly community events like Starlight Cinema and SoWashCo Cares. We also are partners with Woodbury Days, our city's largest annual festival, and lead their STEM exhibition. We invite several other FIRST teams to showcase their robots, attracting the attention of thousands of visitors every day and getting our community excited about robotics. Whether it be by handing out informational fliers, teaching kids how to code an FLL robot on our practice table, signing them up for our FLL program, or directing them to another local FRC team, we spread FIRST to over 50,000 people in our community, racking up over 1500 hours of volunteer work annually.

Our FLL Initiative Despite having 10 local FTC and FRC teams, we were disappointed to discover that there was little access to FIRST at the elementary school level, especially after the pandemic dissolved all local FLL teams. To address this issue, we founded the ERRORS FIRST Lego League initiative in 2021, revitalizing FLL and FIRST during a time when other local FIRST teams went dormant. In these past two years, we have raised over \$12,000, starting 9 new FLL teams across 26 schools in our community. We've provided 175 students with all the materials, support, and guidance they needed to succeed, and over 86% of our FLL kids would not have had access to FIRST without us. Striving to make FIRST as accessible as possible, we don't restrict our teams by school boundaries or district; our kids come from public, private, and charter schools alike to go to 8 different FTC teams. The goal is not to get kids only joining the ERRORS, but to give all kids throughout our community equal access to FIRST.

That's also why we host practice FLL tournaments for 72 teams in the Greater East Metro area. Working with High Tech Kids, our tournaments give teams an opportunity to test their robots, present their team projects, and most importantly, have fun! Our tournaments run smoothly with great success, receiving regular compliments from the participating teams, referees, and judges even months after. Our school district and High Tech Kids are committed to helping us host them annually, and our next tournament will host 96 teams, the biggest FLL tournament in Minnesota besides State. We also host and run an FLL robotics summer camp, teaching kids how to code and build a robot, work together, and problem-solve. Now, we're working with our school district's Community Education program to expand our reach and host two different FLL camps for 60 students and a programming camp for low-income students. For the upcoming season, we're working on creating an FLL Explore program for K-3 students, so that kids in our community can finally have access to FIRST from kindergarten through high school.

Our Greater FIRST Community We have hosted and run our annual FRC practice tournament for 6 years now—the East Metro Cooperative Conference (EMCC). At EMCC, nearly 30 teams from all over the Upper Midwest get together to compete in friendly off-season practice matches. Here, the FIRST values of Gracious Professionalism and Coopertition take center stage as teams have fun competing without the stress and high stakes of regular competitions.

We also had the opportunity to represent all of Minnesotan FIRST Robotics at this year's Minnesota School Boards Association Leadership Conference alongside five other FRC teams. There, we spent two days advocating for increased school funding for FIRST and robotics by talking to school board members who had a direct influence on their districts' budgets.

Now, we're looking towards reaching out to the greater FIRST community further than we ever have before. After the isolation of the pandemic led to the isolation of FIRST teams, we seek to foster a closer FIRST community. To do this, we are creating a centralized line of communication for local FRC teams to share resources and collaborate on outreach initiatives. Rebuilding old connections with the Fighting Calculators, Royal T-Wrecks, and Data Bits and building new relationships with Green Machine, FireBears, and King Tec, our work is nowhere near complete as we look to our future plans.

In 2023, we looked inward at our team in order to effectively reach outward to our school, local, and FIRST community. Everywhere we go, we act on our goals by celebrating diversity, promoting FIRST and our teams, and inspiring the next generation of STEM leaders—one student at a time.;

