

FIRST Impact Award - Team 2830

2023 - Team 2830
Team Number
2830
Team Nickname
Riverside RoboTigers
Team Location
Milwaukee, WI - 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.
While only 47% of Riverside graduates pursue college, 75% of our graduates have gone on to college in the past 3 years. We maintain active partnerships with Rockwell Automation and Milwaukee Habitat for Humanity, connecting students and alumni with internships and full-time positions. These partnerships have connected 10 alumni with internships. In the words of one team alumnus, "2830 ultimately helped me discover one of my career passions."
Describe your community along with how your team addresses its unique opportunities and circumstances.
Milwaukee has consistently been underrepresented in STEM programming with only 4/36 Milwaukee Public School (MPS) high schools having access to an FRC team. To combat this, we created the Milwaukee Robotics Academy (MRA) to expand FIRST programming in the city. MRA works to grow FIRST through its purpose-built facility, growing mentor base, and programming open to any high school student in the city. MRA has reached 200+ students from 30 schools and 32 volunteers in its first 2 years.
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?
In the past 3 years, we have reached over 45,000 people through outreach events. Within Riverside, we ensure every student hears about FIRST by showcasing our robots at pep rallies and streaming matches during the school day. Outside Riverside, we have been on TV to promote MRA and have participated in 15 other events to showcase our team. Our outreach puts an emphasis on inspiration, including events to introduce students to robotics, and our "Launch into STEM" kits.
Please provide specific examples of how your team members act as role models within the FIRST community with emphasis on the past 3 years.
When we face challenges, we overcome them to improve ourselves and our community. When our numbers were low, we put our team in front of every student at the school and tripled the size of our team. When an venue could not be found for one of the state's FLL Challenge sectionals, we stepped up

on short notice to host the event and give an in-person experience to the students. When our 2022 FLL Challenge tournament was canceled, we took the opportunity to create our “Launch Into STEM” kits.

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 FRC 8802 in the 2022 season and continue to mentor the team. Through MRA, we have assisted 9 FRC teams by hosting them at our full-sized FRC field and our pre-season scrimmage. Since the 2015 season, we started and mentored an FLL Challenge team out of a local grade school. Unfortunately, staffing issues with the Boys & Girls Club prevented us from running the team this year. Instead, we focused on growing 8802, helping them to triple in size for the 2023 season.

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?

Over the past two years, we have hosted summer and fall workshops through MRA, reaching 81 students from 30 schools. For most students, this is their first-ever experience with robotics and for many, this is a catalyst to joining FRC 8802. Additionally, our outreach events have introduced younger MPS students to engineering through LEGO Robotics. Finally, our “Launch Into STEM” kits have introduced 30 MPS students to STEM and given them information to get involved in FIRST.

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 partnership with Rockwell Automation is critical. They have provided 9 mentors and generous funding. In return, we have supported 4 of their community events the past 3 years, working together to inspire future STEM professionals. In 2022, we invited 2 MPS school board members to attend the Wisconsin Regional. At the regional, we advocated to them about the value of FIRST and MRA. This led to a partnership with MPS’ North Division High School, leading to 30 students attending MRA events.

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

Working in a district where 80% of students are economically disadvantaged creates unique challenges and opportunities for our team. This means that transportation is a significant barrier to participation. To overcome this, we invest \$1000 annually in bus tickets to get students to and from meetings. Additionally, MRA has invested in a shuttle, enabling FRC 8802 to triple in size. These investments are key to making sure our teams are an accurate representation of the community we serve.

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

We use our FLL Challenge team and events, such as Manufacturing Day and Engineer’s Week to maintain a pipeline of students to our team. To ensure our financial future, we participate in sponsor events and leverage our social media and outreach events to engage potential sponsors. To grow and sustain MRA, we have led a city-wide campaign to attract students and mentors. This has included events such as the Riverwest 24 Bike Race and Doors Open Milwaukee, as well as a social media campaign.

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

To retain and recruit sponsors for 2830 and MRA, we have participated in and hosted a variety of events aimed at current and potential funders. Our reach on social media has allowed us to attract funders, including our newest sponsor, the Wisconsin Army National Guard. The largest fundraising operation our team has undertaken has been to launch and sustain MRA. By applying to grants and leveraging our existing partnership with Rockwell Automation, we have raised over \$500,000 for MRA.

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

While we have some very dedicated sponsors, our team would benefit from a more diverse sponsor base. To address this, we created a list of area companies related to engineering and are working to recruit them as sponsors. With more sponsors comes more potential internship and employment connections for students. While our student base does a good job of representing our community, our mentor base can improve. To improve this, we are engaging MPS alumni to better represent our community.

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

Our team's mission is to inspire students across the City of Milwaukee to pursue STEM careers. Our crowning achievement has been the creation of MRA. In its 2 year history, MRA has had over 200 students from 30 schools participate in its programming. Through these efforts, we have provided access to high quality STEM programming to every high school student in Milwaukee. Within our team, we have demonstrated success by having students pursue college, internships, and careers in STEM fields.

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.

Operating from an MPS High School, our team faces a unique set of transportation challenges. Because most of our students do not have transportation and live in all corners of a 600,000 person city, we need to structure our team in a unique way. Our meetings begin right after school, which, while it limits who can mentor our team, enables more students to participate.

Essay

Our Mission "I'm here because people tell me black people aren't supposed to be engineers and scientists." These are the words of a student we introduced to engineering through the Milwaukee

Robotics Academy.

Our mission is to show this student and every student in Milwaukee - Black, Hispanic, White, Asian, male and female, rich and poor - all of them can be engineers and scientists.

We do this through tireless outreach, reaching over 45,000 people in the last 3 years. Through introducing over 200 young students across Milwaukee to engineering with LEGO robotics and our "Launch into STEM" kits. Through the Milwaukee Robotics Academy, introducing over 200 Milwaukee high schoolers to engineering in the last 2 years.

We do this by listening to our community, investing in their needs, and structuring programs around those needs. Through all of this, we actively work to break the barriers of inequality across the City of Milwaukee & beyond.

In our School Our team was severely impacted by COVID. For the 2021 season, we were limited to virtual meetings. In the 2022 season, COVID concerns on crowded city buses kept many from joining. After the pandemic, only 3 veteran students returned for our 2022 season.

Going into the 2023 season, we had our work cut out for us.

Our goal was to reach every student at Riverside. We started with two pep rallies where we reached 1500 students & staff. Wanting to do more, we worked across all mediums in our school to ensure every student learned about FRC.

We participated in our school's 8th grade tours, reaching 100 prospective students & families.

We tabled during school lunches, reaching 1,500 students.

In 2022, our competitions were broadcast throughout the school, reaching 1,300 students.

We participated in our school's Freshman Fun Night, reaching 100 students.

Our recruiting efforts were successful, allowing our team to more than double in size from 2022.

Our team's impact does not stop after graduation. Through strong partnerships with Rockwell Automation & Habitat for Humanity, we directly connected 10 students with internships. For some of these students, these became full-time careers.

Supporting the FIRST Community In 2021, we ran and hosted our 4th FLL Challenge qualifier, including 7 teams, reaching 105 students & mentors.

In 2021, we stepped up to run & host a 2nd FLL Challenge event at the Milwaukee Robotics Academy. That season, the program experienced a sudden lack of venue for a sectional tournament. Only 2 weeks before the season, one of the tournaments was switched to a virtual competition. After our experience running a virtual team during the pandemic, we had to step in to host for the students who otherwise would have lost precious opportunities. This qualifier was attended by 24 teams (360 students & mentors). Without us stepping up for this event, it could not have been run in-person.

When staffing issues with the Boys & Girls Club prevented us from running an FLL Challenge team this season, we shifted our energy to working with FRC 8802, helping them to triple in size from last season.

When Wisconsin's low FLL registrations led to the cancellation of our scheduled 2022 FLL Challenge qualifier, we used this opportunity to create our "Launch into STEM" kits. These kits provide young students in our community with an introduction to engineering using an interactive STEM project, as well as information to take the next step and get involved in FIRST. We will distribute these kits to students from 4 Milwaukee schools at an upcoming event.

Making an Impact in our Community While our mission is working with students in Milwaukee, it's impossible to run a FIRST program without community partners, mentors & sponsors. To that end, we attend events to advocate for FIRST robotics & Milwaukee students.

In May 2021, we attended the United Performing Arts Fund dinner at Rockwell Automation where we showcased FIRST to 589 people.

In October 2022, we participated in Manufacturing Day, where we introduced 200 Milwaukee middle schoolers from 14 schools to engineering through LEGO robotics.

In November 2022, we showcased FIRST at Rockwell Automation's flagship event, Automation Fair with a global audience of 13,000 people. The event was attended by FIRST CEO, Chris Moore, with whom we discussed the financial barriers unique to urban teams. In addition to the people at the event, 10,000 people viewed Rockwell Automation's Instagram post which showcased our FIRST demonstration.

In December 2022, we went on CBS 58 news to promote FIRST and the Milwaukee Robotics Academy's RoboFest outreach event. This broadcast reached 18,000 people across the Greater Milwaukee area.

In February 2022, we attended the State Advocacy Conference. We advocated to 3 representatives about increasing the Robotics League Participation grant. Last year, \$500,000 was allocated, but \$675,000 in requests were made, resulting in teams receiving only 80% of their requests. We persuaded 3 representatives to support an increase in funding to \$750,000.

In February 2023, we will participate in Rockwell Automation's Engineer's Week. Here, we will teach 30 middle school students from 4 Milwaukee schools, introducing them to engineering through LEGO robotics. The Milwaukee Robotics Academy We are proud to be from Milwaukee. Among other accomplishments, it is the birthplace of companies like Rockwell Automation, Harley-Davidson and Miller Brewing. However, our home has a massive blind spot: it is the most segregated metro in the US. According to the Robert Wood Johnson Foundation: "The effects of residential segregation are often stark: blacks and Hispanics who live in highly segregated and isolated neighborhoods have lower housing quality, higher concentrations of poverty, and less access to good jobs and education."

As a team rooted in Milwaukee, we are familiar with these problems. Two years ago, we decided to expand outside our school to address racial disparities in education and created the Milwaukee Robotics Academy (MRA). Our commitment to ED&I is bigger than just our team. Although one of the most diverse FIRST teams in Wisconsin, we want to make a larger impact.

The goal of MRA is to inspire Milwaukee students to become leaders in STEM. MRA offers free after-school mentorship & education to all Milwaukee middle & high school students year-round. Its flagship program is the FRC team that we started & currently mentor, FRC 8802. MRA also created a brand new robotics facility, eliminating a barrier to team growth in the city. The MRA facility provides everything needed for a successful team, including equipment, a state of the art machine shop, a full-sized FRC field, mentors & transportation.

MRA has hosted 2 years of summer & fall workshops. The success of these workshops led us to start FRC 8802, Milwaukee United. Through MRA's workshops, FRC 8802 & other events, MRA has engaged over 200 students from 30 Milwaukee schools.

MRA serves as a resource to area teams. During the 2022 season, we ran a scrimmage at MRA, attended by 8 FRC teams. We will host another this season with 8 teams. We also offer the facility to any team throughout the season.

MRA goes beyond engineering and math, we inspire. A prime example is our partnership with one of our local high schools.

In December 2022, we hosted a field trip at MRA for 30 students from North Division High School (NDHS). These students explored 3D printing, computer programming and mechanism design through interactive activities.

With a 41% graduation rate, 52% of students having disabilities & 88% of students coming from low-income families, NDHS is proof that inequality persists in Milwaukee. NDHS students do not have access to the types of programs we have at Riverside or other Milwaukee schools. This opportunity led to 3 students from NDHS joining FRC 8802.

Next, we hosted RoboFest, a public event introducing 17 students to FIRST, 14 of whom would go on to participate on FRC 8802. This event - along with the many outreach activities our team has completed - confirmed what we knew all along: Milwaukee students want STEM.

Everything we do is informed by listening to our students & the community of parents & teachers we support. The loudest message we hear is that transportation is a problem. To make FIRST accessible to students, regardless of economic status, we invest \$1000 annually on bus tickets for 2830 & \$600 for MRA. MRA also leases a shuttle to bring students from their local schools to its facility. It is critical that our students can come to MRA safely & consistently.

Our Impact Why is our impact critical? Because of that student who was told people who looked like them cannot be engineers or scientists. For the past 15 years, we have watched young people across the city believe this.

We took a risk forming MRA, hoping students and parents would see what we saw. Now we have been able to grow programs to show that student, and many like them, that all of them can be the engineers and innovators of tomorrow.

As a team based in a community underrepresented in FIRST and STEM, we want to make engineers and innovators from MRA and 2830. ;

