

FIRST Impact Award - Team 548

2024 - Team 548
Team Number
548
Team Nickname
Robostangs
Team Location
Northville, 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.
Over the past 3 years, 100% of Robostangs graduated high school and 78% of alumni majored in a STEAM field. 3 alumni are active mentors, and 36 have been consultants on the team. Our alumni share their newly learned skills post-graduation at our annual Alumni Night, spreading their knowledge on applying FIRST values in their careers. Robostangs give back to FIRST by volunteering ~2400 hours for FIRST events over the past 3 years.
Describe your community along with how your team addresses its unique opportunities and circumstances.
The Robostangs have a strong presence in our school district and larger Metro-Detroit community events. Last year, we assisted our district's Activities Night, STEAM Fair, and STEM Carnival to educate over 3,000 students! We run and host annual off-season and competition showcases for all community members to learn more about the Robostangs and FIRST. Finally, our opportunity of having members with roots in India allowed us to launch Project India starting and assisting 2 teams in 2 cities.
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?
Our district's K-8 FIRST programs are an example of our team spreading the FIRST message. We ensure our programs are sustainable by running a Coaches Workshop for FLL and FTC coaches, preparing them to run their teams this season. We grew our FLL Explore event, Robostangs Rumble, attracting 93 teams in the last 3 years, making it the largest in the Metro-Detroit Area. Our program's results are measured in conversions from Robocamp to our Pipeline (~30%) and Pipeline teams to our FRC team (~52%).
Please provide specific examples of how your team members act as role models within the FIRST community with emphasis on the past 3 years.
Robostangs are innovative in the field of STEAM and exhibit the FIRST value of impact. 2022 Dean's List nominee Saket K. led an Artificial Intelligence workshop, inviting an MIT Professor to educate 110

students from 11 FRC teams about the applications of AI in competition strategy. Additionally, the Robostangs are one of the pioneers of using technology as a method of scouting, with our Robostangs Scouting App garnering over 100 international downloads.

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

In the last 3 years, we started 3 FLL Discover, 42 FLL Explore, 10 FLL Challenge, and 17 FTC teams. This year, we started 17 FLL Explore, 4 FLL Challenge, and 6 FTC teams; mentored 17 FLL Explore and 2 FTC teams; and assisted 4 FLL Challenge and 4 FTC teams. Over the last 3 years, 520 students attended our FLL Explore Expo. We work to start FIRST teams internationally and started and assisted 2 all-girls FTC teams over the past 2 years through Project India.

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?

Our initiatives to inspire youth in STEM begin with our signature summer event since 2010: Robocamp. Over the past 3 years, we've had 103 students total at our 2-day beginner (54) and 3-day advanced camp (49). We help Girl Scouts earn STEM badges through our partnerships. We ran and hosted 8 workshops with Girl Scouts Heart of Michigan and assisted 4 workshops with Google, reaching ~390 girls total. From being FIRST mentors to Forbes 30 under 30, Robostangs go on to be global STEM leaders.

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

After partnering with Special Olympics of Michigan and FRC 503, we facilitated the first Unified Robotics program in our state where students with intellectual disabilities explore STEM with FRC peers to build sumo bots. We developed a comprehensive curriculum and fostered partnerships with other schools, starting Unified teams with FRC teams 503, 302, 3536, 7174, and 8352. We ran and hosted the past 3 Unified Robotics competitions, where we have reached 176 athletes and peers from 24 teams.

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

Our team recognizes the challenges women face to pursue their passions in the sciences. Our priority is pushing initiatives to make STEAM a more equitable space in our community. Through our Girl Scouts program, we have educated 388 future female leaders. By attending an annual All Girls Competition, our team introduces the build processes to girls on our team. Within our team, we are proud to have a leadership of 40% females and 75% People of Color.

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

One of the issues we faced post-COVID was the knowledge gap among our team members. So, we introduced our improved new member training plan, which includes increased cross-functional training, more comprehensive machine and tool training by building new member bots, and instilling a stronger balance between business and building knowledge in our team's members. Our team's emphasis on the sustainability of our programs earned us the District Sustainability Award in 2023.

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

To retain sponsors, we release a biannual newsletter that informs them about team initiatives and progress. To recruit new sponsors, our team reached out to local businesses and set up conversations with managers on how they can contribute to our team. By attending the Student Technology Showcase in Lansing last winter, we expanded our network of potential sponsors. Finally, we engage our sponsors like SIEMENS by inviting them to speak at our meetings.

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

We are challenged with the amount of people we can accommodate on the team. However, our team is actively working toward inclusivity with a goal to establish a new member rookie team in the coming seasons. This initiative aims to provide new members with structured opportunities to gain experience. The new member rookie team will focus on skill development and tailored training to gradually integrate them into more advanced projects and responsibilities.

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, motivate, and support students in Northville Public Schools to join FIRST Robotics teams and develop relevant STEM and business skills." As we build a thriving pipeline at every stage, we refine our programs by providing students with experienced high school mentors to guide them. This year, we ran and hosted our first off-season FLL Challenge Competition and look forward to running and hosting our first official FLL Challenge Competition next season.

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.

Last year, our Robostangs build captain and build mentor represented our team and advocated for a \$134,000,000 bond to enhance STEAM resources district wide. With its passing, each school will receive a standalone STEAM center. We plan to expand our shop to accommodate a full-size FRC field, fostering collaboration among local FRC teams. This opportunity is unique as it elevates our impact in FIRST robotics and community engagement in STEAM.

Judge Feedback

Who/When

Feedback

What is one topic we covered today that you would appreciate more clarification if we redelivered this presentation?

An area the team has an opportunity to improve.

Something that really impressed the judges.

Essay

PLAYLIST ONE: ROBOSTANGS RHYTHMS

Curated since 2001, the Robostangs have added tracks to our playlist that spark a love and passion for

STEAM for students across the globe. With a team of 87 students, we aspire to vocalize the messages of FIRST throughout the community through various initiatives at the local, national, and international level.

Our journey starts with instilling the values of unity, community, leadership, and inclusion within every member joining our team. The Robostangs continue to amplify this message as our students harmonize with one another and build our technical expertise through 5 business and 5 build subgroups.

Before beginning to spread our love for STEAM to others, we first equip ourselves with personal experience with FIRST programs. On our team, we are proud to have volunteered 4656 hours toward outreach in our programs and 2340 hours toward FIRST competitions and events over the past 3 years. Additionally, our build members have spent over 17,000 hours in the shop over the past 3 years and work to build their expertise through comprehensive training sessions. For example, our new members are challenged to push themselves by creating a robot to compete at Week 0 and off-season competitions. This stimulates an excitement for the upcoming FRC build season, tuning the technical skills of operating the necessary tools and machinery to be successful in building our competitive bot. This year, our new members are building a competitive bot to play CRESCENDO.

PLAYLIST TWO: FIRST FUSION

FIRST inspired our team to create the pipeline program, dedicated to providing all people with the opportunity to experience the loud impact FIRST has brought us. We call this our pipeline because it creates a steady stream of students who are excited to be a part of the FIRST community and culture. Every year, we run and host an annual recruitment event, which we call our Pipeline Roundup. At this event, we hold informational sessions for parents and students to learn about each level of FIRST. The goal of this program is to engage young students with FIRST to make a difference.

To spread the loud impact of FIRST across our community, we offer every level of FIRST program within our district. During the last 3 years, The Robostangs have started 42 FLL Explore and 10 FLL Challenge teams. In 2023, we started 8 FTC teams. This season, we facilitated 32 FIRST teams: 17 Jr. FLL, 7 FLL and 8 FTC.

This starts with our FLL Discover program, where young children in Northville and our surrounding communities explore the wonders of STEAM and unlock their creativity before they begin school. We started 3 teams and have 18 students participating in this program, which is double the students from last year. The Robostangs run and host weekly FLL Explore meetings, a 12-week program with 87 students and 17 teams. The culmination of the program is our annual Robostangs Rumble, a showcase event where 160 students from 33 teams across Michigan come to present their knowledge to judges and families. FIRST in Michigan coordinator Cindy Nader, upon visiting our event, had only positive remarks to make as she observed our team's planning processes and dedication to hosting Metro-Detroit's largest expo. For upper-elementary and middle school students, we engage youth through FLL Challenge and FTC. We started 4 FLL Challenge teams, 3 of which were rookie teams. Team 23554, the Blue Googles qualified for the world competition under our mentorship. Additionally, we assisted their development by renting EV3 kits and donating game fields. In FTC, the Robostangs started 6 teams and mentored 2. In addition to providing them a field to practice with, our experienced Robostangs oversaw their design and CAD, mechanical, and software development. For both our FLL Challenge and FTC teams, we ran a coaches workshop to ensure that students received the proper mentorship from adults while launching their projects. The impact of our mentorship is reflected in the performance of FTC

16671, the Broncobots, who were the captains of their winning alliance at the state competition and are currently preparing for the world competition.

PLAYLIST THREE: LOCAL HITS

Within our community, we are advocates for FIRST and our programs at numerous district-partnered events. Last year, we assisted the Northville STEAM Fair and Northville Arts and Acts Festival. Additionally, we partnered with Michigan 501(c)(3) STEM Without Boundaries to co-host a STEM Carnival, an event that attracted over 1000 attendees. We annually run and host an Off-season Showcase to display our off-season robot and outreach programs and a Competition Showcase to display our robot and scouting app. In total, we reach over 3000 students each year through these events.

We represent FIRST and our district at the Student Technology Showcase. We have attended 2 showcases over the past 3 years at the Michigan State Capitol in Lansing, meeting state legislators and industry leaders to advocate for STEAM education and showcase our innovations. Additionally, we were excited to provide assistance to smaller up and coming FIRST teams, like FRC 8774, to whom we provided advice on how to kickstart their outreach and pipeline initiatives.

Globally, Robostangs alumni make an impact inside and outside of FIRST. Within the last 3 years, 78% of Robostangs alumni furthered their education in diverse STEAM undergraduate programs. Robostang alumni are sought out for internships and recruited for jobs by renowned companies like Microsoft, Google, and Tesla.

Within FIRST in Michigan, we are dedicated to fostering a lasting impact through science and technology, igniting the passion for STEAM among future leaders. Our team is proudly one of the pioneers of the IOS and Android Scouting app, an upgrade from paper-based scouting. This innovative tool empowers us to capture real-time data, enabling more informed decision-making during competitions. Tailored to the nuances of each season's game, our scouting app is not only beneficial to us, but has been used by other FRC teams from all over the world with over 150 downloads.

The Robostangs also actively engage in educational outreach, hosting various workshops to inspire problem-solving and innovation. At the high school level, we offer workshops covering design process, CAD, and artificial intelligence, enriching both our members and newcomers from other FRC teams.

To improve the accessibility to STEAM resources in our district, a Robostangs student and mentor served on the planning committee for a \$134 million district bond and secured the opening of STEAM centers at every school across the district. Their hard work paid off with the bond passing and plans to construct a full sized FRC field in our shop, creating a collaborative space for other FRC teams.

After the COVID pandemic, we relaunched Project India, an initiative we started in partnership with foster homes in 2017 to introduce STEM in under-resourced areas. In the past 2 years, we have started and assisted 2 FTC teams in Pune and Goa. Through all these endeavors, the Robostangs continue to build the next generation of leaders in science and technology.

PLAYLIST FOUR: INCLUSIVE ENSEMBLE

In the dynamic world of STEAM, the Robostangs hope to stand as a beacon of inclusivity. We are using our unique opportunity as FIRST members to forge strategic partnerships that will reshape the landscape of STEAM education here in Michigan. We hope to pave the way for a future where every individual, regardless of background or ability, can thrive in the STEAM workspace.

To play our part in bridging the accessibility gap for women in STEAM, the Robostangs started workshops with Girl Scouts. Our partnership with Google has allowed us to assist 2 annual events in Ann Arbor, educating over 160 Girl Scouts in Michigan. Additionally, with Girl Scouts Heart of Michigan, we have run and hosted 10 Girl Scouts workshops over the past 3 years, reaching 228 Girl Scouts. These girls leave with more than just a badge. After learning to build their own LEGO robots, they leave with a sparked interest in FIRST programs and STEAM. This year, we are also expanding our program with our new partnership with Boy Scouts, providing boys an opportunity to engage with STEAM particularly in areas where school educational avenues may be lacking.

The Robostangs facilitated the first Unified robotics program in partnership with the Special Olympics of Michigan and FRC 503 to provide over 90 students with intellectual disabilities (athletes) an opportunity to interact with STEAM. The athletes worked together weekly with Robostangs (peers), guiding them in developing sumo bots and EV3 code. To increase our reach and make our program sustainable, our team has expanded our Unified programs to FRC teams 302, 503, 3536, 7174, and 8352. For the last 3 years, we have run and hosted the annual Unified Robotics Competition. We have welcomed over 176 peers and athletes from 24 teams to our competition, expanding from 50 students in 2020. Students competed with their creations and partook in activities and games, creating valuable memories for Robostangs and students with intellectual disabilities alike. After working with the athletic programs in our district, Northville High School was awarded the Unified Champion School Award in 2022, and we now receive funding for running Unified programs. We are determined to expand Unified Robotics in Michigan and globally with the platform FIRST has provided us, continuing to give opportunities to those who may not receive them otherwise.

Using the resources and initiatives we developed, the Robostangs are ready to not only expand the reach of our impact but also provide the whole world with the opportunity to create their own playlists and inspire tomorrow's brightest minds. ;

