

Chairman's Award - Team 3061

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2021 - Team 3061

Team Number

3061

Team Nickname

Huskie Robotics

Team Location

Naperville, Illinois - USA

Describe the impact of the *FIRST* 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 *FIRST* programs as mentors/sponsors.

We experience life in a mini-engineering company, gaining technical & life skills in 11 sub teams, ranging from media to machining. Through 20+ leadership positions, from leading a robot discipline to managing the workflow of a robot feature, members learn to take on responsibility and manage people effectively. As a result, 100% of recent Huskies graduate high school, with the vast majority choosing to pursue STEAM majors, many interning at companies such as Amazon, SpaceX, & CAT.

Describe your community along with how your team addresses its unique opportunities and circumstances.

We welcome all local high school students on our team. As a district team, it is our mission to spread STEAM in the district by starting and mentoring robotics teams in schools. Schools come to us for STEAM help, inviting us to run software sessions for middle schools and facilitate mini engineering projects for an elementary girls club. We are invited to be in district galas, award banquets, and our district's Building Passion video; we are held up as a representation of inspiration.

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?

Through social media, we've shared rookie FRC resources w/ 2 international teams, streamed an intro to FLL event, and run annual Robotics Showcases for FLL teams, sponsors, & our community. We work to make *FIRST* known to a broad audience, such as through a student-organized feature on one of Chicago's largest news channels, WGN, and introductory videos on our YouTube. We interpret success as positive follow up surveys, strong numbers from documentation forms, as well as smiling faces.

Please provide specific examples of how your team members act as role models within the *FIRST* community with emphasis on the past 3 years.

+Ran mock FLL tourney for 32 district teams & gave them feedback to improve +Created online FRC resources for technical, leadership, & team development +Shared revised plans for 3D printing 8x more PPE w/ *FIRST* teams +Helped 5 teams at competition, from building collection systems to debugging code +Shared FLL coaches clinic materials w/ 3 teams to start their own clinics +Created FLL coach training website & videos = Won Gracious Professionalism award at Midwest Regional 4 of the last 9 yrs

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

-Started: 28 FLL teams in district grade schools with \$30k grant from Amazon, 1 FTC & 1 FRC team by raising over \$29K
-Mentored: 10 FLL teams for 29 collective seasons; 3 FTC teams teaching CAD, design, & strategy -Assisted: 150+ teams annual FLL Coaches Clinics, 3 rookie/second-year FRC teams- 26-hour comprehensive training clinic -Annual workshop potential FLL teams w/ info on registration, budgeting, & logistics -Host annual FLL Double Qualifier 100% student-run for 5 yrs

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?

Through outreach, we work to engage younger minds. Last summer, we ran a 5 day FLL Camp for kids ages 9-14, covering coding, building, and core values and 10 weeks of Engineering Challenges, inspiring kids at home to explore STEAM through mini projects. Such outreach has contributed to drastic growth in both our team and presence of STEAM in our community. In just the past 3 years, we have reached 200,000+ individuals beyond our team and maintained lasting relationships with 20+ organizations.

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 team +Playing with Fusion + Parallax + MPCS + Grayhill = FIRST-approved MXP Expansion Board, the Huskie Board 2.0 +Dupage Children's Museum = 5000+ youth reached through robot demos and running Pop-Up STEAM events both in-person and virtually +Naperville School District 203 = 32 FIRST teams across 13 schools +Engineering World Health = soldered EKG kits to be distributed to low income medical schools around the world +Molex = provided feedback for 1st time Kit of Parts supplier

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

-Sit With Me campaign - we promote underrepresented voices and diverse ideas by sharing stories of influential women on social media -> 150% increase in women on our team -Us + Rich Township School District + Governor State University + National Society of Black Engineers = \$25k grant, starting FRC 8160 in district w/ 75% family poverty & 88% African American students -Partnering w/ FTC 11392 to run a robotics camp = \$4k to start FTC 15285 serving underprivileged students in the south suburbs

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

To retain lessons we've learned from the past year, our team holds annual Keep, Fix, Try workshops, reviewing all team aspects done well, improvements needed, and new ideas to explore. We also run an annual leadership workshop to teach methods such as EDGE, a process of training by explaining, demonstrating, guiding, and enabling. In doing so, we effectively pass down the baton to younger members, enabling them to sustain our team's initiatives and ensure future success.

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

-Mentored Navistar employees in LEGO MINDSTORMS company competition, discussing strategy, design & coding -Put on annual Robotics Showcase for sponsors -Send Thanksgiving email appreciating sponsor support, w/ summary of past season & links to team videos -Asking for specific help from sponsors: send team challenges to Molex -> connecting with experts in areas we need help, such as CAN wiring -Publicize team through frequent social media posts -> recruited Grid Connect through Twitter

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

Our team can have a demanding schedule, with members often dedicating 15+ hours a week to robotics. In a high performing district with great expectations, this schedule can make it hard for members to balance academics, extracurriculars, and self-care. In the virtual setting, we work to support members, implementing weekly game nights to strengthen bonds, encouraging members to take breaks to alleviate stress. We want Huskie Robotics to be not simply an extracurricular but a supportive family.

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

We aim to build a collaborative & innovative environment. Students lead the team and do all the work, from managing subsystem builds to riveting robot parts, able to explore & develop technical skills while gaining leadership experience. We also require members to do 8 hours of outreach, training them in communication & service; many go well beyond 8 hours. Through these efforts, our team has grown from 5 members at our inception to 100+ members working to be future leaders in STEAM.

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 take pride in student initiative. We learn from coaches and mentors in a 6-week leadership workshop series, picking up servant leadership and setting team goals. We evolve our team structure yearly by creating, modifying, and distributing roles to encourage high quality student leadership. We also work to further STEAM skills and community impact, like 3D printing a prosthetic hand for a Florida student after connecting through Tik Tok. For us, innovation and actions come from students.

Essay

13 years ago, Huskie Robotics was 5 pups with passion. Now, we stand as a proud pack of 100+ Huskies striving to become future leaders who inspire hearts and minds through our team culture, dedication to uplifting our community, and devotion to STEAM and our FIRST family.

Adapting to COVID-19

To transition to a virtual environment, we held Zoom meetings for planning and reflection. We also ran socially-distanced outdoor meetings to introduce new members to robotics, which included a scavenger hunt and drive-in video night. For virtual training, we created technical videos. Pairing leisure with learning, we held weekly game nights, boosting team bonds. As a result, we retained our pre-pandemic team size.

Despite limited interactions, providing for our community remained a core goal. Over the summer, we used 3D printers to craft 1300+ face shields & 1000+ ear savers for frontline workers & school staff. We aim to keep youth engaged and learning STEAM through virtual outreach events, recognizing quarantine is demotivating & isolating. Through our popular engineering challenges and FLL Camp, kids participated in remote activities from crafting marshmallow catapults to coding LEGO robots. Our response to COVID-19 allowed us to assist our community safely and effectively.

Unable to do in-person outreach events, students undertook initiative to find other opportunities. Through Tik Tok, a member connected with a person in Florida who wanted a prosthetic hand so he could play the trumpet. The project, completely student-led, taught new members CAD design for real-life use, prototyping and assembling a 3D-printed prosthetic hand. Our outreach has even gone international, such as through soldering EKG kits to be distributed to low-income medical schools around the world.

Infinite Recharge

Our team structure is a key reason for our success as a student-run team, upholding sustainability and leaving legacies. The team is composed of 3 main branches: business, robot, and strategy, each headed by a captain. Each branch is composed of multiple sub-teams, headed by a student lead with strong leadership and technical skills responsible for developing subteam skills. A Team Project Manager holistically communicates across team leads and captains, with a Feature Project Manager assigned to each part of the robot. They work across subteams to ensure each mechanism of our robot is successfully implemented with all members engaged.

We constantly recharge ourselves, push limits, and use previous failures and successes to power our team. For example, the end-of-season "Keep, Fix, Try" (KFT) team-wide discussion allows us to reflect and prepare. After one KFT, students proposed leadership workshops for current and future team leaders. Facilitated by mentors, student leads learn concepts like servant leadership, crucial conversations, risk management, and goal setting. Our team captains then run a full-team leadership workshop based on these topics.

Huskie Robotics is not just a robotics team, but also a family. With mental health as a priority, our team bands together to build resilience through a supportive system of team leisure activities, check-ins with members, and promotion of self-care. Student leads proactively promote balance by sending reminders to prioritize mental well-being over robotics, while also adapting meetings to members' energy levels.

Learning from Huskie Guides

While committed to being student-run, Huskie Robotics recognizes the dedication and impact of our 20 mentors. Being subject-matter experts, they ensure the transmission of institutional knowledge and experience, provide insight on advanced topics, and share project management & marketing strategies.

Bonds with mentors extend beyond their time on our team. We held a special outreach event to visit a former mentor at a senior-living center. The visible growth of our team reflected through core values, technical knowledge, growth, and inclusivity, left him overjoyed and "talking about it for a week!"

Leaving our Paw Prints

Through experiences on the team, alumni have gained admission to prestigious colleges. The vast majority pursue STEM majors, impacting teams in engineering competitions including Solar Car, Formula SAE, and CubeSAT. Thanks to FIRST, alumni are poised to be leaders in their fields and communities. Alumnus' FIRST skills have been recognized through internships and job offers from Amazon, SpaceX, & CAT.

Inspiring Pups

Huskies participate in a variety of outreach every year, from STEAM nights and district science fairs to sponsor-held events. We proudly promote STEAM and FIRST in our community. All members must volunteer at least 8 outreach hours. Many members go beyond the requirement, resulting in 4000+ hours of outreach over the past 3 years!

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Our true measure of impact is sparkling eyes & delighted smiles. Huskies have seen exponential growth in our impact. Across 3 years, we've reached a total of 200,000+ individuals thanks to student initiation and coordination of outreach. Through such events, we also incorporated creativity by turning our intimidating 120-pound robot into a high-five machine.

Increasing Inclusion in STEAM

Huskie Robotics believes in supporting individuals of all backgrounds, experiences, and socioeconomic positions, as this diversity ultimately creates something greater. We find this belief reflected in the Sit With Me campaign by the National Center for Women & Information Technology. Embracing diversity, we made the message our own by asking women in positions of influence to narrate their stories to young girls, shared on social media. Mary Anne Bobosky, a founder of the Naperville Education Foundation and KidsMatter, prompted girls to "follow your dreams and just get in there ☐ You gotta show em you can do it!"

We find dedication to empowerment reflected in a 150% increase in female members over 5 years, dismantling the glass ceiling in STEAM. The growth can also be seen in our leadership, with women as over half our total leads in the last 2 years.

Community Partnerships

Huskie Robotics values all our partnerships. Our relation with a key sponsor, Molex, continues to grow. This season, Molex is a first-time supplier for the Kit Of Parts, for which we gave continuous feedback on the components. Specifying the help we needed was effective in engaging Molex employees, like getting a connections expert to help with CAN wiring.

After doing "a wonderful job with visitors" at a demo at the DuPage Children's Museum, spreading STEAM and FIRST to 1,500+ young minds, we were invited to be the feature of their weekly STEAM events. In the virtual environment, we continued to provide mini STEAM projects for their youth. Our positive influence drives outreach hosts to reach out yearly, resulting in them becoming close outreach partners.

Being a Force for FIRST

As passionate advocates for FIRST, we believe providing inspiration for young minds is key to creating leaders and innovators of tomorrow. We made it our mission to spread STEAM by starting and mentoring robotics teams.

FLL

We partnered with our school district to start 28 new FLL teams among 14 schools with a \$30,000 Amazon grant. To support local FLL teams, we provided mentoring for 11 teams over 28 collective seasons. Since 2016, our student leaders have hosted and run a Double Qualifying FLL Tournament, virtual this year. To share our extensive FLL experience, Huskie Robotics created an annual FLL Coaches Clinics in 2013, assisting 150+ FLL teams.

FTC

Thanks to our initiatives, FTC presence in our city has grown to a powerful force. Through outreach, community FTC team 11392 formed in 2017. Huskie Robotics works closely with 11392, providing mentors, volunteering at competitions, and partnering at outreach events. Supported by Huskies, 11392 started sister FTC team 16457. Raising money through robot camps with FTC 11392, we also started FTC 15285 for underserved students. With our team's guidance, an international award-winning FLL team transitioned into FTC Team 16915. In their rookie year, we gladly shared our den, providing mentorship with CAD and 3D printing.

FRC

We initiated and led a partnership with Rich Township High School District 227 (D227), Governors State University, and National Society of Black Engineers to start an FRC team for underrepresented students of D227. The coalition was awarded a \$25,000 grant from Motorola Solutions, funding FRC Team 8160.

Part of our support for FRC 8160, we ran a FRC summer clinic, sharing a 26-hour holistic overview of FRC with rookie and 2nd year FRC teams. A head coach described the experience as "truly motivational". Thanks to expanding our social media presence, summer clinic resources reached 5 rookie and 2nd year FRC teams worldwide, including the Dominican Republic and Turkey. We continue to virtually support teams, sharing training videos to help develop technical and managerial expertise.

Gracious Professionalism

Demonstrating our team's cooperative culture, we are proud to have won the Gracious Professionalism Award at the Midwest Regional 4 of the last 9 years. Past regionals, 3 software members spent hours teaching LabVIEW to students from FRC 4702, 10 students helped FRC 2725 build a cube collection system, and 3 students helped FRC 7237 get their drivetrain moving. Beyond competition, one of many instances of continued assistance is our mentorship of FRC 7237, going to their space when possible to share information on our team structure, scouting app, and various technical skills.

Huskie Pack

Huskie Robotics completely embraces the FIRST ethos, having made a deep impact in multiple levels of FIRST. After 13 years of passion, hard work, and love for what we do, we are leaping higher than ever before. We stand for diversity,

inclusion, and sustainability. We are coopertition and gracious professionalism, innovators and believers. We are Huskie Robotics.