

## **FIRST Impact Award - Team 8**

<b>2024 - Team 8</b>
<b>Team Number</b>
8
<b>Team Nickname</b>
Paly Robotics
<b>Team Location</b>
Palo Alto, CA - USA
<b>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.</b>
<p>We make a lasting community impact by offering valuable opportunities and experiences to our members. According to a teamwide survey, 100% of members learned something new, 90% of alumni determined their future plans and goals, and 90% of alumni members developed leadership skills. 100% of our alumni seek a higher educational degree and 90% major in STEM fields. Current members volunteered 3,800 hours with the team, resulting in 22 President's Volunteer Service Awards.</p>
<b>Describe your community along with how your team addresses its unique opportunities and circumstances.</b>
<p>In the Silicon Valley, there is tremendous interest in STEAM. However, our high school lacks robotics programs and engineering classes for all students. We firmly believe all students, not just Team 8 members, deserve more opportunities in STEAM. We've taught teachers of visually impaired students how to 3D-print and helped start a CAD club at our high school for 15+ students. We've also worked with our district to share our lab space and start a robotics class at our high school.</p>
<b>Describe the team's methods, with emphasis on the past 3 years, for spreading the <i>FIRST</i> message in ways that are effective, scalable, sustainable, and creative. How does your team measure results?</b>
<p>Our goal is to create initiatives that will outlive our time on the team. We pass the curriculum down through student leaders, who update the curriculum and continue our outreach efforts. For the past 7 years, we've hosted our Paly Robotics Summer Camp for 190+ students annually. Our annual LRSP has taught LEGO Mindstorms to over 110 underrepresented students. This model has allowed adaptability; during lockdown, we hosted 17 free Zoom lessons on STEAM subjects for 150+ middle schoolers.</p>
<b>Please provide specific examples of how your team members act as role models within the <i>FIRST</i> community with emphasis on the past 3 years.</b>
<p>Team 8 hosts workshops on fundraising and an international awards guidance webinar. We've created FLL tournament guides, shared our Business, Diversity, and Sustainability Plans to provide an inclusive model for other teams, and hosted annual inter-team scrimmages to help teams prepare for competition.</p>

Additionally, we have formed global partnerships with the Townley Grammar School in England and Avenues School in Brazil to start FIRST teams internationally.

**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 past three years, Team 8 formed 10 FLL teams and 2 FTC teams and created 14 FLL teams and mentored 5 FTC teams, impacting over 200 students. We hosted parent webinars on FIRST core values and 2 FLL Ask-Me-Anything sessions with Playing at Learning. We published guides on running FLL and FTC teams and tournaments and taught 1 FTC team and 2 FLL teams machining during Open Lab Hours. Our recruitment process teaches essential FRC skills, leading to the formation of 3 FRC teams.

**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 inspire youth leadership through our annual Summer Camp, LRSP, and free Zoom lessons for 1300 students in 3 years, teaching design, programming, entrepreneurship, and animation. These programs have inspired 76% of campers to pursue STEAM. Our Open Lab Hours teach 100+ middle school students robot fabrication. Our FLL and FTC webpages encourage youth to start and join teams. The team also created curriculum for 4 CS/engineering classes and has hosted over 25 demonstrations at local schools.

**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**

Team 8 engages with the community as a part of WRRF and the Tesseract Initiative. We have 15+ sponsors that provide financial aid and mentor expertise. In addition to running LRSP, which provides access to STEAM education for underserved students, we worked with AbilityPath on projects to support students with disabilities. To create a navigation tool for blind travelers, we worked with SF Lighthouse and mobility experts, enabling our tool to place top 3 in the 2021 Global Innovation Awards.

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

We support diversity in STEAM by creating annual Diversity Plans that report teamwide diversity statistics and our efforts to improve representation. Team 8 hosts annual lab tours for 120+ students from the all-girls Townley Grammar School and holds Girls in STEM panels at our school. Our team introduces 80+ students to STEAM from nearby underrepresented communities in our LRSP. To support nontraditional interests in FIRST, Team 8 presents to our school's art and journalism classes.

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

Team 8's student-led structure decreases our reliance on a single mentor and helped us persevere after losing 2 coaches in the past 3 years. During lockdown, our team maintained our outreach by pivoting to virtual formats, and this adaptability will help us continue these programs when necessitated by the pandemic. In our 3-week recruitment, veterans pass down knowledge through mini-lessons. Our design database contains a library of prior members' knowledge for current members to learn from.

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

We reach out to local organizations that share our values of promoting STEAM education to expand our sponsor community. We share our Sponsorship Packet, which outlines sponsor benefits, and send out monthly newsletters with activity updates. We also do in-person robot demos at company sites, and our Robot Reveal Night engages our sponsors. Additionally, we feature our sponsors' logos on our robot and merchandise, and are planning a sponsor banquet to show our appreciation for their support.

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

We often lack cohesion between the technical and non-technical subteams. To engage nontechnical members in the robot design process, our team has introduced technical lessons for all nontechnical members to certify them on power tools. We create opportunities for technical members to apply their skills in outreach projects such as our AbilityPath collaboration. Members from both fields collaborate in FLL and FTC mentorships, which help develop nontechnical and technical skills across the team.

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

Team 8 promotes Coopertition by hosting annual FRC scrimmages and helping FRC Team #840 build a scouting system. At FIRST Robotics Fest, we shared our entrepreneurship experience with FRC Team #3478 in a webinar entirely in Spanish. To promote an ability-inclusive community, we fabricated toys for students with disabilities with AbilityPath and built Sightwalk, a globally-ranked AI navigation device for blind travelers. We host annual potlucks for 100+ students from local FRC teams.

**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.**

Team 8's unique student-led structure empowers members to become leaders and learn from their mistakes. All team operations, lab upkeep, and outreach programs are planned and led by students. Mentors are more than technical mentors; they provide us with endless advice and expertise, shaping members into capable innovators. Propelled by our mentors and coaches, Team 8's student-focused system is what allows our team of 80 to mesh and work in synergy, making an impact for years to come.

**Judge Feedback**

**Who/When**

**Feedback**

Mar 09,  
2024  
01:38:03  
PM EST

**This team did not submit the optional question for the judges when entering their submission.**

**An area the team has an opportunity to improve.**

**Something that really impressed the judges.**

**Essay**

Based in Palo Alto, California, FRC Team 8 Paly Robotics is a student-run team with 27 years of history. Starting as a 20-member club, Team 8 has since grown to be 75 members strong. With a firm belief in

innovating, inspiring others, prioritizing inclusion, and igniting a passion for STEAM, Team 8 encourages members to ask themselves, “What can I do to help change the world?”

## I. INNOVATE

At the heart of Paly Robotics is a commitment to pushing the boundaries of what is possible in the world of STEAM. Innovation is more than the robots we drive on the field, it's within the very structure of our team. Team 8 is organized into five subteams: business, art, design, build, and software. Our inclusion of non-technical subteams has built bridges between our diverse team body. Each team specializes in different aspects of STEAM, prioritizing and honing their respective skills. As a result, our team prioritizes more than just engineering; last month, our Art subteam won the 2024 Safety Animation Award.

Beyond innovating within the team, we innovate within our community, removing barriers between people, improving the livelihoods of many, and giving back to our community.

Inspired by our past work with Arnoldo Avila, who was rendered quadriplegic after a stroke, we developed a device that translates brainwaves into commands on a small wheelchair-mounted monitor, allowing Arnoldo to communicate with others. His resilience encouraged us to rethink the possibilities STEAM holds for Team 8, kickstarting our journey to innovate for others.

Even through the challenges of the pandemic, we were dedicated to giving back to our community. Learning of the struggles facing blind travelers, our team created SightWalk, an AI device. Through machine learning, the device prevents blind travelers from drifting off sidewalks, detects street hazards, and crosses intersections. We had an incredible experience working with mobility experts and organizations. This long-term project pushed us out of our comfort zone, but the entire team came together to collect data. Ultimately, SightWalk placed Top 3 at the Global Innovation Awards.

Most recently, our team connected with AbilityPath, a nonprofit organization that aids children with disabilities. We spent months designing and building a sensory room, a vision-controlled RC car, and physical therapy aids. Seeing our hard work and efforts pay off in the kids' radiant smiles is nothing short of fulfilling. The ability to make tangible impacts in others' lives is what pushes Team 8 to constantly innovate and create positive change in STEAM, both with FIRST and beyond.

## II. INSPIRE

The word “inspire” holds many definitions. To inspire means to fill someone with an urge to do something. To inspire means to utilize our confounded knowledge to spark STEAM interest in the youth of our community. As a team, we pride ourselves on starting many flames— those already lit and those to come.

For the past two years, Team 8 pushed a teamwide effort to increase our involvement in FLL and FTC. Starting small in our local neighborhoods and backyards, we have since formed 10 FLL teams and 2 FTC teams in our community. Many children who were formerly disinterested in robotics transformed into ecstatic learners in only a few weeks.

Inspired by their tenacity, we created Open Lab Hours, an annual program in which we invite 100+ rising freshmen to our lab to learn fabrication. To further our involvement with these teams, we published guides and hosted Ask-Me-Anything sessions with Playing at Learning for parents. In addition, we have

organized two FLL championships at our school, hosting 80+ teams and 500+ students annually.

In addition to the FIRST programs, we host an annual two-week summer camp open to young engineers who want to explore the world of robotics. Many members of Team 8 were inspired to join FIRST through our summer camp, and we hope that many more will follow similar paths. As a result, members work to create a new, fresh curriculum annually to spark excitement in STEAM.

Our four different summer camp programs represent the key facets of the team (design & hardware, software, business, art), and involve a team-oriented challenge or competition from concepts taught earlier in the week. With our diverse opportunities, 63% of our campers ultimately return for the second week or year to explore the other programs at our summer camp. Paly Robotics members serve as counselors, teaching 190+ campers the enriching curriculum, and providing them with an immersive experience of what Team 8 and the world of STEAM is all about.

### III. INCLUSION

While STEAM is brimming with new opportunities, Team 8 understands these opportunities are not accessible to all. We are dedicated to spreading the values of FIRST to everyone, both on and off the field, through promoting student leadership and impacting our community.

Here at Paly Robotics, we maintain a student-led initiative that collaborates with our strong mentorship culture. Our team culture empowers members to build strong problem-solving and analyzing skills to accommodate their issues. To guide members, our team's database offers an extensive library of design and technical knowledge to supplement students' learning. Thus, students walk away from Paly Robotics armed with essential tools for the STEAM world: problem-solving, teamwork, and critical thinking.

Furthermore, our mentors play a crucial role in our team's success by sharing their knowledge from the professional STEM world and teaching members about how to apply it to the FIRST environment to overcome learning challenges. The student-led initiative and strong mentorship culture cultivate a passion for innovating and gaining expertise. At the same time, it encourages all current students to step into the role of a leadership position, pushing members to gain initiative and thrive in our team culture. Team 8 also understands the inequities in STEAM and gender roles, which is why our members are constantly striving to recruit and promote other girls in STEM. We host Girls in STEM inclusion panels annually and pitch our team to freshman science classes, encouraging uncertain students to apply to the team. These efforts inspire 40% of the recruits that apply to Team 8. In addition, since 2015, we have hosted annual lab tours for 390+ students from Townley Grammar School, an all-girls school in England, and supported their sprouting FRC team.

Over the years, we have embraced many collaborative opportunities within the FRC network. Our team has taught 7 Western Region Robotics Forum workshops and hosted annual scrimmages at our full-sized practice field, where 25+ teams have competed. The experiences not only spread the passion for robotics competitions but also developed relationships within the FRC community.

Our annual student-created Lego Robotics Summer Program (LRSP) expanded FIRST into the corners of our community, ensuring that financial status does not hinder access to STEAM. This year, we improved the program to the Lego Robotics Program (LRP) and made it accessible to the general public to ensure that anyone, without exception, can feel embraced by exposure to STEAM and FIRST

programs.

Team 8 does not let obstacles stop them from their goals of inclusion and diversity. Amidst the challenges of the COVID-19 pandemic, we rose to the occasion by offering free Zoom classes in entrepreneurship, animation, and software to 150+ eager students, bridging the gap in STEAM education resources when they were most needed.

#### IV. IGNITE

Our team has a strong passion for inspiring others, and this passion has no age limit. For those with a spark in their hearts for STEAM, Team 8 is dedicated to kindling that spark. Through implementing our 5-year outreach plan, our goal is to create and spread an environment where elementary and middle schoolers learn about FIRST in an empowering and illuminating manner.

Paly Robotics involves all 5 sub-teams in this outreach plan by including initiatives specialized to each sub-team. An example of this is the storybook workshops started last year and held by the art team. We collaborated with a popular local library to create a fun and engaging opportunity for kids ages 7-12. From these workshops, kids learned how to storyboard, design, and a book; and by the end of it, they will get to take home a storybook of entirely their own creation. These sessions aim to expose young generations to different parts of STEM and ignite a curiosity that propels them into a greater passion.

Throughout the years, we have found a way to use these book workshops to spread a good message to impact our audience. In 2020, the book was created as an educational children's book called "Luc and Rey Save the World." The team was able to teach the students about the importance of fostering a sustainable planet. We hosted online story times to over 50+ elementary students and distributed free copies to 4 local schools. Since then, Paly Robotics has hosted four more storybook workshops to teach 80+ young children that STEAM is more than engineering, it is also a facet of creativity and imagination.

While highlighting different parts of STEAM, our team showcases the engineering side of it through our annual demos. During the off-season, Team 8 holds demonstrations of our robot at local elementary and middle schools; this exposes over 1,500 students to robotics each year and inspires over half of them to try out for our team. Around 10 members volunteer per demo to interact with kids at the schools they formerly attended, allowing them to impact the kids of their community for years to come.

Through education, mentorship, and service, our team increases FIRST opportunities and nurtures the next FIRST generation. We are dedicated to using our skills and resources to make a difference in our community and leave a lasting impact on those around us, one student at a time. ;

