

Paly Robotics

FRC 8 | 2021



Outreach Plan



Palo Alto Senior High School
50 Embarcadero Rd., Palo Alto, CA.
(650) 329-3701
palyrobotics.com

Introduction

Paly Robotics continuously strives to create and maintain valuable outreach initiatives that bring us closer to our mission of enriching the education of our students and community through STEAM learning experiences. As a robotics team in the Silicon Valley Bay Area, we recognize the importance of STEAM education firsthand, and through our outreach efforts such as robot demonstrations, camps, and workshops, we are on the frontier of teaching the next generation of leaders and intellectuals. We are also combating educational access inequities in our community and beyond through offering educational opportunities for all students.

Our team has placed a focus on outreach since our inception. From creating an email system for our high school in the 1990s to constructing a communication device for a quadriplegic man in 2008 and establishing free LEGO robotics workshops for underrepresented students in 2016, we have expanded our outreach opportunities over the years to serve more communities and increase our team's impact.

We strive to preserve and expand our current programs in our community and beyond in the coming years. This outreach plan serves as a roadmap of the team's future outreach to allow us to create a positive community impact for years to come. All outreach plans and programs in this plan will be continued into the future after the date of their creation unless otherwise indicated.



Continuous Outreach Efforts

Paly Robotics emphasizes the importance of outreach through our continued outreach efforts that impact a large community of STEAM learners through both virtual and in-person opportunities.

The Paly Robotics Summer Camp provides middle schoolers with hands-on opportunities to explore different facets of STEAM. Our camp consists of four week-long sessions in the subjects of Robot Design & Hardware, Programming, Entrepreneurship & Web Design, and 3D Animation & Graphic Design, allowing students to participate in various aspects of robotics. Since its creation in 2015, the camp has served over 580 students. This year, our camp has transitioned to a completely virtual format, allowing us to reach a broader community of students. Many participants of the team's summer camp attend "Open Lab Hours," an annual summer program that invites 100+ rising freshmen to our lab.

Another one of our yearly summer initiatives is our LEGO Robotics Summer Program, a 1-week long free camp for historically underrepresented youth in a neighboring community. In its 3 years of activity, the program has served 60 students by introducing them to the principles of robotics through LEGO Mindstorms. This camp has also gone virtual this year while maintaining its completely free structure.

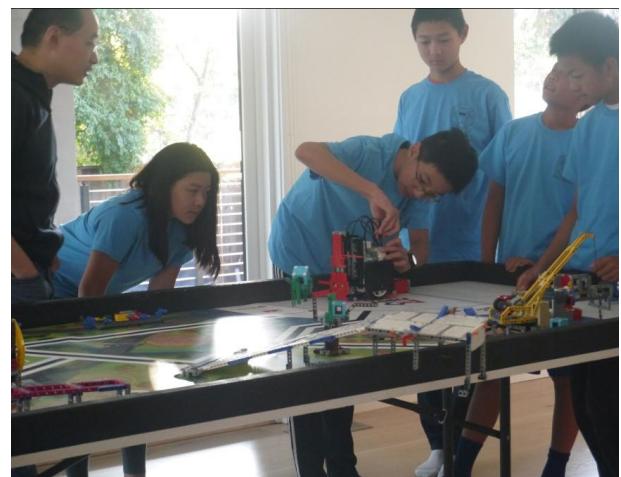
During the COVID-19 pandemic, our team sought to maintain and expand our impact on the community through providing virtual outreach opportunities. In place of our summer camp, our team hosted 17 free Zoom lessons for over 150 students on a variety of STEAM subjects, including entrepreneurship, graphic design, animation, and software. Our experience creating these lessons last year helped our team create a virtual format for our camp this summer.



Our team also emphasizes promoting FIRST within the broader community. Our team's "FIRST Experience" program gives annual tours at Silicon Valley Regional for 100+ summer campers, sponsors, and community members. We expanded this program in 2018 by inviting 30+ middle schoolers to our lab for a design workshop on analyzing robot mechanisms. We also annually host robot demonstrations for organizations including Dreamcatchers and the Ronald McDonald House for terminally ill children, all local elementary and middle schools, and for our local May Fête Parade and school science fairs.

Team 8 also emphasizes creating strong connections with other FIRST teams. Our team hosts an annual inter-team potluck for 600+ Bay Area team members, and we open our full-sized practice field annually for scrimmage matches, which 25+ teams have previously attended. We also seek out FLL and FTC mentoring opportunities. In the past 3 years, we have mentored 2 local FTC teams. In 2019, we raised \$2,500 to create 4 FLL teams and mentor 2 of these teams. That fall, we hosted an FLL scrimmage to prepare two teams for competition. Our website also provides resources that help youth start and join teams.

Paly Robotics continues to host workshops to spread our STEAM experience and knowledge with the FIRST community and beyond. We have taught 5 Western Region Robotics Forum workshops and led 3 conferences on business and leadership at the FRC Houston Championships. We were also panelists on an international webinar giving guidance on awards submissions. In 2018, team members joined Tesseract, a Bay Area initiative to bring FRC workshops to the community. Additionally, in 2020, our team assisted FRC Team #840 with their scouting system, providing guidance on how to create successful and efficient software. Team 8 aims to continue these workshop initiatives as well as expand upon them with new conferences in the future.



2020 - 2021

For the 2020-2021 year, Paly Robotics is planning to continue outreach efforts with FIRST programs, educational workshops, and sponsor connections through virtual formats due to the COVID-19 pandemic.

In the past, Paly Robotics has mentored both FLL (FIRST Lego League) teams and FTC (FIRST Tech Challenge) at PAUSD elementary and middle schools. During the COVID lockdown, our team transitioned to creating virtual opportunities for students. We published FLL and FTC resources on our website that is accessible worldwide. The resources present the basics of starting a team, how to compete, season timelines in a straightforward and easy to understand manner, making it so that anyone can start a FIRST team. Moreover, we have taught FLL curriculum to ILS (Imagination Lab School) over virtual workshops, sparking an interest in robotics for elementary and middle schoolers. Going forward, we plan to collaborate with ILS to create more FLL teams, providing greater accessibility to FIRST and STEAM education within the community. We also plan on mentoring a local FRC team to pass on our skills and knowledge in robot building and design to the next generation of competitors.

Furthermore, Paly Robotics plans to lead events that engage students in FIRST robotics on both a local and international scale. To sustain our relationship with the Townley Grammar School located in Bexleyheath, England, Paly Robotics will host virtual workshops and panels, engaging the Townley students in discussions about female participation in STEM.

In 2020, Paly Robotics published a picture book, *Luc and Rey Restore the World*, introducing young kids to the world of robotics and science. We collaborated with our local library and hosted storybook reading sessions for children. After seeing the popularity of these programs, Paly Robotics is planning to continue this initiative by establishing the Scratch game building workshops, where students can learn to code their own games with their beloved storybook characters of Luc and Rey.

To provide accessible educational experiences to students with disabilities, we are collaborating with AbilityPath, a local organization that serves children with special needs. Our team is building sensory objects and tools, such as a sensory room and a remote control car driven by gestures, for children to explore and engage with, giving them an opportunity to learn in ways that best suit their needs.

2021 - 2022

During the 2021-2022 season, our team plans to further our connections with the broader FIRST community. We aim to create 2 FLL teams and provide them with the resources and guidance to create sustainable programs, as well as volunteer at FLL and FTC events. In addition, Team 8 plans to mentor 2 FTC teams.

We also strive to expand our connections with our local community and continue promoting FIRST and STEAM education in a variety of formats. Our team aims to continue and expand our in-person robot demos with annual demos at all the schools in our district, at company sites of sponsors, and for our local city council and mayor. Moreover, we seek to partner with local organizations such as the Junior Museum and Zoo to create robotics initiatives and workshops and develop curriculum that could be used in elementary schools and afterschool programs. To inspire interest in FIRST, we aim to create a FIRST Showcase to introduce local families to FIRST and inspire them to join FLL teams and continue through FIRST.

Our team aims to expand the summer opportunities we offer to students in our local community to promote diversity within and access to FIRST. We are planning on growing our annual summer camp by adding a session of Robot Design and Hardware exclusively created for female campers, which will help promote diversity and access to STEAM learning among female students while reducing stigmas surrounding involvement with robotics. Similarly, Paly Robotics plans to expand our Lego Robotics Summer Program to over 30 students, increasing free summer STEAM learning opportunities for underrepresented groups and increasing diversity in FIRST.

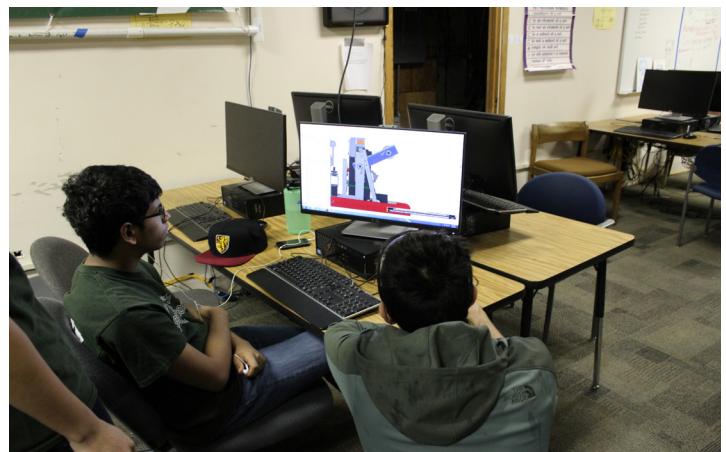
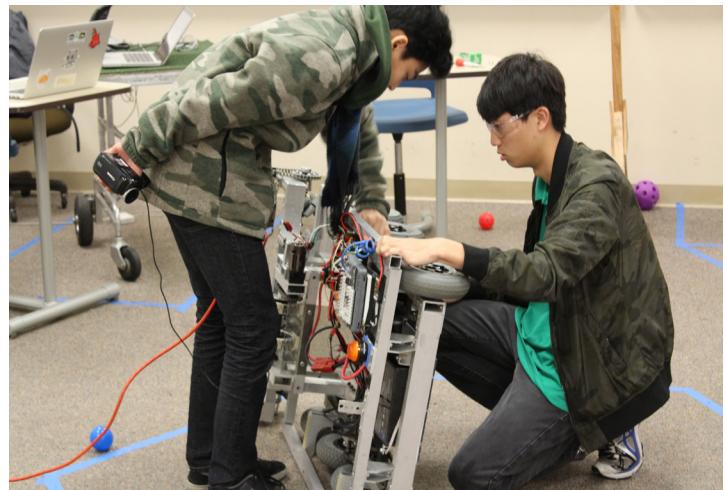
In addition to these initiatives, we hope to continue our partnership with the AbilityPath organization to create new projects alongside this group to benefit students with disabilities. To further our connection with sponsors, Team 8 plans to host a sponsor banquet, inviting both current and potential sponsors to a dinner event to connect with them and grow the team's sponsorship opportunities. Moreover, we seek to expand upon the team's Storybook initiative, creating, designing, and distributing another Storybook about STEAM principles to local schools and libraries, as well as reading the book to groups of young students to introduce them to FIRST. Another long term project we plan on pursuing is a series of online workshops or webinars open to interested students worldwide, where Team 8 students can share the knowledge we've accumulated over the years, from what makes a successful robot to how to establish good relationships with sponsors.



2022 - 2023

For the 2022-2023 season, Paly Robotics is planning to maintain connections with the FIRST community by creating at least 2 FLL teams and hosting an FLL kickoff event. We also plan to organize a Lego Mindstorms kit drive to collect Mindstorms kits from the community and donate them to schools in a local underserved community.

Paly Robotics will also further outreach by introducing local families to FIRST through the FIRST Showcase, helping students of all ages join FIRST programs. We also aim to continue demonstrating our robot at the company sites of our sponsors, and expanding these programs by demoing to members of the California state legislature to further promote awareness about FIRST at the governmental level.



2023 - 2024

Within the 2023-2024 season, Paly Robotics hopes to host an FLL tournament to continue fostering connections with FLL teams and the FIRST community. Additionally, we anticipate starting both an FTC and FRC team to promote STEAM in the community and provide guidance to create sustainable programs.

We intend to implement FLL and FTC programs within the Palo Alto Unified School District and neighboring districts to introduce students to STEAM materials and projects as well as providing hands-on learning opportunities. These subjects would be incorporated into day to day school courses in addition to instituting after school programs. We would work with the Boys & Girls Club of the Peninsula to establish similar after-school programs at their locations to continue our community involvement and present FIRST & STEAM to students and their families.

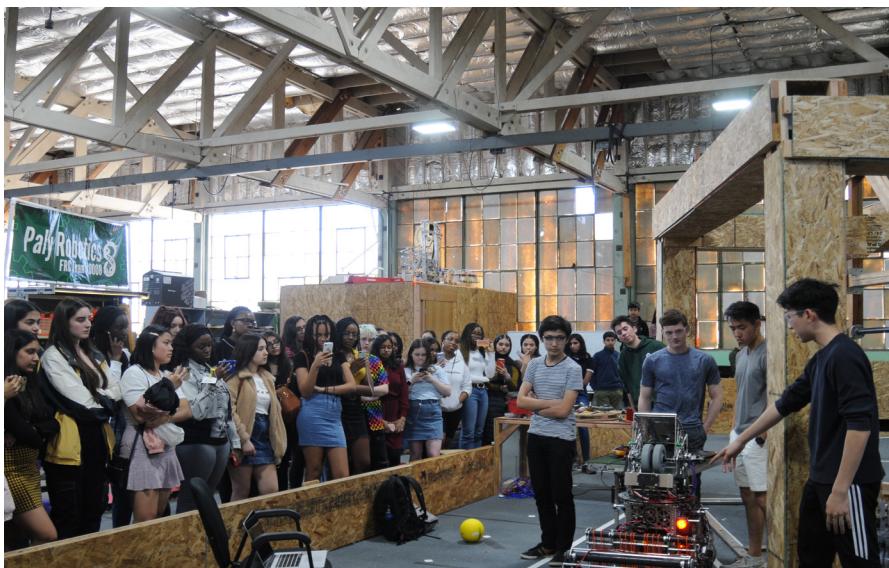
Paly Robotics aims to demo our robots to our state government representatives, including our governor and national congress representatives to continue to strengthen connections between local communities and state governments and encourage STEAM and FIRST engagement and awareness.



2024 - 2025

Paly Robotics seeks to expand our connections with the FIRST community in the 2024-2025 season by further embracing roles as mentors to other teams. We aim to start 2 FTC teams, allowing us to provide the valuable learning experiences that our team has offered to a wide range of students. Moreover, we aim to support other FIRST teams by hosting an FLL championship tournament as well as FRC off season competitions, inviting teams into our space to compete and prepare for the coming season.

Our team also aims to further develop our relations with STEAM learners abroad, helping us expand our impact beyond our local community and create new opportunities for students in other countries to become involved with FIRST. As FIRST grows in the coming years, we envision our team's impact growing along with it, allowing us to continue providing unique educational opportunities in new and exciting ways.



Outreach Statistics

Summer Camp

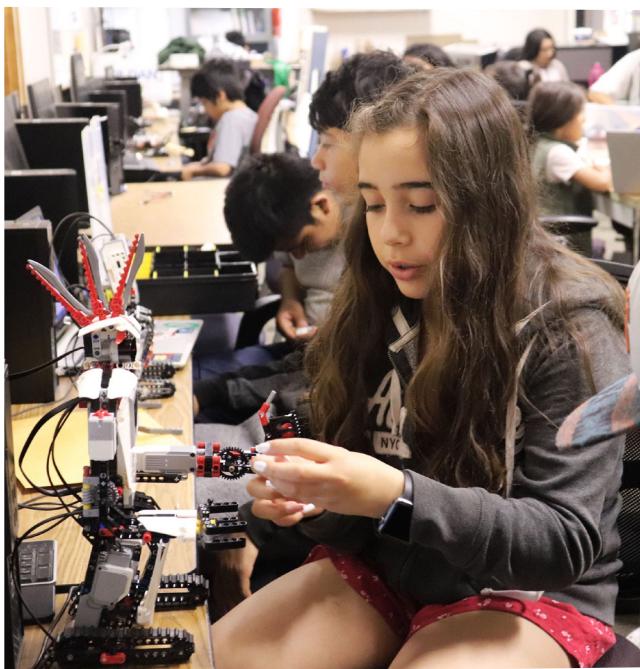
190 campers served per year

580+ campers served since creation

1500 campers anticipated in the next 5 years

LEGO Robotics Summer Program (LRSP)

60+ campers served over 3 years



Zoom Workshops

150+ students served

91% of students enjoyed the camp and said they would recommend it to a friend

Robot Demonstrations

20+ robot demonstrations in the last 3 years, including 2 science fairs and 3 community fairs



Team Member Feedback

We make a lasting community impact by offering valuable opportunities and experiences to youth in our community, including our members. According to a survey, 90% made new friends and 94% had fun through our program. 80% of upperclassmen determined their future plans and goals and developed leadership skills. 100% of our alumni seek a higher educational degree and 70% major in STEAM fields. Current members volunteered 3,000 hours with the team, resulting in 24 President's Volunteer Service Awards.