

The background of the slide features a large, stylized logo for TEEA (The Energy Efficiency Association). The logo consists of a large circle containing the letters 'TEEA' in a bold, sans-serif font. Surrounding the circle are several interlocking gears of different sizes, creating a mechanical or industrial theme. The entire graphic is rendered in shades of green and teal.

Sustainability Plan

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Why Sustainability?

Paly Robotics believes that a sustainable recruitment and growth model is essential to generating a meaningful impact. Sustainability ensures that our team is able to maintain and improve its success well into the future, and team projects and initiatives can be similarly continued and expanded upon. Especially during the COVID-19 pandemic, it is incredibly important to ensure that the team continues to operate and pursue our mission of spreading accessible STEAM education in our community. Thus, a sustainable structure is key to addressing and adapting to such problems when they occur—through this mindset, Team 8 creates, implements, and fosters its strong system of sustainability.

Lab Conditions

Though Paly Robotics has been working in our school lab since our inception 26 years ago, poor lab conditions could lead to the shut-down or remodeling of our space. To prevent this, we have taken precautions, which include a safety inspection administered by Keenan & Associates, and implementing the suggestions from this check such as improving our ceiling and in-wall wiring. We constantly work to maintain and improve our lab conditions and space to sustain the establishment of our team into the foreseeable future.

In the unlikely event that we lose our lab, we have made preparations to facilitate recovery and continue our team's activities. We have the support of local FRC teams and maker-spaces which would help provide us with a temporary workspace, resources, and tools. Local teams include FRC Team #192 and our local MakeX, a free, community maker-space where we can convene and collaborate. Additionally, the new maker-space in our school's recently reconstructed library is open to our team.

Now that our lab has fully re-opened, we take necessary COVID-19 precautions, sanitizing all parts of our lab and wearing masks at all times. Over the course of the pandemic, many of our subteams continued operations. The team has allocated a significant portion of our budget to purchase personal protective equipment, masks, and HEPA air filters to ensure the safety of all our members in the lab space. In the case of a member contracting COVID-19, our team is knowledgeable on the necessary safety measures to ensure it does not spread.

Student-Run Team

Paly Robotics has distinguished itself from other FRC teams through its student-led structure, meaning all of our operations are planned, reviewed, and executed by the students. This structure instills values such as responsibility, initiative, and diligence in members by allowing them to learn from their mistakes and encounter the consequences and benefits of their actions.

To ensure our team's future success, veteran members are constantly passing down accumulated knowledge to recruits throughout the year. This process is supplemented by a series of mini-classes before Build Season to help recruits gain fundamental knowledge in their respective subteam areas. Important skills such as computer-aided design, software, engineering, web design, strategy, animation, as well as former mistakes are passed down from our experienced members. Additionally, they demonstrate how to effectively conduct outreach, lead projects, and collaborate with others.

In order to support student initiative, all team leadership positions are held by students, as well as tasks such as managing subteams, developing a timeline for the robot, and running outreach programs. Embracing this student-led philosophy gives students the autonomy to make their own decisions and run the team successfully. In fact, 90% of our upperclassmen members report that they gained leadership skills from experiences on Team 8.

Our mentors play a significant role in supporting and nurturing our student-first philosophy, working as enablers of student learning by allowing students to make their own informed choices. Team 8 mentors embrace student mistakes and



transform them into learning opportunities to promote student growth and long-term success. By providing guidance and advice, mentors help students navigate the road ahead without restricting them or doing the work for them. As a result, students form, iterate, and implement their own decisions and learn from both their successes and failures. By not fully relying on mentors, it also guarantees that losing a mentor will not significantly hinder our team.

Sustainability in Outreach

Giving back to the community and inspiring the next generation of STEAM-impassioned students are fundamental goals for Team 8. We strive and make conscious efforts to maintain long-term relationships with our partners to preserve interest in our outreach projects, upholding our end via our newsletter, periodic demos, and visits to company sites or local middle and elementary schools.

Adapting to the COVID-19 pandemic, our team hosted free educational camps over Zoom last year to support students and parents during the unprecedented shelter-in-place. We taught a total of 30 sessions that ranged covered entrepreneurship, software, and graphic design and animation that reached 130+ students. Such adaptation allowed for increased accessibility to STEAM programs, and we plan on expanding on similar online initiatives in the future.

Similarly, Team 8's annual LEGO Robotics Summer Program (LRSP) and Paly Robotics Summer Camp serve to increase access to STEAM education for students in our community. LRSP is a free camp dedicated to enriching the education of underrepresented students through engaging STEAM learning experiences. Established in 2015, our summer camp runs 4 separate sessions—Robot Design & Hardware, Entrepreneurship & Web Design, Programming, and Animation & Graphic Design—to cater to campers with various interests. In its 6 years of activity, our camp has taught 795+ middle school students the principles of robot design and fabrication, programming, web design, entrepreneurship, 3D animation, and graphic design through a completely student-developed curriculum and immersive, hands-on activities.

If Paly Robotics ever finds itself not giving back enough to the community, there are steps we can take towards reconstructing our outreach. Collaborative ventures with other FRC teams, such as the international award writing webinar we hosted alongside FRC #1967 and #1868 to help other teams with awards submissions, are activities that could help bring a spark back to our team's outreach. These joint efforts are a dependable option, as they allow us to continue making a significant impact on our community.

In all of our outreach activities, the promotion of and emphasis on long-term success is constantly present. This philosophy to maintain sustainable impact manifests in underclassmen taking on leadership positions and in the dedication of veteran leaders to guiding newer members.

Recruitment

Our team's recruitment process is designed to ensure sustainability. Each year begins with recruitment season, where we attract, enroll, and train new members. We host presentations at student orientation and team information days, which introduce over 600 incoming freshmen to Paly Robotics. Interested students attend 7 recruitment sessions where they learn new skills, meet new friends, and experience what it would be like to be on the team.

Leading up to build season, veteran members teach recruits critical skills such as creating comprehensive business plans, using CAD software, rendering 3D animations, developing autonomous code, and machining robot parts. This system of passing down knowledge ensures that new members gain the skills and experience necessary to lead the team in the future. We also maintain a balanced grade diversity, maintaining both current and future success even once our more experienced members graduate.



Throughout the year, we host various outreach initiatives, effectively introducing future members to FIRST. These outreach events, which include robot demonstrations and summer programs, help make the team more available to the next generation of STEAM learners. In fact, 46% of our 2022 recruits participated in at least one Paly Robotics outreach event prior to joining the team. This dedication to outreach helps ensure continued interest in STEAM learning and Team 8.

