Paly Robotics

FRC 8 | 2020

Business Plan

Palo Alto Senior High School
50 Embarcadero Rd., Palo Alto, CA
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palyrobotics.com

Team Mission Statement

Paly Robotics is dedicated to enriching the educational experiences of our students and community by increasing STEAM exposure and inspiring others through FIRST programs.

We envision our long-term impact to remain student-led and recognized for our tangible results, and hope to see a growing, tight-knit community of people positively impacted by our efforts.

Since Team 8's inception, our mission statement has developed to accommodate our evolving goals. Even with many years of change on our team, our core mission has remained the same: to strive for diversity and self-improvement, promote leadership, and positively impact and inspire the community.

Team History & Growth

Paly Robotics was established in 1996 at Palo Alto High School as a small team of 20 students and has since grown to be 68 members strong. As a team we pride ourselves on learning and growing from our mistakes, which enables us to succeed in the future.

The path to our current accomplishments presented many obstacles to overcome. In the 2012 season, the departure of our first head coach and lack of training for new members contributed to poor team performance. In response, we developed a sustainable structure of learning that involves veteran members teaching knowledge and skills to newer members. This reorganization allowed us to successfully rebuild. We have come a long way since 2012 — our system has proven to be successful with a smooth transition between head coaches in the 2018-2019 season.

Paly Robotics has also taken strides to pursue various outreach opportunities and increase our community impact. In the last five years, we have done over 50 robot demonstrations, including robot demos at 11 middle and elementary schools, 7 science fairs, and 7 community events and parades. Furthermore, for the past 8 years, Paly Robotics has hosted lab tours for over 390 students from the all-girls Townley Grammar School in England. Three years ago, we began our LEGO Robotics Summer Program, a free summer camp for underprivileged students in our community. The program, which teaches campers the design, build, and programming aspects of LEGO Robotics, has expanded from 10 to 30 students per year.

After 24 years, Paly Robotics is still dedicated to working towards creating a sustainable and diverse network of dedicated students who strive to support the ideals of FIRST and promote STEAM engagement in the community. We have developed a 5-year outreach plan to sustain and expand our outreach initiatives.

Organizational Structure

Paly Robotics distinguishes itself through its student-led structure, meaning all operations are planned, reviewed, and executed by the students. The mindset of student growth is evident across the team, from our student leadership to our mentors' roles, and instills responsibility, problem solving, and diligence in team members — 90% of our upperclassmen report that they developed leadership skills through experiences on Team 8.

Our organizational structure is constantly evolving to fit the team's dynamic needs. This year, we added a Strategy & Scouting subteam to develop data gathering applications and game analysis for competitions.

Our mentors and their embrace of our student-led structure play a crucial role in the success of our team. They teach members various skills, from operating machines, to applying for grants, to writing robot code. Mentors practice hands-off support; they explain the pros and cons of different design options and teach decision-making and leadership skills, enabling the students to make their own informed choices. By providing valuable insight, our mentors turn student mistakes into learning opportunities and give students the tools they need to succeed in FIRST.

Marketing

From outreach efforts across communities, to our summer programs, to our student-led structure and even our signature green color, Paly Robotics has developed a strong brand that allows us to effectively promote our message to pursue STEAM to community members and others.

Using consistent branding, we become recognizable in our community. By utilizing our website and social media platforms — Instagram, Facebook, Youtube, and Twitter — we connect with our community and other FRC teams. We also connect with our sponsors through our monthly newsletter. During our recruitment period, Paly Robotics reaches out to hundreds of students at our school. We present to over 500 incoming freshmen during school orientation, as well as Career Technical Education, business, and art classes, reaching over 2,500 students in the past five years. In order to maximize our reach, we also create flyers, arrange student and parent information nights, and host a robot demo on campus to spark interest in STEAM.

Paly Robotics also presents its brand through numerous outreach programs. Our annual Paly Robotics Summer Camp for middle schoolers is one of our most well-known outreach efforts and has served over 640 campers so far. The camp counselors, all team volunteers, teach campers a myriad of skills, including robot design, robot fabrication, programming, web design, entrepreneurship, 3D animation, and graphic design through completely student-developed curriculum and immersive, hands-on activities. Of our 2019 campers, 92% reported that they would be interested in joining a FIRST team in the future.

Furthermore, our team hosts many workshops and robot demos at schools, Maker Faires, parades, and community events. We also mentor 2 FLL teams, teaching members the financial and technical aspects of robotics.

Recognizing the importance of outreach and its impact on the community, Paly Robotics strives to continue to provide opportunities for enrichment within our community. From growing our outreach programs — including our annual summer camps, robot demos, and FLL and FTC mentorship programs — to developing connections with potential robotics partners around the globe, Paly Robotics strives to create a sustainable and long-lasting program for students. Internationally, Paly Robotics aspires to strengthen its connections with the Townley Grammar School in London in order to expand the influence of STEAM and increase the number of individuals involved with FIRST. Our dedication to these projects is all in an effort to enhance and emphasize a younger generation's pursuit of STEAM.

Financial Statement

For the 2019-20 season, Paly Robotics has a budget of $79,990 and a projected income of $89,242.

Our budget is created through a thorough, collaborative process. Subteam captains, our student treasurer, and the Paly Robotics Boosters, a group of parent volunteers, determine team needs and develop a dynamic budget.

The majority of our budget covers parts and materials for 3 robots — the robot we build for the competition season, an additional practice robot, and a robot for the off-season. Additionally, we budget for competition registration fees, as well as facilities, subteam, and financial management. Our budget also includes expenses for team merchandise, competition fees, and our various outreach activities. New expenses for this season include our Shopsaver router, which has increased our manufacturing efficiency and precision, and our Markforged 3D Onyx Pro printer, which helps us make robust robot parts quickly.

Paly Robotics is proud to have a wide network of sponsors and community members who support our program. We receive monetary support from corporate sponsors, as well as material, software, and food support from in-kind sponsors. We also obtain revenue from our summer camp registration and individual donations, which include annual contributions from families.

Team 8 understands the importance of the mutual benefits of our partnerships and recognizes sponsors in various ways, such as including their logo in our branding. We also host robot demos for sponsors at their company sites, send a monthly newsletter, and invite them to Robot Reveal Night, in which we show the features and capabilities of the year's robot. Paly Robotics is proud of the relationships we have developed with our network of sponsors in the community, and we hope to maintain these connections well into the future.

Risk Analysis

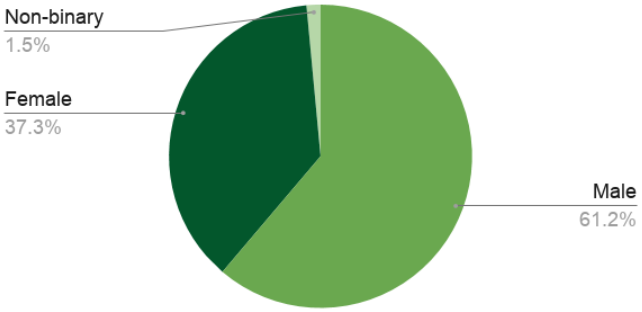
Paly Robotics recognizes the possible risks that face the team, which we mitigate through the utilization of our strengths. First, a lack of sustainability and member training could lead to poor performance; however, the team has developed a Sustainability Plan outlining countermeasures, and has a system where veteran members pass down knowledge to younger members through lessons and workshops. Due to this system and our student-led structure, in the case that we lose a coach or mentor, we can continue functioning effectively. In the last few years, Team 8 has experienced a growth in membership diversity, with a steady increase in female membership. Team 8's relationships with other FRC teams allows us to share skills and learn new ones.

Furthermore, poor lab conditions could possibly lead to shut-down or remodeling of our space. In order to prevent this, we have taken precautions and received a safety inspection and have implemented the suggestions from this check.

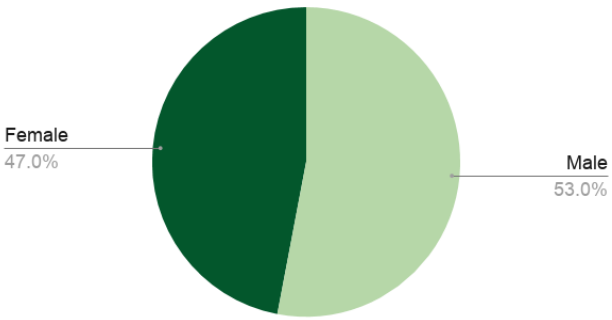
Additionally, there will be opportunities available to the team in the near future. Our school has a newly built Makerspace available to our team, and we were recently sponsored by Markforged to purchase a 3D-printer at a discount. The team also constructed a new practice field this year, which we have used to test and improve our autonomous robot code and host drive practices and scrimmages with other teams.

Paly Robotics strives for a diverse mix of interests, backgrounds, and ideas, and we aim to foster an environment of acceptance and diversity.

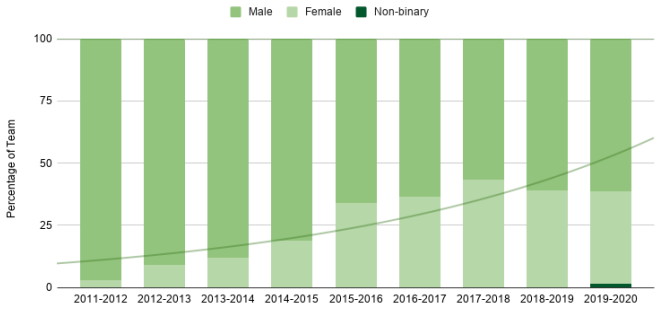
2019-2020 Gender Diversity



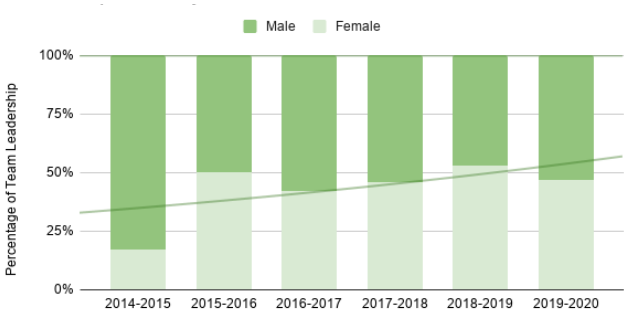
2019-2020 Leadership Gender Diversity



Gender Diversity Growth

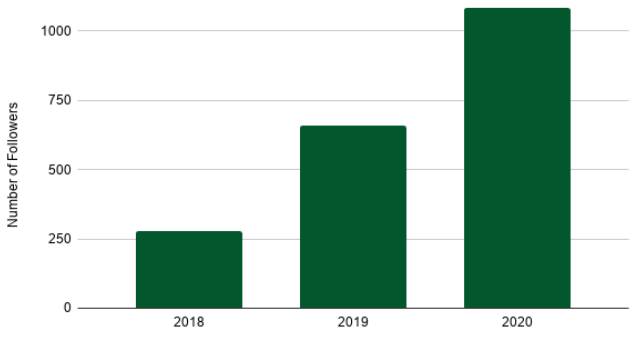


Leadership Gender Diversity Growth

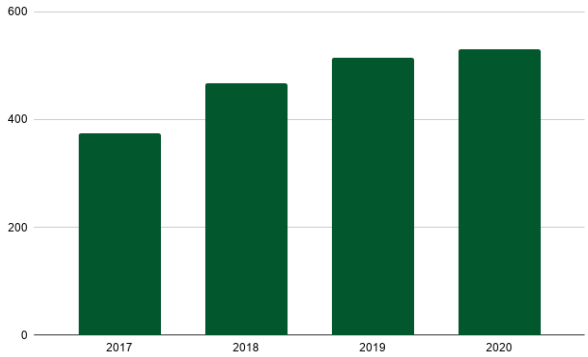


Through our efforts to reach out to more potential sponsors and expand to a larger community, Paly Robotics' revenue and social media following have greatly increased over the years.

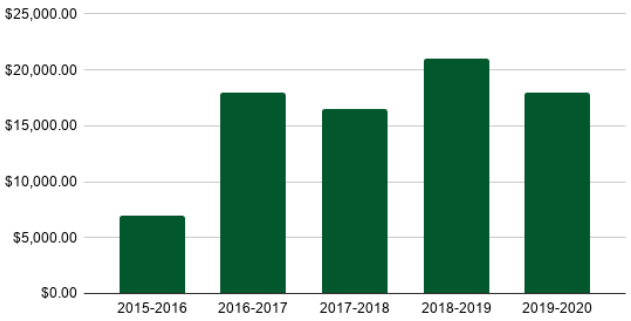
Social Media Following (Instagram)



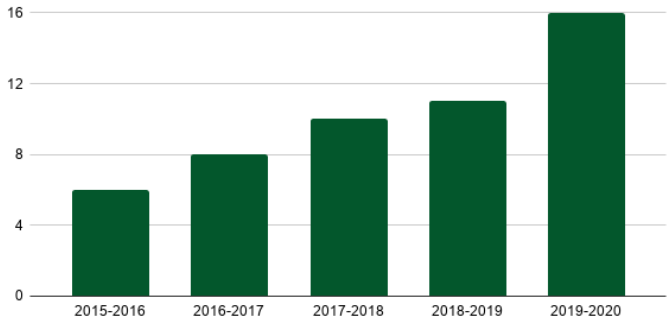
Social Media Following (Facebook)



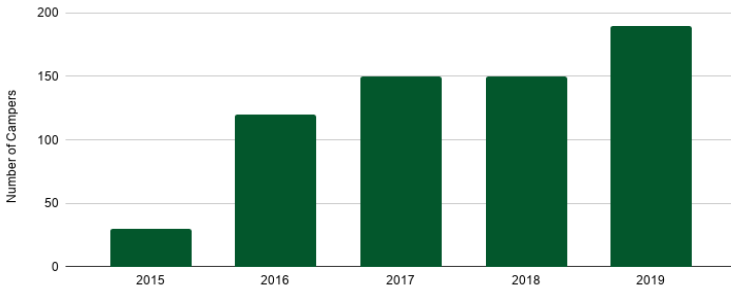
Amount of Money from Sponsors



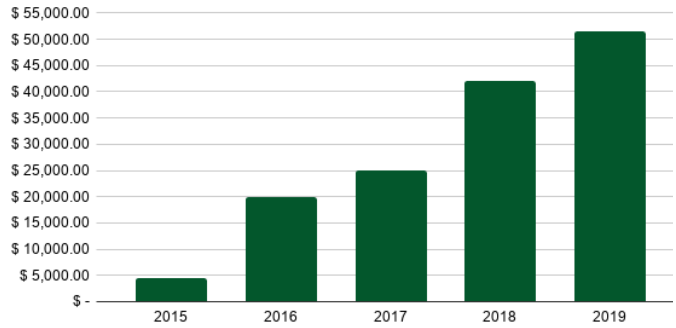
Number of Team Sponsors



Paly Robotics Summer Camp Attendees

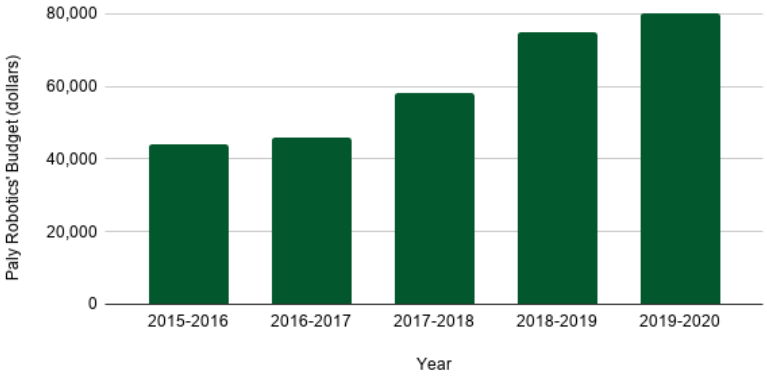


Paly Robotics Summer Camp Revenue

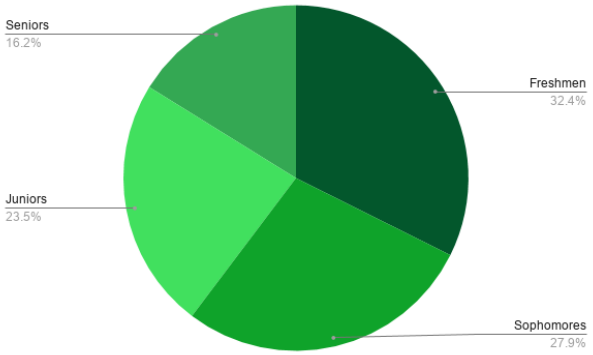


Participation and revenue from our annual Paly Robotics Summer Camp have increased through our efforts to expand our program and open the opportunity to a greater number of students.

Team Budget



2019-2020 Grade Level Distribution



In order to ensure long-term success, Paly Robotics maintains a balanced grade distribution.

Income Statements

July 2019 - February 2020

	Total
REVENUE	
2019-20 Donation from Amazon Smile	100.40
2019-20 Grant in FIRST account	18,000.01
2019-20 Individual Donation	19,274.00
2019-20 Jason's Jetson Dealing	487.13
2019-20 Monterey Competition	495.00
2019-20 Off season competition	11,538.20
2019-20 Sale of Team Product	2,729.25
2019-20 Summer Camp Income	6,100.00
2019-20 Utah competition	30,375.00
2020-21 Summer Camp Income	57,000.00
Total Revenue	**146,098.99**
GROSS PROFIT	**146,098.99**
EXPENDITURES	
2019-20 Misc subscription fees (paypal, Quickbooks, subs, etc)	405.10
2019-20 Business	72.27
2019-20 CNC router	14,140.00
2019-20 Design	629.85
2019-20 Donation to PAUSD	2,099.44
2019-20 Drive Team	1,149.88
2019-20 Lab food	379.38
2019-20 Lab Management	12,793.81
2019-20 Off Season Competition Expense	12,380.57
2019-20 OffSeason Projects	2,143.69
2019-20 Online Services	1,179.28
2019-20 Outreach	1,050.97
2019-20 Pit Management	201.66
2019-20 Robot Parts and Materials	27,144.32
2019-20 Software	87.09
2019-20 Spirit	43.92
2019-20 Strategy and Scouting	1,109.74
2019-20 Summer Camp Expense	8,212.21
2019-20 Team Products	4,529.23
2019-20 Utah competition expense	31,300.99
2020-21 Summer Camp Refund	594.55
Total Expenditures	**121,647.95**
NET OPERATING REVENUE	**24,451.04**
NET REVENUE	**$24,451.04**

Balance Sheet

As of February 29, 2020

	Total
ASSETS	
Current Assets	
Bank Accounts	
Total Bank Account	47,592.97
Grant in First Account	6,000.00
Total Current Assets	**53,592.97**
TOTAL ASSETS	**$53,592.97**
LIABILITIES AND EQUITY	
Liabilities	
Total Liabilities	
Equity	
Opening Balance Equity	-330.19
Retained Earnings	38,472.12
Net Revenue	15,451.04
Total Equity	**53,592.97**
TOTAL LIABILITIES AND EQUITY	**$53,592.97**

Team Captain

Team 8 is led by a Team Captain, who oversees and managesthe operations of all subteams and committees, as well as administrative tasks.

Project Manager | **Technical Director** | **Assistant Captain**

The team Project Manager manages technical deadlines, develops progress reports, and organizes weekly meetings. Our Technical Director oversees all design and fabrication operations as well as facilitates robot progress throughout Build Season. The Assistant Captain works towards broader team goals such as directing community outreach.

Art Team | **Business Team** | **Build Team** | **Design Team** | **Software Team** | **Strategy and Scouting Team**

Our team is split into six subteams: Art, Business, Build, Design, Software,and Strategy and Scouting. Each contributes to the team's overall success and creates an effective and engaged network of students. Each subteam is led by a Subteam Captain, who is responsible for his or her respective subteam's operations.

Boosters — **Treasurer** | **Pit and Safety Management** | **Competition Management** | **Webmaster** | **Lab Management**

Additional managerial roles, such as Lab Manager and Webmaster, ensure that all aspects of running a team are covered. Collaboration between our student treasurer and our the Paly Robotics Boosters, a group of team parents who help manage team finances, ensures that our monetary assets are allocated wisely.

Summer Camp | **LRSP** | **FLL** | **FTC** | **Demos** | **FIRST Experience** | **Townley**

Our team has various outreach initiative committees, from our annual Paly Robotics Summer Camp to our international engagement with Townley Grammar School, that are led by our students.