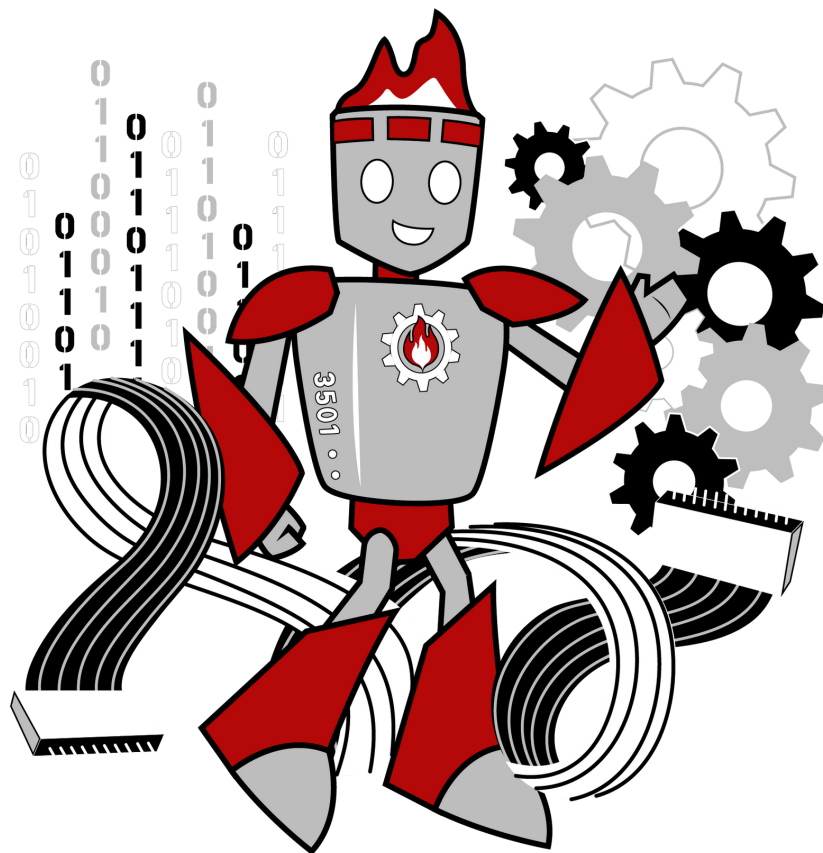


Fremont High Robotics
Sunnyvale, CA
FRC Team #3501

2022 - 2023

Team 3501 Firebots Sponsorship Packet



3501
FIREBOTS

Team 3501 At A Glance

Contact Information

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Statistics

45+

outreach events in the
past 5 years

12

FLL teams founded over
the past 5 years

\$0

participation
fee

80

organization-wide active
members in the
2022-2023 season

6 Schools / 400 Students
with Community Impact Lessons

96%

of team alumni pursue
STEAM majors in college

3

award-winning
FTC teams founded

50%

Female Leadership
Team

80%

of FLL teams
mentored advanced to
Regionals

1/3

of FHS is
socioeconomically
disadvantaged

11

years in FIRST

What is *FIRST*?

FIRST (For Inspiration and Recognition of Science and Technology) is a non-profit organization dedicated to introducing students to prospective careers in science and technology. FIRST's mission is "to show students of every age that science, technology, and problem-solving are not only fun and rewarding but are proven paths to successful careers and a bright future for us all." Founded in 1990, the organization has brought millions of students into the realm of robotics over the past three decades.

FIRST runs multiple programs, including:

- FIRST Robotics Competition (FRC) for 9th-12th graders
- FIRST Tech Challenge (FTC) for 7th-12th graders
- FIRST Lego League Challenge (FLL-C) for 4th-8th graders
- FIRST Lego League Explorer (FLL-E) for 1st-4th graders

FIRST Robotics Competition (FRC)

The FIRST Robotics Competition (FRC) is an annual competition in which high school teams compete to design, build, program, and test robots from scratch that perform set tasks and score game pieces in a 3 versus 3 alliance format. FRC teams are not only expected to build excellent robots but also to raise their own funds and help introduce their local community and fellow students to the world of robotics as well. Additionally, FRC promotes art as part of its mission to promote STEAM, by having students engage in graphic design, animation, photography, videography, and editing.

About Us

Team History

Fremont High Robotics started in 2010 as a team of 10 people at Fremont High School in Sunnyvale. The team began participating in FIRST Robotics Competitions (FRC) as Team 3501 "the Firebots" in 2011 and has attended at least 2 regional competitions each year since. Over the years, the team has substantially grown, having an all-time largest of 131 active members in 2018 and completely transforming STEAM interest at Fremont High School. In 2019 and 2020, Fremont High Robotics expanded into the FIRST Tech Challenge (FTC), founding 3 separate teams to allow more students an opportunity to learn about robotics in a smaller team setting. This year, we discontinued the third team (FTC 18223) due to a mentor shortage. Today, each FTC team has about 15 members each and our FRC team has 39 members working to create a thriving future for STEAM education.

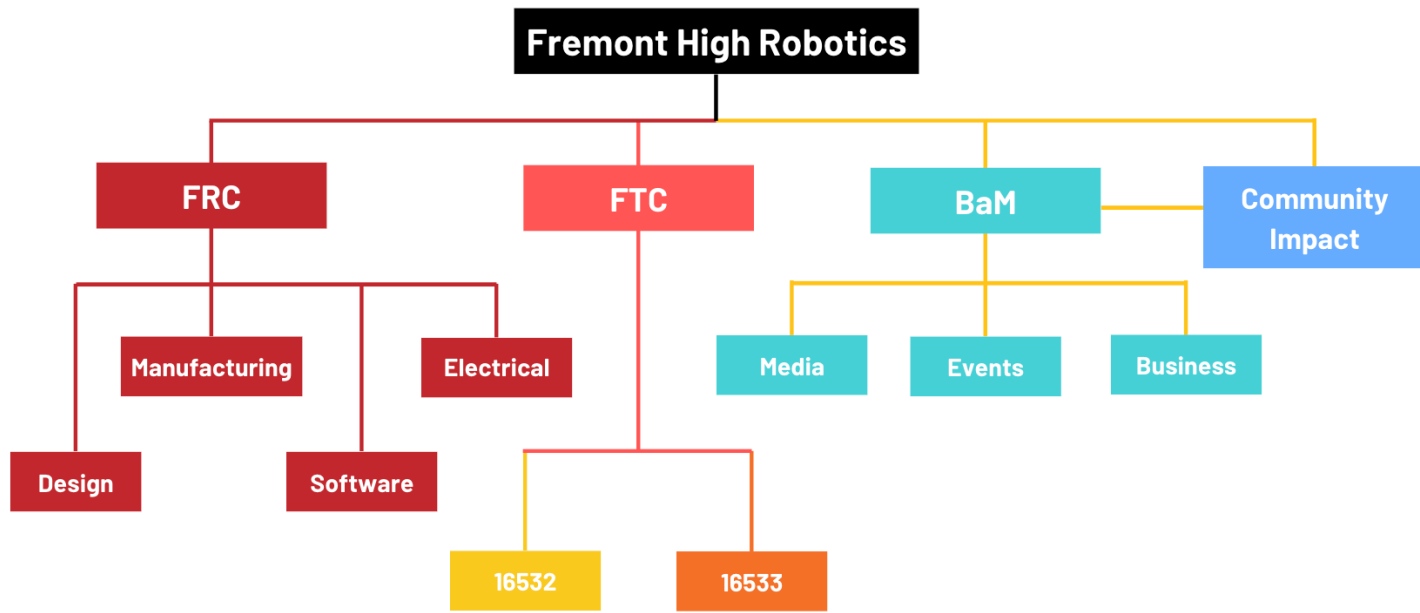
Mission Statement

Our mission is to create a safe and supportive environment for students to develop their interest in STEAM through hands-on experiences and direct guidance from other students and mentors. By enabling students of all backgrounds to participate in robotics, we proudly stand by the idea that success in engineering, business, and positive collaboration can be achieved by anyone with an appreciation for STEAM.

COVID-19 Impact

This year, the COVID-19 pandemic subsided but still created logistical problems during the season. All three FTC teams and the FRC team have to continue wearing masks and avoid contact with each other while working together as a team. Through a combination of new and returning members, teams are able to explore and grow their engineering skills with the support of their skilled mentors. Many of the techniques learned during the 2020 season carried over, from working remotely on CAD and software to check-ins during the start of every meeting. These techniques combined with the skills that our teams learned pre-pandemic taught us a new way to do robotics.

Organization Structure



Fremont High Robotics is organized between its technical and non-technical teams. The three individual competition teams (3501 Firebots, 16532 Sparkbots, and 16533 Infernobots) each have a Mechanical Design, Mechanical Manufacturing, and Software subteam. Electrical is a technical subteam specific to the Firebots. The non-technical Business and Marketing team consists of three divisions (Media, Events, and Business) working organization-wide with members from every competition team.

Team 3501 Structure

Mechanical Design

The Mechanical Design subteam is responsible for designing the robot and supervising production in the Mechanical Manufacturing subteam during the build season. Students learn to use CAD (Computer-Aided Design) to create an accurate 3D model of the robot.

Mechanical Manufacturing

The Mechanical Manufacturing subteam produces parts for the robot and assembles the working base of the robot before it is passed onto both the Electrical and Software subteams. Students learn to use power tools such as drills, band saws, chop saws, pneumatic-powered, and a CNC router.

Software

The Software subteam drafts and writes code for the robot and delivers reliable controls for driver testing and competition. Students learn to about clean coding practices, autonomous driving, computer vision, and robot mechanism controls.

Electrical

The Electrical subteam designs the electrical board with the Design subteam and builds it with electromechanical systems (motors & sensors). Students learn about wiring and soldering electrical components, pneumatics, and merging Mechanical and Software.

Business and Marketing (BaM)

The Business and Marketing subteam, specific for the Firebots, manages finances with raising funds through grants, upholds team imagery & branding, and coordinates local community outreach events. BaM is also responsible for maintaining our sponsor relations through newsletters and other forms of representation of their name in our competition branding. Students learn graphic design, professional and informative writing, consistent documentation, and public relations.

Community Impact Project

As the newest created division of Fremont High Robotics, the community impact team pursues a large-scale and long-term community outreach program in underserved communities. Our aim for the project is to allow elementary students an opportunity to engage with and be inspired by STEAM through a project-based curriculum integrated into their formal education. By the end of this year, we will have reached over 400+ students across 6 schools in the Sunnyvale Elementary School District by teaching them STEAM content through several lessons. (Learn more in the Community Impact Project 3-Year Plan.)

Competition Achievements

FIRST Robotics Competition (FRC)

- **2022 Hueneme Port Regional** - Entrepreneurship Award
- **2022 Montaray Port Regional** - Entrepreneurship Award
- **2021 Game Design Challenge** - Designer's Award
- **2018 World Championship** - Competitor
- **2018 Arizona North Regional** - Quarterfinalist
- **2016 Central Valley Regional** - Spirit Award
- **2015 World Championship** - Competitor
- **2015 Ventura Regional** - Quarterfinalist
 - Industrial Safety Award Finalist
- **2015 Central Valley Regional** - Industrial Safety Award Finalist
- **2014 Central Valley Regional** - Semifinalist
 - Spirit Award
- **2013 Central Valley Regional** - Finalist
 - No. 1 Seed
 - Judges' Award
- **2012 Central Valley Regional** - Semifinalist
- **2011 Silicon Valley Regional** - Inventor Award Finalist
 - Highest Rookie Seed

FIRST Tech Challenge (FTC)

- **2023 California-NorCal FTC Regional Championship** - Promote Award 3rd Place (Team 16533)
- **2023 San Jose Qualifying** - Winning Alliance (Team 16532)
 - #2 Seed (Team 16532)
 - Control Award (Team 16532)
- **2022 Saratoga Qualifying** - Finalist Alliance (Team 16532)
 - Innovate Award (Team 16532)
- **2022 Google Qualifying** - Winning Alliance (Team 16533)
 - Inspire Award Runner-Up (Team 16533)
 - Design Award (Team 16533)
- **2022 Mountain View Qualifier** - Finalist Alliance (Team 16533)
 - Design Award (Team 16533)
 - Inspire Award 3rd Place (Team 16533)
- **2022 Santa Clara Qualifier** - Winning Alliance (Team 16532)
 - Think Award (Team 16532)
 - Control Award 2nd Place (Team 16532)
- **2021 Remote Qualifier** - Think Award 2nd Place (Team 16533)
- **2021 Burlingame Qualifier** - Winning Alliance (Team 16532)
 - Think Award (Team 16532)
 - Think Award 2nd Place (Team 18223)

Outreach Programs

FIRST Lego League (FLL)

Since 2015, the Firebots founded 10 FIRST Lego League (FLL) Challenge teams with middle school students from the Sunnyvale area and mentored over 12 FLL teams. FLL alumni Firebots also ran an annual week-long summer boot camp to overview FLL before the season began. By 2016, the Firebots extended to starting and coaching FIRST Lego League Explore teams with elementary school students. Many students graduate to continue onto FTC and FRC at Fremont High Robotics.



In 2020, due to the COVID-19 pandemic, we were not able to host our boot camp. Instead, 8 Firebots FLL alumni created the FLL Support team to develop a Youtube video series that gave students a crash course training on the various aspects of FLL: general information, robot design & strategy, EV3 programming, and project.

STEM Scouts

In 2020, we began our STEM Scouts program with an online Zoom outreach event with a Boy Scouts of America and a Girl Scouts troop in Sunnyvale. The scouts ranged from elementary school to soon-to-be high school students. Since then, we've hosted events with 6 scout troops, a total of over 200 scouts, and have returned for a 2nd year with Troops 404 and 406. At each event, we give an informative presentation about FIRST robotics and how they, as students, can participate in FLL, FTC, and even FRC when they start high school. After we always provide a hands-on activity to open them up to the creative processes found in robotics, whether it be a basic CAD follow-along or a group brainstorm on a whiteboard to present.



City of Sunnyvale

The Firebots are deeply connected to the Sunnyvale community and have partnered with the City of Sunnyvale on various occasions to demonstrate the power of robotics. For the past 3 years, we've held a RoboFun event at the Sunnyvale Public Library, where we demonstrate our competition-ready FRC robot to the general public. Knowing that many families visit the library, we provide guests with lots of resources regarding how they can help their young students get into robotics and talk directly with parents.



We've also participated in the City of Sunnyvale's organized events since 2018 (Sunnyvale Downtown Business Expo, Sunnyvale Heritage Museum Anniversary Celebration, the Sunnyvale Rotary Club). The robotics team has demonstrated their robot and held presentations about the team for people of all ages from Sunnyvale.



Hosting Competitions

The Firebots have also hosted and coordinated a number of FIRST events at our home base, Fremont High School. We co-hosted CalGames—an offseason competition for FRC teams in California—in October 2013 and October 2016 in partnership with the Western Region Robotics Forum. We also hosted two FLL Qualifiers in November of 2018 and November of 2019. Through these events, we've been able to connect with other FIRST teams and even fundraise by selling food and drinks.

Community Impact Project

In a community of disparities, we challenged lacking STEAM education in underserved schools by starting a long-term project. Greater than any single outreach event, this multi-year mission to give all students an opportunity to experience and grow interested in STEAM was created, alongside a new position known as the Community Impact Project Lead to guide our ambitious efforts. The Community Impact Project took the hopes and goals of leads from various years and turned them into a feasible plan with the potential for greatness.

In just year 1 of our 3-Year Plan, we have been able to reach 6 Sunnyvale elementary schools, exposing over 400 students to STEAM before they join Middle School. The excitement sparks the "WOW" moments that push them to take the next step forward.

Learn more about our plan in the Community Impact Project 3-Year Plan.

Sponsorships

Fremont High Robotics is a 501(c)3 non-profit organization and relies on community support through corporate grants, fundraisers, and private donations to cover various expenses, including tools and tool upgrades, safety equipment, marketing supplies, robot materials, and much more. The generosity of our sponsors is what allows us to keep the individual costs low and enable students in our diverse community of all socioeconomic backgrounds to learn and participate in hands-on STEAM experiences.

We accept support in the form of:

- Monetary donations
- Mentor support or paid volunteering hours for employees
- Facilities such as machine shops
- Equipment or software, especially laptops
- Discounts on goods and/or services


We sustain our partnerships with:

- Team updates through newsletters and recap videos
- Sponsor invitations to our workspace, competitions, and outreach events
- Visits to sponsors' facilities and events
- Sponsor recognition through social media

To donate, email us at fhsrobotics3501@gmail.com.

Tax I.D. #94-2907804

Sponsor Benefits

	BRONZE LEVEL <i>\$100 - \$499</i>	SILVER LEVEL <i>\$500 - \$999</i>	GOLD LEVEL <i>\$1000 - \$3500</i>	PLATINUM LEVEL <i>\$3501+</i>
Logo on website	X	X	X	X
Name on T-shirt		X	X	X
Name/Logo on robot			X	X
Registered as a minor sponsor			X	
Registered as a major sponsor				X