MVRT

SPONSOR PACKET

Monta Vista High School
Cupertino, CA

Monta Vista Robotics Team

Contact

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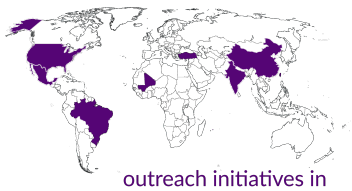
Statistics

1997 founded
179 registered students
19 mentors

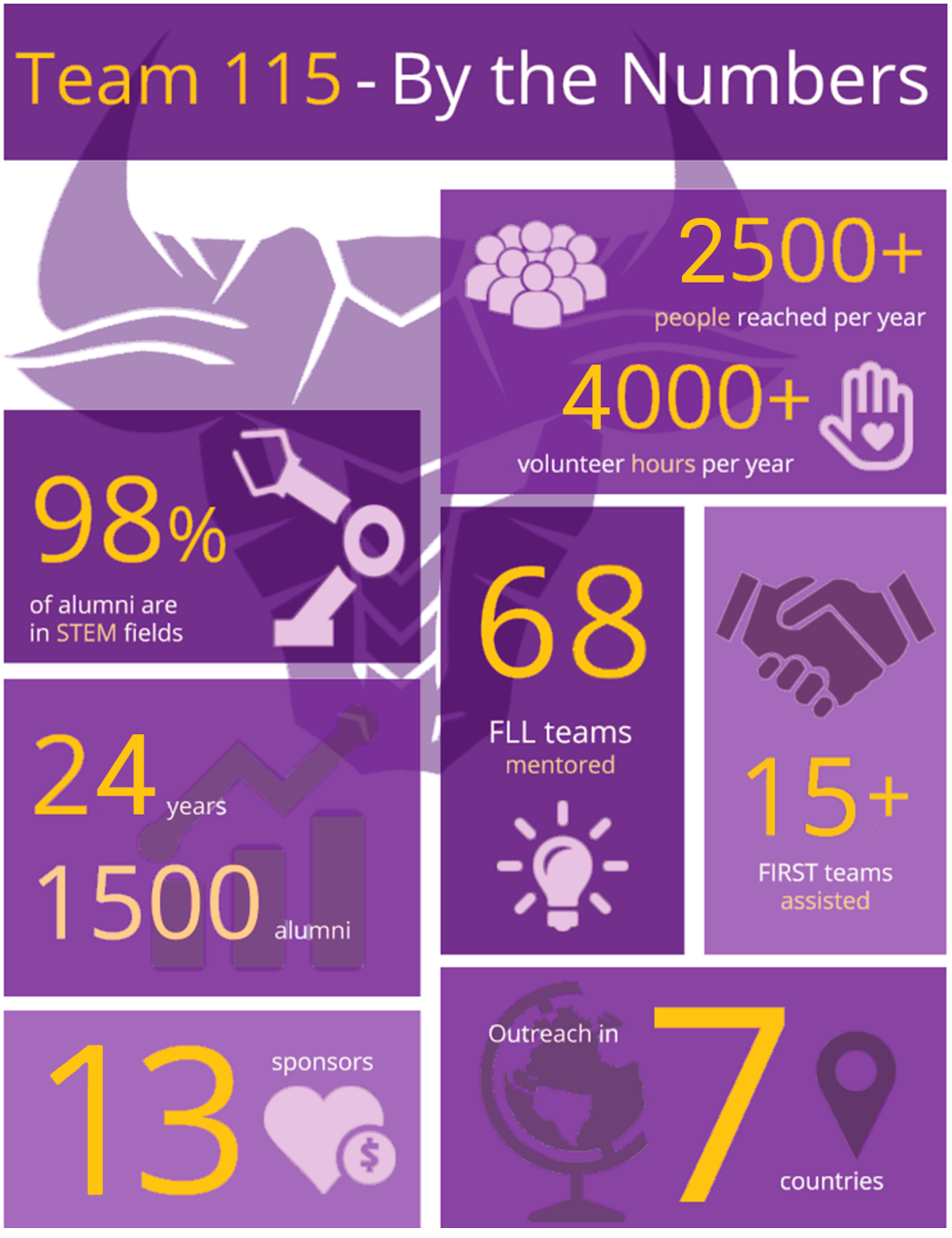
Awards

Finals: 12
Chairman's: 1
Entrepreneurship: 4
Dean's List: 3
Quality: 1
Safety: 1



outreach initiatives in
27 states
7 countries

Statistics



What is the FIRST Robotics Competition (FRC)

Founded in 1989, FIRST (For Inspiration and Recognition in Science and Technology) prides itself on its leadership in the scientific arena and its commitment to building a strong foundation for the country's future workforce. One of FIRST's main goals is promoting scientific innovation through the annual FIRST Robotics Competition (FRC), designed to immerse high school students in real-life engineering in the spirit of "Gracious Professionalism" to others. Each year FIRST develops the competition by supplying an objective to teams of students, who have six weeks to conceptualize, design, build, and test their robotic solution through a series of two-minute qualification and elimination rounds during a three-day competition. This format requires that teams strategize and build into their design both offensively and defensively.

Overview of MVRT

Founded in 1997, the Monta Vista Robotics FIRST Team #115 was established by a few friends looking for a way to venture into robotics and STEM. Over the last 24 years, our team has grown from its humble beginnings in a physics classroom into a team with a lasting impact on its community and students. Today, we have over 179 members and 1500 alumni, with projects and partnerships connecting us to people in our community and around the world.

MVRT Mission Statement

Dedicated to fostering a passion in science and technology within our community, the Monta Vista Robotics Team inspires students and develops interpersonal skills through team-based engineering challenges.

Through the program students are able to:

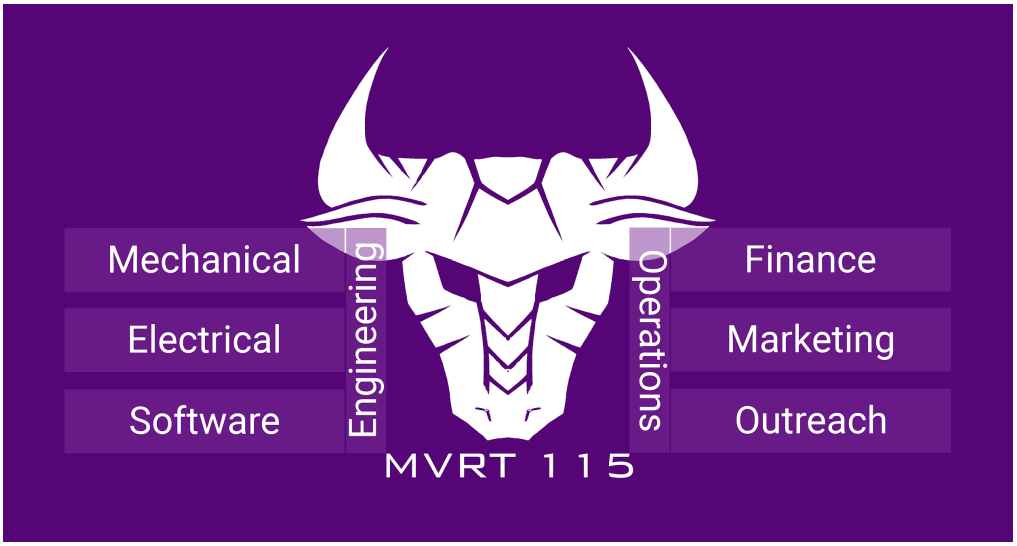
- Learn how to work in a team and develop communication skills
- Develop engineering skills in Mechanical, Software, and Electrical
- Work alongside mentors in the industry to gain firsthand experience
- Maintain a team budget and lead outreach programs within our community
- Promote good sportsmanship
- Take part in leadership opportunities

Team Overview

	Established March 1997	Current: December 2020
Members	9	179
Officers	1	12
Mentors	1	19
Community Service	None	Over 1,000 hours

Type	Year
Chairman's Award	2010
Division Winner	2001
Division Finalist	2017
Regional Winner	2003, 2008, 2008, 2017
Regional Finalist	2001, 2002, 2002, 2009, 2010, 2020
Entrepreneurship Award	2007, 2015, 2018, 2019

Team Structure



MVRT is divided into two departments: Engineering and Operations. Engineering is subdivided into Mechanical, Electrical, and Software, whereas Operations is subdivided into Outreach, Marketing, and Finance. During build season, the Engineering and Operations directors select a group of team leads, who work within their project teams and communicate with officers through Discord. MVRT also utilizes social-media platforms for advertising team image and keeping the community informed on upcoming dates and activities.

Mechanical

The mechanical division is responsible for designing, prototyping, and fabricating the robot each year. Students learn how to use CAD (Computer-Aided Design) and work with tools such as a CNC router, laser cutter, mill, and lathe.

Electrical

Within the electrical division, students learn how to wire, solder, and crimp and apply the concepts of electrical engineering to design and wire the robot and implement pneumatics.

Software

The software division develops code for the robot, website, and other team applications. Students learn and apply their knowledge about computer vision, autonomous driving, and controlling mechanisms on each year's robot.

Outreach

The outreach division organizes and maintains initiatives to impact our community, through STEM education programs, demo's, and networking. A full list of programs can be found below.

Marketing

The marketing division manages internal and external team affairs, design marketing materials, and uphold the team brand and ensure a professional team image.

Finance

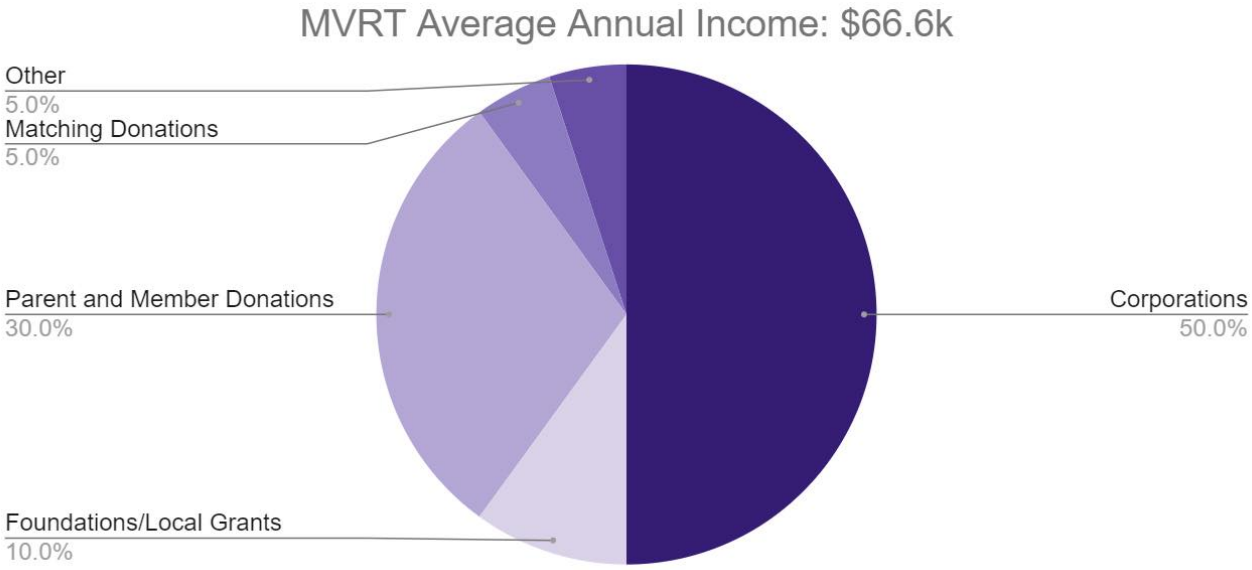
The finance division budget and maintains team funds, connects with corporate sponsors and maintains relations with our sponsors. The division also manages team purchases and reimbursements.

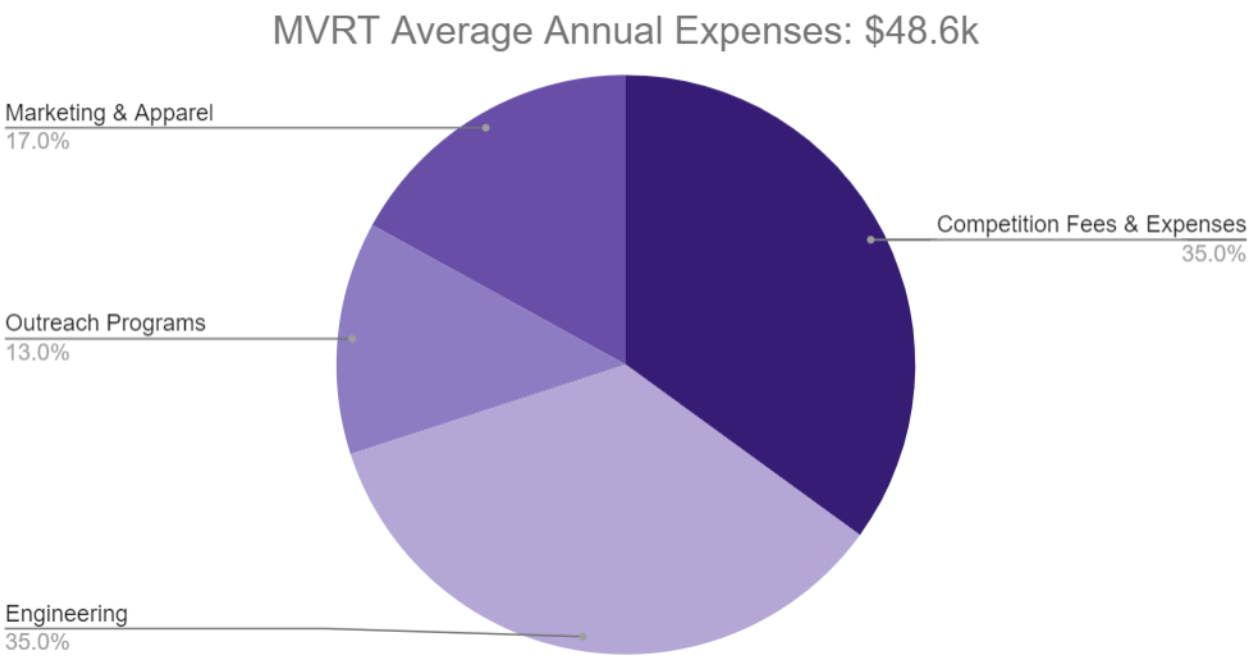
Response to Coronavirus

During the pandemic, MVRT has moved all work online such as hosting team-wide trainings for our incoming rookies and veteran members through online workshops and lectures that both teaches and engages them in an informing manner. These trainings encompass what they need to know for all divisions from finance to electrical. As a result, our members become more invested in our various tasks, removing the narrow focus towards engineering in our team culture. We also are seizing the lack of a complete FRC season to have our members learn in more depth the aspects of engineering and operations, including building skills ranging from learning CAD (Computer-Aided Design) to developing software simulations to practicing soft skills such as leadership.

Finances during the Pandemic

Even during the Pandemic, MVRT continues to persist in making an impact in the lives of our members and our community through a variety of projects and initiatives in Operations and Engineering. To fund these actions, MVRT has had a new Income Goal of *$40,000* to remain sustainable, and intends to spend over *$25,000*. However, raising an income of over 40k is no easy task. With many companies restricting their foundation and community grant portfolios, access to a large portion of our annual income has diminished during the pandemic. Therefore, any donations and sponsorship grants that we do receive in these times become even more valuable and are deeply appreciated. Below is information for our annual (non-Covid-19) fiscal years that we'll have to sustain come fall 2021 and onwards.




MVRT Average Annual Expenses: $48.6k
Marketing & Apparel
17.0%
Competition Fees & Expenses
35.0%
Outreach Programs
13.0%
Engineering
35.0%

Sponsor Relations

MVRT's sponsors provide us with a variety of support, ranging from monetary contributions to store discounts, mentors and more. We have grown from a few sponsors in 1997 and now have 13 sponsors supporting us. They provide us with mentors and grants to fulfill our engineering aspirations. With MVRT alumni working at 11 of MVRT's current sponsors, sponsoring MVRT is a long-term investment that pays dividends. MVRT also sends donors event recaps, weekly build season updates, newsletters, and handwritten thank you notes. These efforts have resulted in long-standing partnerships, between five and 10 years long, with 60% of MVRT's corporate sponsors

We accept support in the form of:

- Monetary Donations
- Contributing advisory support of paid volunteering hours
- Donating equipment (software, hardware, parts, etc.)
- Donating or providing a discount on goods and/or services

We maintain strong partnerships with our sponsors through:

- Working on special projects (Google Home Arm, Intel RealSense Camera)
- Attending sponsor events (Intuitive Surgical's Open House, Intel Kids Day)
- Inviting sponsors to team events (Kickoff, Regionals, Awards Night)
- Providing members internship opportunities
- Keeping open communication (Newsletters, End of Season Report)

We recognize our sponsors by displaying name/logo on:

- Team Website
- Apparel
- Banners
- Robot Side Panels

Current Sponsors

arm

Google

the foundation
FREMONT UNION HIGH SCHOOLS

Abbott Fund

ZOOX

INTUITIVE Foundation

Western Digital®

BAE SYSTEMS

PayPal

NASA

Rotary Club of Cupertino

OUTREACH PROGRAMS

Taiwan

Annually, MVRT invites 25+ international students from Taiwan to tour our facilities and learn about the FIRST Robotics Competition. MVRT also holds demos for the Taiwan Exchange Students. We are now supporting them as they start their own FRC team. The team is currently meeting on a daily basis based on the coach's responses and has had a successful kickoff. They are meeting for Build Season and we are in constant contact with them for them to be ready for this season.

SISTERS in STEM

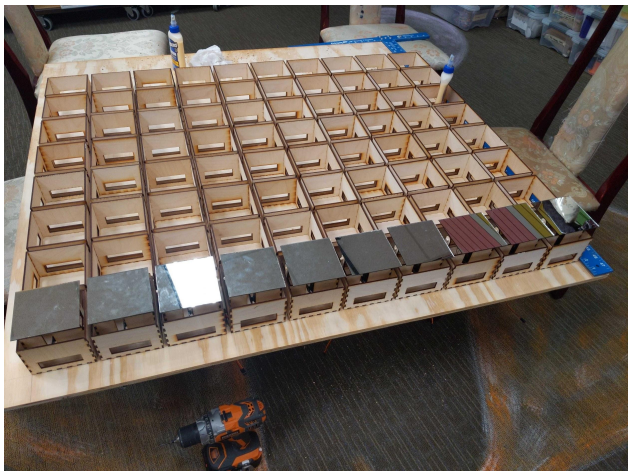
Sisters in STEM (SiSTEM) is a program founded by our female veterans in 2016 to combat the lack of girls in STEM and encourage more females to join the team. Many girls felt discouraged to be a part of the team, especially in the engineering divisions, and MVRT often experienced low retention rates of female members. To combat the lack of diversity in STEM, the SiSTEM initiative was introduced to recognize the gender gap that currently exists in engineering fields and provide a solution to the problem. With this program, we have had an 80% increase in female attendance and member retention and an increase in overall team morale.

Eureka & STEM4KIDS

Eureka and STEM4Kids are new programs that we started this year with the goal of expanding the world of STEM to those in our community to those who are underprivileged. We also wanted to provide more STEM education opportunities for special needs students. Through these programs, we hope to expand our mission to help provide equal opportunities to everyone in our community.

FIRST LEGO League (FLL)

Each year MVRT students mentor over 50 middle school students spread across 6 FIRST LEGO League (FLL) teams. Through this program, MVRT members teach students engineering, programming, and team collaboration skills through hands-on activities. Since its establishment in 2003, MVRT has mentored over 68 FLL teams and many of these mentored students go on to join MVRT and other robotics programs in high school and build off the foundation they gained in FLL.



Hongyun Art

One of our most unique and innovative outreach programs is Hongyun Art—a series of classes based on teaching kids STEM through art. We worked with Hongyun Art, an art studio, hosting camps for Scratch, Python, Java, and Arduino. Overall, the partnership is fulfilling to both sides, as MVRT students are able to gain insight in art and creativity while Hongyun Art students can learn STEM skills. Since the pandemic, we started another endeavor to help students build interactive art projects that will be exhibited at art displays and expos next year. We have been teaching engineering skills to art-oriented high school students, helping them apply tech to make large-scale art installations such as a 17-by-5 foot array of wooden tiles that each change angle to reflect light in response to a viewer's movements.

Ohana

MVRT formed a partnership with the Ohana Club, a club at Monta Vista dedicated to providing special education students with as many skills as possible, to teach students STEM concepts in an interactive, hands-on way. Throughout the years, our curriculum has evolved and improved based on feedback from both the Ohana students and the Ohana officer team. The program was founded in 2012 and has grown to have over 60 special education students participating in the program.

Think FIRST

MVRT stepped in when the Cupertino Union School District canceled the GATE program in 2005. To fill in the gap left by GATE, we offered the community free STEM education by holding weekly classes at local middle and elementary schools, developing a curriculum to teach basic engineering skills. The program has since taught over 300 students, many of which have joined FIRST programs. Through this program, students honed their communication and management skills and furthered their own understanding by teaching others.

Engineering Projects

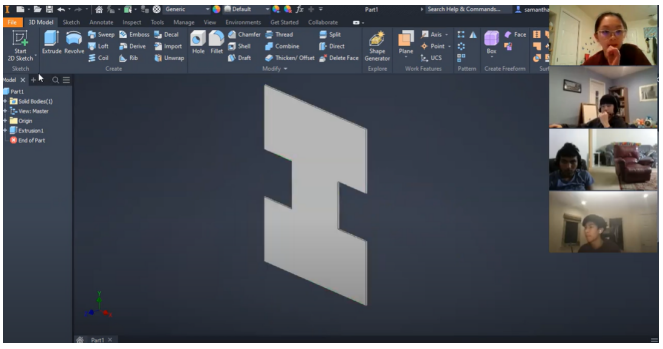
Even during the pandemic, MVRT continues to enhance our engineering department through various projects around the year to help students understand various aspects of engineering in the mechanical, engineering, and software divisions.

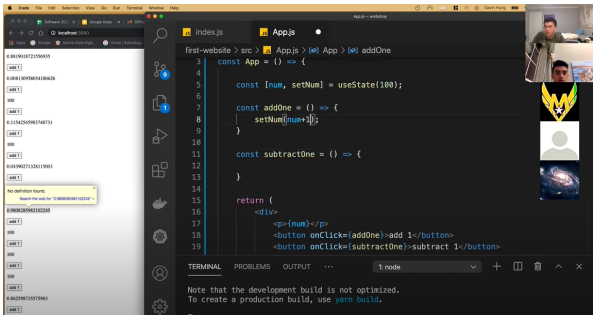
On the mechanical engineering team, veterans are learning how to CAD complicated mechanisms of the robot such as the elevator, an extending arm that allows the robot to climb, or the swerve drive, in which each wheel can move in any direction. They are also learning how to use tools such as the CAM, computer aided manufacturing.

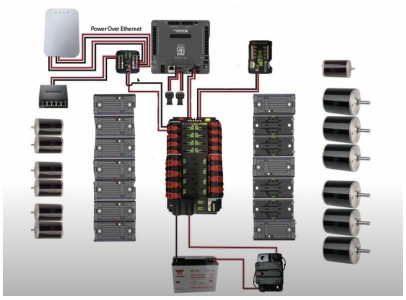
On the electrical side, veterans are learning how to use various sensors and how to CAD belly pans, the place where all the electrical components are stored. There are also various research and development projects on different types of sensors such as the LIDAR, Potentiometer, and Ultrasonic.

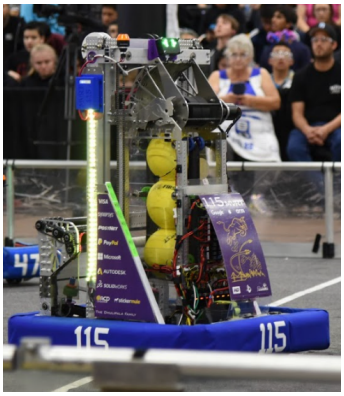
Finally, in the software division, veterans are making the Super Scout Website which would allow the Robotics Team to communicate with each other when competitions start. Moreover, they are learning how to simulate robot code on their own computers which would allow them to test their code without using an actual robot during this pandemic. Finally, they are learning how to make the robot drive autonomously using PID, PATH Finder, and other algorithms to help them create a fully functioning robot.

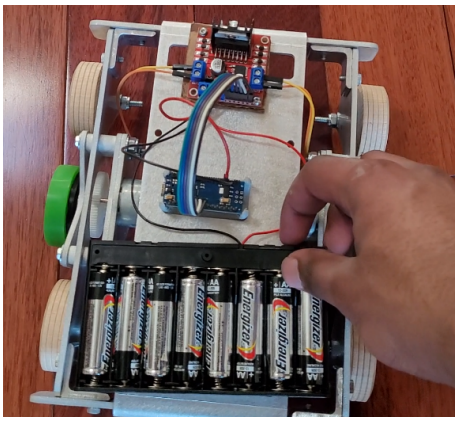
Throughout each division, there are challenges such as CADathon, HACKathon, and creating a Chatbot that have team members dive deeper into engineering.











Where We Go


UCLA
BRUINS
SAN JOSE STATE
SWARTHMORE
HARVARD
OHIO STATE
NYU
PURDUE
UNIVERSITY
ILLINOIS
UNIVERSITY OF SAN FRANCISCO
Penn
MIAMI UNIVERSITY