

Chairman's Award - Team 3512

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2022 - Team 3512

Team Number

3512

Team Nickname

Spartatroniks

Team Location

Orcutt, California - USA

Describe the impact of the *FIRST* program on team participants within the last 3 years. This can include but is not limited to percentages of those graduating high school, attending college, in STEM careers, and in *FIRST* programs as mentors/sponsors.

The goal of our team is to give students the motivation and knowledge to pursue STEM majors in college and later on join a STEM career. We help students as much as possible with this goal, which is why we offer team scholarships and college credit called CWE (Cooperative Work Experience). 84% of our students plan to go to college and 63% plan to go into a STEM career. 85% of our alumni have gone to college. Currently 44% of our mentors are alumni of our team.

Describe your community along with how your team addresses its unique opportunities and circumstances.

We are located in a rural, agricultural and lower income area where there is a lack of STEM options. As a team, we work to help students gain access to opportunities in STEM. To do this we host events that involve our community such as FLL camps, robot demos at schools, and participate in Expos. To ensure that financial hardship doesn't prevent our students' from participating in the full *FIRST* experience, the team fundraises to pay for flights, hotels, and transportation to competitions.

Describe the team's methods, with emphasis on the past 3 years, for spreading the *FIRST* message in ways that are effective, scalable, sustainable, and creative. How does your team measure results?

FLL is the main way new students learn about FRC and our team. 37.5% of students on our team are alumni of FLL and learned about FRC through events like FLL camps, competitions, and robot demos. The way we measure results is through a team form that details which students were formerly in FLL. Another big way we spread the message of *FIRST* is through the rally's we hold. It's a great way we show other students who aren't on the team what *FIRST* is about, and hopefully get them interested in STEM.

Please provide specific examples of how your team members act as role models within the *FIRST* community with emphasis on the past 3 years.

Our team practices gracious professionalism both on the field and off. In the past, students from our team have been Regional Student Ambassadors at FRC competitions. Our team offers to mentor FLL teams by lending our students to help out with coding and overall support. Our students helped the Radioactive Mustangs design and 3D print their model for their presentation. We host a yearly FLL camp where students on our team guide the students participating in the camp in building an FLL EV3 robot.

Describe your team's initiatives to Assist, Mentor, and/or Start other *FIRST* teams with emphasis on activities within the past 3 years.

Our team helps mentor local FLL teams. In addition to what we've mentioned in previous questions, we train and prepare our students to go into these mentoring positions. We have also taken initiatives to start new FLL teams through camps our team hosts. These camps are also a way we recruit new students to FLL teams. We also host qualifying tournaments for FLL and in 2021 we had options for both in person and remote teams.

Beyond starting teams, what initiatives have you done to help inspire young people to be science and technology leaders and innovators? What results have you seen from your efforts in the past 3 years?

Our team has leadership positions for each sub-team and two team captains, one for the robot side and one for the business side of the team. All of the work is done by the students including training of new members. We put on robot demos and build room tours at the FLL qualifiers to inspire the teams. We collaborate with other FRC teams like 1138 Eagle Robotics and 973 Greybots to demonstrate our robot at STEM expos.

Describe the partnerships you've created with other organizations (teams, sponsors, educational institutions, philanthropic entities, etc.) and what you have accomplished together with emphasis on the past 3 years

For the past 3 years, we have partnered with Allan Hancock College with their CWE class. CWE enables high school students to earn college credits, and students on our team have earned a total of 17 credits. We partnered with the Elks in the past to hold a dinner auction where we raised \$20,000. Our team tries to build relationships with other FRC Teams like picking up 973's kit of parts, having a shared slack channel with 5818, and participating in CAD-a-thons during the off-season.

Describe your team's efforts in the past 3 years to promote equity, diversity, and inclusion within your team, *FIRST*, and your communities.

Our team promotes equity in a variety of ways, anyone's allowed to join our team and if they come from a lower income household we will help with funds. Of our 30 team members, 53% are girls and 50% of our leads are women. We are the only team at our school that doesn't require a fee or previous experience to join, everything is provided by the team. We pay for all travel, hotels, competition costs, and we help any student who needs additional financial aid.

Explain how you ensure your team and the initiatives you have created will continue to run effectively for the foreseeable future

Every year during the off-season we plan the team budget for the following year. The budget is also flexible, meaning we can move funds if necessary and make changes accordingly. In order to bring in more people, we participate in events ranging from Club Day at our school to community demos. Our biggest recruitment events are the FLL competitions we host for local teams. To help FLL teams in our area run effectively we mentor teams and host competitions.

Describe your team's innovative strategies to recruit, retain, and engage your sponsors within the past 3 years

A major way we partner with new sponsors is by students talking to local businesses and encouraging them to support the team. Every year, our students are given a training session to learn how to ask for sponsorships and write their own "elevator pitch." After finding sponsors, we keep in touch with them through our weekly newsletter, "SponsorTroniks", and engage them in events like our Robot Demos.

Highlight one area in which your team needs to improve and describe the steps actively being taken to make those improvements.

An aspect we are working to improve is recruiting students for the business sub teams. We plan to fix this with more direct recruiting of students who are more interested in less technical projects. An example of this would be through FLL, explaining that we have a business side and that it's great for students who enjoyed the project side of FLL. Another way we plan to implement this is through talking about the business side of the team during freshman orientation and Club Day.

Describe your team's goals to fulfill the mission of *FIRST* and the progress you have made towards those goals.

We run the team in a business-like setting to give students a realistic work experience and encourage students to take leadership positions. Every student interested in being a lead applies by submitting a resume and following through with and interview before being considered for a lead position. Larger leadership positions for students are the captain positions, where the students lead the entire robot or business side.

Briefly describe other matters of interest to the *FIRST* Judges, including items that may not fit into the above topics. The judges are interested in learning about aspects of your team that may be unique or particularly noteworthy.

Our team created a 501(c)3 non-profit, a organization in order to control our own funding. Students handle a majority of the business tasks. Under the guidance of our non-profit board, we make the budget, monitor the funds, and plan for the team's general longevity. We also do not make students pay for their spot on the team or for traveling to competitions. The entirety of our funding comes from the community through grants, sponsorships, fundraisers, and community donations.

Essay

The Spartatroniks team was founded 11 years ago in 2010. Our team is based in a rural area located in northern Santa Barbra County, near the Vandenburg Space Force Base. Our core ideals and motto "It's not about the robot" were central to our formation and still reign true in the management of our team today. Team 3512 has had roughly 250 students graduate as well as having more than a dozen graduates return to mentor the team over the years.

Team 3512 has both a Robot and Business captain attending to the two halves of our team. These two captains are essential for our team as we've grown in numbers over the years, so we now have a more intensified focus on the business side of our team to help students prepare for potential business careers. The Business captain guides the Outreach and Accounting sub-teams. Outreach works to increase our impact on the community as a whole, through social media and planning events and fundraisers for our team to partake in. These include activities like car washes and barbecue fundraisers. They work on flyers or newsletters for the team in order to get more interaction with our team and our events throughout the community. Outreach also deals with planning events for the team itself, like team bonding activities. Accounting works on writing grants as well as managing the team budget. This means explaining the budget to the team and how it changes over the season. They organize business contacts for sponsorships and the team overall. Students do nearly all team management tasks, as 3512 is a student-run team.

The Robot captain is responsible for leading the Mechanical, Electrical, CNC, CAD, and Software sub-teams. Mechanical works with the heavier machinery and helps to make the robot through attachments of parts, as well as general building of the robot. Most often they are making or working on parts or assembling the robot's chassis. Working closely with Mechanical is our Electrical sub-team. Electrical does the wiring work within our robots as well as any pneumatics used on the robot. They also build and install our electrical boards. New this year as a separate sub-team is CNC who works with specialized machines to cut out parts for our robot. Their importance to our team is so great that they now need a specific lead to be responsible for the pieces being made. They closely work with our Mechanical and CAD sub-teams to create a robot with custom, better-fitting parts. CAD creates 3D models of the robot's design as well as specific parts for the robots. This helps the team to visualize the robot ideas and therefore create the most fitting robot for our team. Software works on the coding within the robot. This includes the robot's vision as well as automated shooting and driving. Drivers can come from, all students eligible to try out each year. Our sub-teams all work together through interconnection and collaboration to bring our robot to life.

Within our team of 30 students, roughly 59% are young women. A third of our female members hold leadership positions. Even though team 3512 is predominantly white, we have been trying to reach out to more potential members to better reflect the diversity of our community. Our team goes into Santa Maria, which has a very large Hispanic/Latinx population; the team volunteers and runs robot demos in an effort to recruit community members to join or start robotics teams within our area. We've been able to reach over 6,000 students and potential FIRST members with these efforts throughout the years. In response to the socioeconomics of our area, which is mostly made up of lower- and middle-class families, we do not charge any fee or suggested donation for students to join the team or travel to competitions. This lets members of all backgrounds have the opportunity to be a part of our team regardless of their financial situation. Team 3512 also has a higher minimum grade and GPA requirement than other extra curriculars offered through the school. This demonstrates the team's concern about the students as well as their future. The school doesn't offer any woodshop, welding or auto shop classes which means that Spartatroniks is the only option for students to get any hands-on experience in STEM.

In 2019, we began to offer a class with the help of Allan Hancock College, our local community college, called Collaborative Work Experience, also known as CWE. This class lets students earn college credits for doing work on the team, allowing both to be done at the same time. Around 50% of our students have participated in this program and 25% are returning members to the program through robotics. In total, through CWE we cumulatively have 38 units earned by our current students. This program will continue to be offered to our students as long as possible.

Team 3512 also hosted our first, now annual, fireworks booth 2 years ago where we fundraise for the team as well as get experience of what it's like being in the workforce. Our members get to apply their skills and learn about how fundraisers help out our team. Team 3512's first dinner auction was also held during this time and because of its success, Spartatroniks has decided to continue it annually. During the dinner auction we raised over \$20,000; which was the team's best single day fundraiser ever, and also shows how engrained 3512 is with our community. Spartatroniks celebrated its 10th anniversary in 2020 which is a testament to how dedicated many people are to keeping this team running, our mentors are a great example. Our mentors have 69 years of cumulative experience with FIRST to bring to our team and give students more hands-on experience opportunities. Every winter, our team hosts a yard sale. Team members bring in items from their homes to be sold and raise money for the team. During our most recent yard sale, we raised over \$2,500 which is the best our team has done when holding this fundraiser.

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There have been many efforts conducted by Team 3512 to demonstrate our dedication to Coopertition throughout the years and continuing forward. We share a Slack channel with another local Robotics team, team 5818. We've competed at regionals with team 5818 in our alliance and opened a Slack channel with them soon after. This gives us means of sharing our gathered information and insight to have a sense of community between our teams. When we pick up our Kit of Parts, we also bring Team 937's Kit as a gesture of kindness to another local team. Spartatroniks also collaborates with Team 4201 to play in scrimmages in the Orange County area to be more fully prepared with their help. Our team is part of the Central Coast Alliance, allowing us to become closer to other local teams and collaborate with them more often.

Our CAD sub-team has also participated in several CAD-a-thon events. These FIRST community hosted events allow our CAD team to compete against 25 other teams, while designing competition level robots. This has been an enlightening experience for our students in terms of influencing how we design going forward, as well as learning how other teams design their robots. Our team has scouting collaborations with other teams while at competitions. Scouts watch teams perform and record information to gauge compatibilities between robots as well as data on how often they make shots or perform overall. This then aids in our picking of alliance members and helps others to choose as well. This also teaches our students to conceptualize the competition and gives them experience working with strategies.

In the last few years, we were also able to upgrade and purchase a second CNC machine for our build room. This has been paired with other general machinery upgrades like new lathes, grinders, and horizontal bandsaws. We've invested in hosting and running FLL tournaments, as well as putting on engaging robot demos by purchasing professional quality sound and projection equipment. These general upgrades assist our team's effort to be an impactful and indelible element of our community.

Even during a pandemic, Spartatroniks still strives to keep members engaged and active in our community while following proper safety precautions. Throughout quarantine, we had to meet through calls online and some members of the team were able to take parts of the robot to their homes to work on their own time. Whenever we had in-person meetings, the team had to limit the number of members allowed to show up. To compensate, a Zoom call with a camera was set up in the build room to let any member join virtually. Team members at home had the chance to learn and ask about build room equipment during these calls.

Recently, the team started building a swerve drive which will improve the mobility of our robot and allow for additional learning opportunities for CAD, mechanical, and software team members. Although we couldn't meet together in person as much as we would have liked, team members were still able to see each other and spread the word of Spartatroniks throughout our community.

Last October, Spartatroniks attended the off-season competition Tidal Tumble. The students voted and decided to include the whole team despite the pandemic restrictions by splitting the competition into two shifts. This was the first in-person competition we participated in since quarantine started, finally giving newer members of the team the opportunity to experience a real competition.