

Chairman's Award - Team 4201

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2019 - Team 4201

Team Number

4201

Team Name, Corporate/University Sponsors

Raytheon/Society of Women Engineers/Wiseburn School District/Northrop Grumman/The Boeing Company/SpaceX/Elite Technologies/Embrace Apparel/Dropbox/Da Vinci Schools/Danger Research&Da Vinci Science

Briefly describe the impact of the *FIRST* program on team participants with special emphasis on the 2018/2019 year and the preceding two to five years

FIRST gives the members of our team the opportunity to enhance their engineering and leadership experience through hands-on learning and interaction with our industry mentors. It influences our students to become leaders in their community by starting and running engineering and service clubs at our school. In addition, a strong partnership with our corporate sponsors has enabled several of our alumni to land jobs at companies like Raytheon and SpaceX after college.

Describe the impact of the *FIRST* program on your community with special emphasis on the 2018/2019 year and the preceding two to five years

We are lucky to have a large facility which allows our team to bring others into our home. Our new campus hosts engineering events for the community including the Chevron Design challenge and FLL Expert Expos. We also use this space to host our summer camp and support a variety of outreach events. We open our machine shop and practice field to all local teams, and we were happy to host an FRC kick-off event this season!

Team's innovative or creative method to spread the *FIRST* message

Each year, we host a Lego Summer Camp inspired by the last FRC game that attracts hundreds of students each week. We also participate in multiple events and opportunities to demonstrate STEAM to the youth in our community. With such a large team we can always find people to support Hack-A-Thons, STEAM Expos, Maker Faires, and demonstrations around our community. At these events, we interact with people young and old and show them how fun robotics can be.

Describe examples of how your team members act as role models and inspire other *FIRST* team members to emulate

With our team's new facility, we set an example of FIRST values by welcoming everyone into our new home. Last year, our team heard that our friends from Team 330 needed a new home. We invited them to our home and they and now use our facility to work and practice at. We set up a full field and opened it up to our local teams which is helpful to several teams in our region. We also have an open shop policy helping many teams make custom CNC parts for their robot.

Describe the team's initiatives to help start or form other FRC teams

In the past, we have helped rookie FRC teams, like 5851, get started by hosting programming and electronics tutorials for them. Last year, we were excited to start and guide the new rookie team 6904, The TeraWatts. Their 100% minority team is from the city of Watts, CA where 97% of the population is below the poverty line. We hosted team the rookie 7455, Narbots, this year after kick-off to build their kit-bot. We were happy to remotely help of Team 3455 this year prepare for Chairman's.

Describe the team's initiatives to help start or form other *FIRST* teams (including Jr.FLL, FLL, & FTC)

Through designing and hosting our own FLL-inspired summer robotics camp, our team aims to expose kids to FIRST and encourage them to form their own teams. In 2015, 4201 founded our first FLL team, 16555 and are proud of their Champions Award in 2016! We continue to mentor seven FLL teams in our area and are starting more teams at our partner middle schools. Lastly, we are starting an FLL Jr. team at a local elementary school in Carson, bring the 1st FIRST team to that region.

Describe the team's initiatives on assisting other *FIRST* teams (including Jr.FLL, FLL, FTC, & FRC) with progressing through the *FIRST* program

Our new facility allows us to open our machine shop and practice field to dozens of local teams in our area. We reach out to rookie teams to support them with kit-bot builds, programming, and design ideas. We handout rookie care packages to all rookie teams at each regional we attend. These packages contain essential competition materials like duct tape and zip ties. We also help mentor 8 local FLL teams and volunteer at several FLL events in our region.

Describe how your team works with other *FIRST* teams to serve as mentors to younger or less experienced *FIRST* teams (includes Jr.FLL, FLL, FTC, & FRC teams)

Many of our team members are mentors for 7 local FLL teams. We helped start Team 6604, The TeraWatts by donated tools and materials to them so they can start on a strong foot. We even sent students to support them at their first regional. This year, we were able to assist teams 3455, 6657, and 5124 with their Chairman's award. We were also able to help assist team 2637 with learning how to use a CNC mill so that they can teach others at their shop, how to best utilize their new tool.

Describe your Corporate/University Sponsors

We are grateful for our corporate sponsors who contribute their time, food, and money to support us. This includes companies such as Raytheon, Boeing, Northrop Grumman, SWE, DropBox, Embrace Screen Printing, and SpaceX. We're also partnered with El Camino College to help provide concurrent enrollment programs to those who take a PLTW course at our school. In addition we partner with Cal Poly SLO to create curriculum for project-based learning.

Describe the strength of your partnership with your sponsors with special emphasis on the 2018/2019 year and the preceding two to five years

Our partnerships with our sponsors create a pipeline for our team members to intern with leading aerospace companies. We visit our sponsors several times a year to spread the message of FIRST and encourage more employees to become mentors. We are also working with our main sponsor, Raytheon, to develop specific hiring events targeted to FIRST alumni. Most recently we worked with our sponsor to develop a prosthetic arm for an amputee, as we strive to make the world more accessible for everyone.

Describe how your team would explain what *FIRST* is to someone who has never heard of it

FIRST is a fun and collaborative robotics competition that empowers anyone from children to adults to learn and apply engineering concepts to real-world applications. It allows ambitious students to be original with their work as they innovate and create something physical from their imagination. FIRST promotes business, communication, and a whole spectrum of skills that do not just revolve around engineering. It encourages students to grow in leadership, creativity, collaboration, and teamwork.

Briefly describe other matters of interest to the *FIRST* judges, if any

Two years ago, our team participated and won the FIRST's parody contest with our entry "My Bot", inspired by the musical Hamilton. Last year, we parodied Bruno Mars' "That's What I Like", which included scribble-style animation that interacted with the dancer. Producing high-quality content shows our potential, communication, and ability to work together on a creative project gave us the chance to create inspirational songs which has collaboratively been viewed over 35,000 times!

Team Captain/Student Representative that has double-checked this submission.

Lauren Miller

Essay

In 2012, our team began with 2 mentors who wanted to provide students with real-world STEAM experiences, and managed to recruit 10 kids who shared this goal. Over time, members of our community were able to see how our hard work and dedication allowed us to become the Da Vinci Schools' signature program. Last year, we packed up our bags and moved from our original home into a new, larger campus with our sister schools, Da Vinci Communications, and Da Vinci Design. This allowed us to welcome students from all three high schools into our family. Our original home contains so many lasting memories, but creating new memories and beginnings is exciting for our ever-growing family.

Our move not only allowed us to expand our team but bring others into our space as well. Our team was lucky enough to secure a grant that allowed us to procure a complete FIRST Robotics Competition Field, and with this new field, we are able to support about two dozen local teams with practice space before competitions. When we got word that the normal location for FRC kickoff was unable to host teams this year, we were able to step up and invite 50 local teams into our home to experience the 2019 season start together. We helped distribute the kit-of-parts to each team in attendance and watched the live stream together. We are excited to host future FIRST competitions in our facility and welcome teams from all over the world into our universe.

When we learned that our close friends, Team 330 The Beach Bots, needed a new space their team could call their own, we invited them to move into our home. We have learned so much from our neighbors through their award-winning experiences in FIRST. Our partnership has also enabled their members to accompany us on countless outreach activities, such as our Robotics 360 and STEAM Expo events. Our relationship with The Beach Bots has allowed us to create bonds through FIRST, whether it's sharing scouting data during competitions, or sharing meals together after a long day's work in the shop. We are excited to support the Beach Bots' final season and compete with them at the same regional this year. The memories we've made these past two years, including our alliance during the Houston Championships, is something we will always cherish.

In 2017, our family was excited to help start and mentor team 6904, The TeraWatts. Our family visited them in their hometown, which was an eye-opening experience as we witnessed how fortunate we are. In the city of Watts, 97% of the population is below the poverty line and 95.5% of students qualify for free or reduced lunch. Only 2.9% of residents in Watts, aged 25 and older, have a 4-year degree. They do not have access to the same resources most teams utilize, so we are sharing our experience, tools, and techniques with them to ensure they have a strong start. We welcomed the TeraWatts into our home, and they were happy to start their journey in the FIRST universe. We were proud to see that the TeraWatts placed 5th in the Song Parody competition last season, and they even started their own summer camp in 2018. As the TeraWatts continue to advance STEAM in their community, and start other FIRST teams, we are excited to provide help and resources to grow the message of FIRST.

Our mission to bring the inspiration and inclusivity of STEAM to those in our universe is also centered in our own community. This is prominent in our desire to grow young girls' passion and confidence for participating in STEAM fields by collaborating with our local Society of Women Engineers (SWE); which includes some of our female team members. Together, we have planned field trips to local aerospace firms, provided weekly mentoring to young girls from 6th to 8th grade, and hosted presentations by professional female engineers. We house monthly SWEvents, where we teach young girls, ages 5 through 14, how to use robotic components, set team goals, and practice STEAM-based projects. For over 2 years, more than 80 girls participate each month and continue to come back to our family because of our nurturing culture. We are always dedicated to introduce STEAM to young girls in our community.

Every year, we present our robot at several community events. You might spot us dunking our principal in the dunk tank with a ball thrown by our robot at our school district's annual Rock Around the Block fundraiser. At R. H. Dana Middle School in Hawthorne, California, we lead many Hack-A-Thon events; an event promoting STEAM to kids through hands-on projects, guest speakers, and engineers from the community. We have visited several of our local elementary schools and participated in STEAM Expos, reaching over 400 students. During these Expos, we demonstrate our robot's functionality and talk to students and parents about the benefits of participating in STEAM programs. It is always fun to see how kids get excited about our robot, and it is rewarding for us to hear that we are one of the best exhibits at each event.

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In our home, we started the Da Vinci Lego Robotics Camp in 2014, a summer program led by our own team members. Over the years over 1000 campers have attended our program and participated in our challenges. They return summer after summer, bringing their friends and enthusiasm, which encourages us to make each year better than the last. Last summer, we welcomed over 200 elementary and middle school campers to create robots for a competition that incorporated the FIRST POWER UP theme into an FLL style game. Through interactions with our members, many students were inspired to create their own FLL teams, and maybe one day join our FRC family. In the past 7 years, we have had the pleasure of mentoring fourteen FLL teams, including a team who won the prestigious Champions Award. We have connected with over 400 local FLL teams through volunteering at FLL qualifying tournaments, including the Los Angeles Regional Championships. We even plan on hosting our own FLL tournament at our facility in the coming year.

In addition, our family was also excited to organize a showcase of STEAM demonstrations known as the Robotics 360 events, mainly targeted to get girls interested in science. Here, we demonstrate the FRC game, talk about the team, and allow the students to drive the robot in order to get them excited about STEAM. We have organized three Robotics 360 events in the past two years at Cal State Los Angeles, the Obama Preparatory Academy, and the Girls Academic Leadership Academy. Over 150 kids were able to attend these events; this has truly benefited the parents, administrations, and schools involved. After being inspired by our family's warmth, these schools are now planning to create a series of FLL teams in the upcoming season and eventually an FRC team as well!

We also like to contribute to the greater causes in our community. This year (as our team building activity), we volunteered at the Los Angeles Regional Food Bank to help create packages of food for low-income families and the homeless. We grew together as a team as we created over 5000 packages with the help of people from all across L.A. Our team's contribution to the food bank allowed families in need across the county to be provided with healthy meals.

Before any of our family members move out, they develop many skills from their time on the team and become well-rounded individuals through the various opportunities our Project Lead the Way certified school has to offer. This includes our concurrent enrollment classes through El Camino College, and amazing summer internships with SpaceX, Boeing, and Northrop Grumman. Corporations and colleges have also partnered with our teachers to create a targeted curriculum for our students. Our partnerships with Boeing, Cal Poly SLO, Aerospace Corporation, and Raytheon, allow our students to create products that impact the real world, utilizing skills such as 3D printing, automation, and manufacturing. Many of our members have participated in various STEAM challenges with these companies such as the Chevron Design Challenge, the Northrop Grumman Innovation Challenge, Raytheon's Engineering Games, and the Herndon Design Challenge. Our family is lucky to have these resources to help each of us grow into our full potential with the necessary skills to pursue careers in STEAM.

We also frequently showcase our robot at the engineering companies who graciously sponsor our team. This sometimes leads to our own students partnering with these companies on some amazing projects. This past year, our team members participated in the designing of a prosthetic arm for a student amputee in Texas. Members from our team worked together with Raytheon employees and some high school students from Texas to brainstorm and design a mechanical prosthetic using knowledge of the design process our PLTW courses have taught us. We're glad that our close partnership with Raytheon has allowed us to participate in these events so we can collaborate in solving real-world problems on a professional level. We plan to partner with Raytheon in the future to create a curriculum for our Engineering Design course around supporting those who need prosthetics. This will allow our team and school to increase their engineering knowledge while also supporting those in need.

Our home is a small galaxy in the expansive universe of FIRST. As our impact grows we hope to change the culture in our universe and increase the diversity of those who go into STEAM fields. The Vitruvian family is excited by what we've already accomplished in such a short time, and proud of the family we've created. Our home is a place to learn, a place to grow, and a place where everyone is welcome. Our mission is more than just building robots, it's about building an inclusive, diverse family and giving all students a place to call their own. Because in our home, and in the future we're creating, family is FIRST.