Chairman's Award - Team 1197

Print Close

2020 - Team 1197

Team Number

1197

Team Name, Corporate/University Sponsors

SolidWorks/Northrop Grumman/John Deere/Praxair/Raytheon/The Boeing Company/SAGE Millimeter, Inc./LA Solar Group/The Johnson Family/Moog Aircraft Group/Torrance Education Foundation/Blue Robotics/LA Stagecall/Torrance Refinery Company/Masimo Corp./Mastercam/MathWorks&South High School

Briefly describe the impact of the *FIRST* program on team participants within the last five years.

TorBots provides opportunities for all students, regardless of our skill level or background, to get a taste of what it means to be a professional engineer as a high school student. We use industry-level equipment and acquire real, practical skills that we are able to apply in the real world. Our local sponsors have also provided summer internship opportunities for our team members.

Describe the impact of the *FIRST* program on your community within the last five years.

TorBots has always strived to nurture children's interest in STEM. We recently hosted robotics workshops to dozens of Torrance elementary students at the first West Coast "Camp Nerdling" event. For the past 5 years, TorBots has supported five FLL teams at our feeder middle school. We hosted a symbolic bill signing with our Congressman to honor Christa McAuliffe with a commemorative coin. We have worked closely with several FRC teams in the greater LA area to provide CNC support and assistance.

Describe the team's methods for spreading the *FIRST* message in ways that are effective, scalable, sustainable, and creative.

One of our most important contributions has been to collaborate with FLL teams in our community. Many TorBots are former FLL members and mentor middle school students. We believe these connections will inspire their continued interest in FIRST. TorBots has sold holiday treats and demonstrated student-made holiday "animatronics" to thousands of visitors in the Torrance holiday lights district. We have also presented at middle school STEM nights, the LA Auto Show and sponsor events.

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

Many of our team members support our FLL community as coaches, mentors and event volunteers, as well as FRC events as student ambassadors and field resetters. As an increasing number of our members volunteer, they inspire others to serve and become actively involved in supporting the FIRST community. Our experienced team members also serve as mentors within our team. They are often sharing their time to train new members and giving them increased responsibilities to build their skills.

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

TorBots has been focused on raising awareness of FIRST by participating in district STEM events such as the annual TUSD CombatBots Competition and Camp Nerdling conference. In recent years, we have worked closely with JetStream (FRC Team 2710) and contributed to the success of their team starting up, having two successful seasons, and starting their third. We have provided mentorship, training, equipment and assistance (a letter from JetStream with further details will be submitted).

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

For the past 5 years, TorBots has supported the Widgets, five FLL teams at Richardson Middle School. In addition to coaching the five teams, we have financially supported expansion to other middle schools in the school district by building game boards and meeting with coaches/teachers to guide them to familiarity with how FLL promotes STEM education.

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

TorBots hosts a practice FLL tournament for our greater South Bay region, giving inexperienced teams the opportunity to receive constructive feedback on their performances in a low-stress environment prior to the official competition. TorBots members served as coaches, emcees, querers, runners, referees, field resetters and scorekeepers. We are also currently working with our sister team at West High School to support a new FTC team starting at two of their feeder middle schools.

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)

As one of the older teams in the South Bay, we've worked with a lot of the teams in our area over the years. Recently, we have worked closely with several teams (FRC Teams 597, 2710, 3408, 5124) to provide CNC support and assistance. Our members support FLL and FLL Jr. teams as mentors. We invite our local FLL teams to our shop to observe our progress through the "build season." We have also served as field trip guides at an FRC regional event to build their enthusiasm for robotics.

Describe your Corporate/University Sponsors

TorBots is grateful for the essential support of our sponsors, including John Deere, Praxair, Raytheon, The Boeing Company, ERAVANT, Northrop Grumman, Moog Aircraft Group, Torrance Refining Company, SOLIDWORKS, Torrance Education Foundation and South High School.

Describe the strength of your partnership with your sponsors within the last five years.

A recent focus of TorBots has been providing our students internship opportunities with our local sponsors. Boeing, Moog Aircraft Group and ERAVANT have offered us summer internships, where we can expand our practical skills in engineering. Our partnership with our sponsors has also provided opportunities for us to showcase FIRST at events such as Northrop Grumman's "Bring Your Sons and Daughters to Work Day," Boeing demonstration days, and our "robot reveal" open house.

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

FIRST is an organization that provides hands-on STEM learning opportunities for millions of students around the world. The organization creates an environment where any student can feel welcome, and any student can find their passion. It's a place where seniority isn't an issue, and everyone has the opportunity to develop leadership skills and contribute to our success, whether in robot-building, community outreach, mentorship and/or business operations.

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

TorBots has a long-standing tradition of creating handmade dolls of our TorBots mascot. A former TorBots member created the original design 10 years ago, and our team continues today to make them as giveaway items. Every build season, families on our team work together to create dozens of TorBots dolls. The dolls are used in various ways such as prize incentives for TorBots trivia contests at FIRST regionals, tokens of our appreciation for our alliance partners, and gifts to graduating seniors.

For FRC teams older than 5 years, briefly describe your team's broader impact from its inception.

Team 1197 started in 2002 as the South High Robotics Club, and we were originally the only team in our district. In 2009 the club opened our doors to all 4 high schools in Torrance, and we became known as the TorBots, Torrance Robotics. We assisted in the formation of West Torrance Robotics, which began as an FTC team in 2009 and expanded into our sister FRC team 5124 in 2014. As one of the older teams in our area, we have worked with many teams, especially FLL, to build FIRST in our community.

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

Jennifer Johnson

Essay

Team 1197:
For the past 18 years, we, FIRST Robotics Competition (FRC) Team 1197, have provided hands-on opportunities to nurture children's interest and skills in science, technology, engineering and mathematics. Team 1197 was founded in 2002 by our woodshop teacher Michael Ellena and a small group of students as the South High Robotics Club in Torrance, California. We competed in our first FRC Southern California Regional in Los Angeles in 2003.

Originally, we were the only team in the Torrance Unified School District (TUSD). In 2009 the club opened our doors to all four high schools in Torrance Unified, and we became known as TorBots, Torrance Robotics. Students from each school have been involved with our team over the years.

Building connections with our community is our mission. These connections have provided the resources and hands-on opportunities for students to gain practical engineering skills that we are able to apply in the real world. The knowledge and experience we acquire through this program enable us to share our passion for STEM, find our purpose, and shape our education and career paths.

Nurturing Children's Interest in STEM:
Since opening our doors, TorBots has always strived to nurture children's interest in STEM. Throughout the years, TorBots has participated in many community and sponsor events to engage children and raise awareness of FIRST. Past events include a showcase of our robot at the annual TUSD CombatBots Competition, middle school STEM nights, the LA Auto Show, and Northrop Grumman's "Take Your Sons and Daughters to Work Day." We have also demonstrated student-made holiday "animatronics" to thousands of visitors on "Candy Cane Lane" in the Torrance holiday lights district.

Last summer, we presented robotics workshops to dozens of Torrance elementary students at the first West Coast "Camp Nerdling" event hosted by TUSD. To build excitement around STEM, we led students in activities such as testing a pneumatic gumball launcher, building an Arduino-controlled traffic light, and making 3D-printed keychains. The event was attended by FIRST representative Mark Lampert, and generated local news coverage:

https://www.dailybreeze.com/2019/07/23/south-high-students-host-robotics-workshop-for-torrance-elementary-school-students/

One of our most important contributions has been to support and mentor FIRST Lego League teams in our community. For the past five years, TorBots has supported the Widgets, five FLL teams at Richardson Middle School: FLL Teams 1458, 1459, 1460, 16123 and 37984.

Many TorBots are former FLL members and return to mentor teams. In addition to coaching students, we have financially supported expansion to other middle schools in the school district by building game boards and meeting with coaches and teachers to guide them to familiarity with how FLL promotes STEM education.

TorBots has hosted a practice FLL tournament for our South Bay region, giving inexperienced teams the opportunity to receive constructive feedback on their performance in a low-stress environment prior to the official competition. TorBots facilitated the event, serving as coaches, emcees, querers, runners, referees, field resetters and scorekeepers.

We have invited the Widgets to our shop to observe our team's progress through the "build season," and have served as field trip guides at an FRC regional event to help inspire their continued involvement in FIRST. In addition to collaborating with the Widgets, TorBots members mentor FLL and FLL Jr. teams at a local tutoring center in Torrance.

TorBots student mentor Grace O. said, "I think it's important that TorBots helps FIRST Lego League teams in our community to spark an interest in STEM. Many students are inspired when they talk to us and visit our shop during build season. I know I was excited to join the team when I saw people CADing and I thought it was really interesting."

Making Real-World Connections:
TorBots provides access for all students, regardless of our background or experience, to learn new skills and prepare for our future. Any student can find their place and feel welcome on our team. This environment enables us to learn about ourselves outside the classroom, develop our interests and gain a better understanding of our strengths.

Faculty advisor Michael Rosenberg said, "What drives students to learn is when they have a new tool and they aren't sure how to use it. That's when real learning takes place. Take, for example, the CNC machine. They are spending time on YouTube and forums, learning from experts because they want to use this machine. They understand this will have value later in their life. They are gaining real, practical skills that they will be able to apply in the real world."

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We collaborate with a dedicated team of teachers and industry professionals, many of whom specialize in electrical, software and mechanical engineering. With access to industry-standard tools and equipment, the skills and lessons learned while designing, manufacturing and programming robots emulate industry practices. A recent focus of TorBots has been providing students summer internships with our sponsors to expand our practical engineering skills.

Senior Garrett S. said about his internship at Moog Aircraft Group, "My time at Moog has helped me see the diversity of roles within an engineering company and gave me real work experience in a field that I love. At Moog I was able to design a tooling cart and a thermal test box, as well as help the company learn through failure of designing another test box. I also integrated many things into their CAD file organization system, such as the tooling cart, thermal testing boxes, a modified engine stand, and a stand that tests angled gearboxes, by making models and drawings as I do for my robotics team."

Junior Brennan L. added, "My experiences at TorBots learning to design and machine products have proved very beneficial for attaining my current job and performing well. I work at a startup called AWA Composites that is making combustion engine parts more efficient and more powerful by replacing them with carbon fiber. Without the knowledge of having machined parts previously on a CNC or knowing how to design proficiently, I would never have been able to design industry-standard products like I currently do."

Growing Leaders:
TorBots provides a variety of opportunities to grow as leaders and advocates for STEM. After participating in the 2016 World Championship, TorBots hosted a symbolic bill signing event to honor our nation's hero, Christa McAuliffe, with a commemorative coin.

The event, held at the Toyota Automotive Museum in Torrance, was attended by our Congressman Ted Lieu, sponsors, FIRST representative Cassie McIntyre, and many FRC and FLL teams in our South Bay region: Beach Cities Robotics (FRC Team 294), Beach Bots (FRC Team 330), Phantom Cats (FRC Team 2637), Vitruvian Bots (FRC Team 4201), West Torrance Robotics (FRC Team 5124), Sea Kings (FRC Team 5285), and the Widgets (FLL Teams 1458, 1459, 1460, 16123).

Congressman Lieu of the 33rd District said, "I'm so honored to be here to support their legislation that would create the commemorative coin for Christa McAuliffe. Proceeds for that coin will benefit all FIRST programs, including these robotics programs. Our country can compete in sectors such as robotics, technology, biotech, health care, the entertainment industry and they require STEM. It's very important for people to learn those skills. What you're doing here is so helpful. Not only for your own livelihoods, but for the future success of our country."

The Christa McAuliffe Commemorative Coin Act of 2019 was recently passed by Congress, and she will be honored by the United States mint with a silver dollar coin in 2021, marking the 35th anniversary of the Challenger disaster.

Building Up FRC:
As one of the older teams in the South Bay, our doors have always been open to local FRC teams. Over the years, TorBots has worked with a lot of teams to support and build up FIRST in our community.

TorBots assisted in the formation of West Torrance Robotics, which began as FIRST Tech Challenge Team 4512 in 2009, and expanded into our sister FRC Team 5124 in 2014. In recent years, we have also worked closely with JetStream, FRC Team 2710. We have provided mentorship, training, equipment and assistance, and contributed to the success of their team starting up.

At the 2018 FIRST World Championship, TorBots was selected as a FedEx Innovation Challenge winner. With our award, we purchased a CNC machine to machine parts that require precision. Members of our team learned Mastercam, computer-aided machining software, and we have since been able to provide CNC support and assistance to several teams in the greater Los Angeles area: The Wolverines (Team 597), JetStream (Team 2710), Killa-Byte Cubs (Team 3408) and West Torrance Robotics (Team 5124).

TorBots' Fabrication Lead Jace W. said, "By learning Mastercam, we learned to cut complex parts, which has revolutionized the way we build robots just like in the aerospace industry. The CNC has also allowed us to help other teams. We have cut complex parts for them, and we prioritized their needs over our own."

Over the past 18 years, TorBots has strived to inspire robotics enthusiasts of all ages and build up FIRST in our community. TorBots is grateful for the essential support of our sponsors, mentors, teachers, South High School and the Torrance Education Foundation for their commitment to develop STEM programs for Torrance students. TorBots will continue to collaborate with our FIRST, education and business communities to spread FIRST in Torrance, with the goal of forming a team at all four high schools in TUSD. By building connections with our community, TorBots fuels our drive to pursue an exciting future and inspire the next generation of STEM leaders.