

FIRST Impact Award - Team 1622

2023 - Team 1622
Team Number
1622
Team Nickname
Team Spyder
Team Location
Poway, CA - USA
Describe the impact of the <i>FIRST</i> 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 <i>FIRST</i> programs as mentors/sponsors.
All Spyder seniors have graduated and opted for STEM careers via college or the armed forces. 82% of the Spyder graduates in this window have earned scholarships and another 50% have completed STEM internships at local companies. The FIRST program teaches valuable skills beyond normal high school academic curricula. All team members learn life skills related to teamwork, communication and project management through FIRST. 3 of our alumni have returned to Spyder as team mentors.
Describe your community along with how your team addresses its unique opportunities and circumstances.
Nearly 20% of Poway residents are foreign born and over 50% of eligible adults have at least a bachelor's degree. Spyder's parents and mentors have a wide range of skills, expertise, and life experience that cascade to team members. Spyder leverages local technology companies for financial partnerships and mentoring from their workforce. Starting in 2022, Spyder used these relationships with local businesses to help fund other local robotics teams with fewer financial resources.
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?
Spyder uses traditional FIRST messaging strategies, like using its unique robotic T-Shirt cannon at rallies or touring the competition robot at local events. Recently, however, Spyder has shifted to using its brand and influence to help other local FIRST teams. Beyond fundraising for itself, Spyder diverted its fundraising gains to buy robot kits to 15 local FLL teams. We measure success by mentoring these FLL teams and by running competitions that serviced 127 FLL teams.
Please provide specific examples of how your team members act as role models within the FIRST community with emphasis on the past 3 years.
The most powerful message of a role model is "you can do this." In mentoring younger students, Spyder's goal is to develop their skills and their confidence in those skills. Team members served as FIRST ambassadors for local elementary and middle schools. Additionally, one of our Spydere mentored

a local FLL Team MC^2 (53098) throughout their season, all the way to the 2022 Razorback Open International Invitational. We stand with pride when our partners accomplish so much.

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

Our #Spydermentoring initiative provides sustainability for teams. We connect other teams through our #FIRSTconnected initiative for support. We encourage every student on the team to assist and mentor a team locally and globally to bring youth into our FIRST family. For the last three years we have mentored 114 teams across FLL, FTC, FRC and FGC. This year we virtually assisted 85 Libya FTC teams. We do this to propel FIRST growth and strengthen society.

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 inspiration strategy is to personally contact local youths. Examples include our annual summer robotics camp for 3rd-8th graders, science nights, and we impacted 2400 attendees at our STEM Professional series hosted by industry experts. We encouraged girls with our 5-week STEM Camp series. Recently, we have partnered with the after-school programs of local middle schools to new fund 6 FLL teams. From 2020, we've enjoyed a 600% increase in participation in FLL events we hosted.

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

We are partnered with Lybotics, Libya FTC, and Workskills Ecuador to support FTC growth within their countries. Together we have grown FTC in Libya to 85 teams and also working as partners on the Lybotics for Africa Project to bring FTC into every African country. We are partnered with our school district to run the ASES FLL Expo and the San Diego Girl Scouts to train students in STEM. We maintain relationships with our recurring sponsors, the City of Poway and PowayUSD sustaining FIRST teams.

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

All Spyder team members, staff, and mentors complete the FIRST ED&I training. We strive to include groups that are underrepresented in STEM and have started SWENext and NCWIT clubs at the school. We received the FIRST Equity and Access Grant starting an all-girls FTC team 20422, raising \$67,000 for underserved teams locally and globally. We raised \$10,000 for local under-represented teams and leveraged an additional 6,000 through ASES and E-LOP to support STEM after school programs.

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

We pair newer students with experienced members to provide guidance and oversight. As students graduate, replacements are ready to assume team responsibilities. As a long term strategy, Spyder became incorporated with the high school's academic curriculum and is coached by funded teachers. The partnership with the school ensures that there is sustainability and continuity each year. Finally, we ensure that we retain long term mentors in key roles.

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

past 3 years

We recognize sponsors come and go. To order to combat this, we network for sponsors through our parents and existing partnerships. Annually, we retain our sponsors by checking in and develop relationships with them. Spyder follows our own fundraising curriculum by selling our team's branding of what we can provide to the community. We offer our services by performing community services, running robotics events, and ultimately providing interns.

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

With a team of nearly 60 members, it is difficult for everyone to evenly participate in every aspect of the team. Our management strategy is to divide the team into different sub-teams to allow the smaller groups to best share equipment and mentor resources. For example, the people who design and fabricate the robot are not necessarily the same people who code its control software. We also incorporate cross-training so different sub-teams are familiar with the work conducted by the others.

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

Spyder focuses on inspiring and providing STEM resources to the underserved. Much of this is at the local level, as we mentor and assist local FLL teams. Our goal is to inspire them into pursuing robotics at the high school level and beyond. Globally, we remotely mentor and assist teams from Ecuador and Paraguay by travelling abroad to support them at their competitions. We believe that this gesture represents FIRST's spirit of cooperation and collaboration.

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.

This year Spyder has taken a new approach to expand our horizons and share resources beyond our team. We leverage Spyder's existing partnerships to financially support other FIRST teams. Notably in this past year, Spyder has collaborated more with local FRC teams to share technical expertise and business insights with our local community. This collaboration creates a stronger unity with FIRST members that will last beyond the FIRST experience.

Essay

"Technology is driving us together. In many ways we are becoming like one family." – 1995 Nobel Laureate Physicist, Joseph Rotblat

Through SpyderCaring, our school's robotics team passionately assists starting and mentor FIRST teams, and we remain as a resource to sustain teams to impact the world becoming "one family". Although we are a large team, we know that each one of us has the ability to make small improvements that, in turn, produces change. Members on Team Spyder are that change. We energize people of all ages to go into STEM fields and ensure sustainability. We achieve these ends through applying, inspiring, innovating, connecting and advocating for a better world. As Thomas Edison said, "What you are, will show in what you do."

Inspiration takes form in many ways, as all 60 team members engage in year-round local community efforts. We contribute to our society, by providing STEM awareness, so that local youth can be part of our family. Before the school year begins, Team Spyder runs our Annual "STEM Summer Camp" to 3-8 graders from 41 elementary and middle schools, which introduces the next generation of minds to STEM. Our Zoom "STEM Series" teaches its audience about STEM careers and bonds them with active experts; by introducing 8 STEM speakers with 1200+ attendees this year. Inspiring local youth sparks interest and keeps our community in tune with technological opportunities. Fall begins with Team Spyder leading "Girl Scout Journeys", where 200 Girl Scouts earned 600 technical badges from 71 troops in three counties.

Aside from our Southern California and online presence, we are also an interactive partner with our school, district and community. Team Spyder showcases STEM principles at school pep rallies, club, and school events as an integral partner of Poway High School and its ASB. Our t-shirt cannon robot inspires students to join with its "cool factor". Collaborating with the After School Education & Safety (ASES) program in the Poway Unified School District, we trained staff the basics to run FIRST Lego League (FLL) teams at our 8 middle schools. We leveraged the Expanded Learning Opportunities Program (ELO-P) to purchase 8 FLL kits and contract with Play-Well TEKnologies to teach robotics at 8 elementary schools. This year we renewed our Robotics Memorandum of Understanding (MOU) with PUSD to staff 6 high school robotics head coaches in the district totaling \$78k. We know that half the battle with FIRST teams is finding and sustaining interested coaches for retention and team stability. Therefore, as part of recruitment, we are highly visible showcasing our robot annually at the Poway Parade, cleaning up local parks with our CleanWeb initiative and running three E-waste drives each year. Working together with our community, we create the next generation of STEM Leaders learning 21st Century skills.

We know that STEM is for everyone and should be accessible to everyone. We also know how hard it is to raise funds to start a robotics team, so this year through SpyderCaring, Team Spyder raised and funded 15 underrepresented and struggling teams with Spike Prime and Expansion Robot kits to ensure they could participate as FLL teams. Yet, money is not the only battle, so we mentored each of these teams to ensure they had enough support to accomplish their goals and dreams—bringing them into our family. We gained self-confidence, patience, inclusion and communication skills as our teams were highly successful competing in local FLL events with many of our teams receiving awards, and Team CART 51308 becoming the SoCal Champions.

Supporting our SoCal local community, Team Spyder ran four official FLL events as partners with California Southern FIRST LEGO League. Our team developed crucial skills to manage and run these events. We recruited adults to volunteer alongside team members to run one Scrimmage, two Qualifying Tournaments and one Regional Tournament with an Explore Expo. We made an impact with 127 FIRST LEGO League teams registered at our events.

Team Spyder is all in with our robot. Working members of the team gain essential technical skills and knowledge. We engage new and current students with our Summer Technical Training to teach students teamwork, mechanical, programming, business skills, imagery and advocacy. However, our team lives “More than Robots” and fully recognizes that there are many components other than the robot that help compose a high-functioning and competitive team. In order to be well rounded and self-confident, members of every subteam learn vital skills and strategies for effective communication and collaboration. Each sub team's leaders learn how to coordinate, direct and solve problems in innovative ways, such as developing our Innovative Sustainable Fundraising Workshop to teach teams to be sustainable, and SpyderLib our programming framework that accelerates development process.

As we become one family, we create connections and collaborations. We do this by working and helping each other, such as hosting the kickoff at our school with FRC 3965 and FRC 5137. In addition, we supported team FRC 5199's Charged Up Pre-Season Panels by leading mechanical, programming, impact and inclusion workshops to share knowledge. Participating in Cerbotics' “Warm Up” Impact panel with Blue Twilight 2220 and Cerbotics 4400, we answered questions from newer teams while bonding, sharing experiences, teaching others about FIRST, and exchanging different methods and insights. We also attended a Rainbow Panel with Aluminum Narwhals 3128 to discuss making FIRST a safe space for members of the LGBTQ+ community. Our result is mutual respect, friendships and fun!

We flew to Washington D.C. to attend the Student Association for STEM Advocacy 9th Annual National Advocacy Conference in which we increased STEM funding by 100 Million nationally for 2023 through ESSA Title IV-A with other FIRST teams. As part of the conference, Spyders met with California Senators Padilla and Feinstein, and Representatives Jones, Peters, Issa, Levin and Jacobs to request an increase in funding. This year we led and collaborated with teams FRC 649, FTC 6165, FTC 12675 and FRC 1138 creating the California Association for STEM Advocacy (CASA), a student-run advocacy organization advocating for change in STEM education to increase funding for after-school programs. Through CASA, we also hosted the first annual California Advocacy and Leadership Conference with 20 teams registered to train individuals how to speak to their elected officials. As part of this effort, California will have an official STEAM Robotics Observance Day through Assemblymember Maienschein and the County of San Diego Supervisor Anderson for March 25, 2023. We also had resolutions approved for Robotics Day, and Women in STEM Day through PUSD and the City of Poway on February 11, 2023. As a result, we are bringing more into our FIRST family through STEM awareness and advocacy.

As we build family, we started three teams and mentored 25 teams this year in our local area. We remain as a resource to sustain them thereafter, so they can go out and mentor/assist others to grow the FIRST family. When mentoring other teams, two rookies shadow a Spyder veteran as a way for them to learn how to mentor a team the following year. This creates sustainability by providing a support for new or veteran teams who just need a bit more help.

To provide an inclusive family, we ensure that anyone interested in STEM can join the FIRST family; we have become official partners with FIRST Ladies, WiSTEM and LGBTQ+ of FIRST in addition to our SWENext and NCWIT Chapters. Our team of 60 students has grown to 52% minorities this year, with our leadership also reflecting this diversity. 100% of Team Spyder completed FIRST's ED&I courses. We make our best efforts to make everyone feel included through Annual Forum and WiSTEM activities. As we reached beyond our borders to support our global family this year, we traveled to Paraguay and Ecuador to help develop sustainable STEM programs. While in Paraguay, we taught students at the American School of Asunción (ASA) to create a FIRST TECH Challenge (FTC) robot and ran a

Scrimmage with ASA bonding local students and coaches from 8 teams to grow FTC Paraguay. In Ecuador, we partnered with Workskills to present to over 20 educators at the Universidad de Las Américas. Working with FIRST Ecuador, we donated 100 mBot robots, provided a guide to run a competition in March and assisted in developing their business plan. We also mentored FIRST Global Challenge (FGC) teams in Benin, Ecuador, Paraguay and Togo to complete in Geneva, Switzerland. We volunteered in Geneva as robot doctors and queuers. We were surprised when presented with the "Francisco José de Caldas Award for Sustainable Excellence" for supporting FGC for 5 years.

As official FTC partners working with Lybotics, we broadened our role, to one of assisting 85 Libyan teams, by providing award judging and training workshops translated directly in Arabic so that language is no longer a barrier. We continue to be a resource, because we know that when we work together, we can achieve common goals to create a better world by propelling STEM growth and strengthening society.

Team Spyder is more than just a robotics team, as said by Mark McGinn, Mentor for Iron Kodiaks, "Team Spyder is an experience. They are a professional FIRST team that exudes gracious professionalism and organizational structure, and lifts all teams in FIRST." ;

