

Chairman's Award - Team 4146

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2020 - Team 4146

Team Number

4146

Team Name, Corporate/University Sponsors

SOAR Foundation/Glenn Bailey and Stara Technologies/Acme Motorwerks and Michael R. Rowland/The Charro Foundation/Battel Engineering/Boeing/SUSD Foundation/Intel Corporation/CBRE Foundation Inc&Saguaro High School

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

In addition to technical knowledge, students involved in FRC learn teamwork, leadership, integrity and how to use these skills to achieve their goals. Members feel challenged to help in the build process and take on outside opportunities in STEM. Sabercats feel challenged to help in the build process, and also to take on outside opportunities to stretch themselves in STEM fields. Our members leave the team prepared to succeed in a changing world.

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

With our many events, initiatives, and opportunities, we have been able to reach hundreds of thousands of people and show them the world of FIRST. We brought together our community's primary schools through mentoring, our district's FRC teams through bonding, our administration through frequent meetings, and officials from our district board through our ambition. The environment that we have created has brought together determined individuals, setting a standard of innovation in our community.

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

We showcase our robot at events including the APS Electric Light Parade, with 100,000 attendees, and Canal Convergence where we worked with our school's art program to automate and decorate a recycling bin, for 300,000 guests. We host and run events such as the Scottsdale FLL Qualifier and Sisters in STEM, where we introduced more than 400 girls to STEM. These events, and many more like them, inspire not only kids, but also the Sabercats who will sustain them in the future.

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

Our team's motto is "To inspire and encourage a lifestyle of curiosity." We achieve this by mentoring, assisting, and offering help to other FIRST teams. When loading in at AZ West last year, volunteers had not finished the practice field. We immediately sent representatives from our load-in team to help them set up. By the end of the day, we had 3 other teams working with us to find missing pieces and get the practice field ready, so that it could be available for every team at competition.

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

As a team, we believe that aiding others should be at the forefront of our thinking. In order to reach our goal of assisting FRC teams, we have hosted CAD workshops and Solidworks demos to teach younger teams the basics of CAD. In addition, we have set up a line of communication with other teams in our district, in order to collaborate and further the mission of FIRST. We hope to become involved with starting teams in the future and have plans to work with schools in our community to grow FRC.

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

Our past initiatives have been successful in aiding the start of FLL teams in 5 separate schools in our district. We will use our new community initiatives like Sisters in STEM as a springboard to reach Girl Scouts, boys and girls clubs, and elementary and middle schools with the intent to begin FLL teams. We also have a lot of visibility in our community due to our events, where we showcase FLL robots, so many teachers and parents have reached out to us for advice in beginning teams.

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

We reach out to many FLL teams, particularly new ones, hoping that we can teach and lead newer FIRST participants. Our members help these FIRST teams by offering assistance and attending their meetings. We are currently working with the teams we mentor to get them more excited about the next program that FIRST has to offer. Through continued work, we prepare these younger students for FRC in their future years. We strive to inform, inspire, and excite students to continue in FIRST.

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)

We mentor five different elementary and middle schools, and thirteen teams in total. Our students go to these schools every week to help FLL students in their journey through FIRST. We encourage volunteering, and our alumni continue to do so after graduating. We stay in contact with the teachers and principals involved with these teams. By donating our knowledge, experience, and time to these young engineers, we help them excel in robotics and other fields of STEM.

Describe your Corporate/University Sponsors

We are extremely grateful to all of our sponsors who together, allow us the opportunity to participate in FIRST. Our original sponsors, who continue to support us are The Bailey Family and SOAR. SWWJ, Luminosity Lab, CBRE, ACME Motorworks, Boeing, and Battel Engineering also provide our program with funding. We also receive support from our community through SUSD and Scottsdale Charros. As a team we prioritize grant writing to obtain the funding we need to continue our program.

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

We work tirelessly in and out of competition to prove to our sponsors that we are a worthy investment. The Bailey Family and SOAR have shown consistent support, mentoring and funding us since our rookie year. Also, Acme Motorwerks has partnered with us for years, allowing us the use of their workshop. These partners continue to aid our team because they have experienced our team's work ethic. They know we strive for success through ingenuity and hard work.

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

The FIRST program is an incredible opportunity for students of all ages to explore areas of STEM and achieve new goals. A culmination of teamwork and imagination between students and professionals, FIRST helps students in STEM grow in their aspirations. The FIRST community is welcoming and filled with hard working students and professionals who collaborate to provide a fantastic experience based on the pillars of gracious professionalism and cooperation for everyone involved with robotics.

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

This year we have had the unique opportunity to design, endorse, and secure a new facility for our team. We spearheaded this initiative to create an Innovation Center for not only robotics members, but all students at Saguaro. This new space was conceptualized by our design team and upon its completion in 2020, it will help our program expand and allow students creative expression without limits. By opening this facility at Saguaro, we can achieve our goal of sharing STEM with the student body.

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

Our lasting impact is our drive to expand opportunities for STEM. We helped begin Saguaro's Math and Science Academy, and have since helped expand it by volunteering at events and tutoring. We created a college-level engineering class in our school equal to ASU's FSE100. Recently, we convinced the SUSD school board to offer robotics classes as a CTE credit. We have widened the opportunities available for our members and district. We also impact the FLL community through constant support.

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

Kayli Battel

Essay

Our involvement in FRC began eight years ago, when Mr. and Mrs. Simoncic and our coach, Mr. Brandt, encouraged two forward thinking students to grab their friends and start a team at Saguaro. Since 2011, we have worked to make our team a place where all students at Saguaro have the opportunity to explore careers in STEAM and business, and become an essential part of our community and FIRST. Our team's commitment ensures they will leave forever inspired and ready for the future ahead. Here at Sabercat Robotics, our biggest strength is in our passion for learning with a team dynamic that makes coming to robotics every day rewarding, involved, and most importantly, fun.

Our team takes an involved approach to roles within the club. We have a meritocracy of 6 equal leaders, who are each in charge of their own division of the team. This year, 3 of these 6 leaders are girls, and only 3 are seniors. We make sure that we have a diverse system in which seniority does not surpass merit, so we provide equal opportunity and incentive for our members. In our team of 28, we have 12 seniors, 5 juniors, 8 sophomores, and 3 freshmen. Our team dynamic prioritizes cohesion and we commonly meet outside of official hours to bond as a team. We have had many team bonding events where we watched movies, went bowling, and even went mini golfing!

As one of our more common forms of outreach, we regularly take part in events to share the world of STEAM with our community. An event that we enjoyed attending this year was the APS Electric Light Parade. We had the opportunity to decorate and showcase our robot alongside other Scottsdale teams to more than 100,000 people. A little bit of rain could not stop us from having a great time with our partner teams and the community. We also participated at the Scottsdale Public Arts Canal Convergence, attended by more than 300,000 people, where we worked with our school's art classes to decorate and automate a recycle bin. Similarly, each year we are invited alongside other FRC teams to Microchip Masters, where we showcase our robot and speak about FIRST for an evening at Microchip Technology Inc. to attendees from all over the world.

In the fall of 2018, Sabercat Robotics identified a need for more girls in STEM. As a result, 3 girls from our team took the initiative to create our own event: Sisters in STEM (SiS). This event has been planned and hosted by Saguaro students for two consecutive years. It is targeted to girls in elementary and middle school, with the aim of inspiring them to pursue their interests in STEM. We partnered with Scottsdale Community College and Saguaro's MSA, to reach more than 130 girls in the first year. Young girls experienced everything from science experiments to coding and driving robots, and even got involved in CAD with Solidworks activities. This year we are proud to say the event expanded greatly; incorporating not only 3 new STEM disciplines, bringing the total to 10, but also having an attendance of more than 200 girls. We believe they will participate in their schools' FIRST communities, following the progression of programs FIRST has to offer. The community received this event very well with coverage by the SUSD Newsletter, Scottsdale Progress Newspaper, and ABC15 News. With the recent award of \$5,000 from the AZ Diamondbacks School Challenge program, we will purchase a trailer with the intent to take SiS to outlying communities, and even other states! Through Sisters in STEM and our oncoming Roadshow, our team now has connections with UL, Northrop Grumman, and the CyberPatriot program. We hope to continue to spread the FIRST message through this event in the coming years.

Sabercat Robotics is proud to foster a large presence in our high school and community. In addition to helping our school in ways like set-building for theater, cleaning the football stadium, and setting up computers, our club is especially involved in our school's Math and Science Academy (MSA). The MSA is a nonprofit organization founded by the saguaro community in order to provide opportunities for students who are invested in STEAM. As a STEAM-focused club, we cooperate with the MSA in presenting speakers, organizing field trips, and hosting many major STEAM events. As a team, we invested 108 volunteer hours in hosting Saguaro's third annual STEAM Night, where we invited students involved in STEAM to showcase their talents to our community. In the last few years, we have taken part in hosting several prominent NASA representatives, who showed students just what engineering can do. In two school-wide assemblies organized by Sabercat members in partnership with the MSA, Saguaro students had the opportunity to interact with a NASA engineer credited with many projects on spacecraft, an acclaimed astronaut who flew on a Challenger mission, and the director of a Voyager mission. Our members will continue to contribute to Saguaro in as many ways as we can, whether it's by reaching out to prevalent speakers or by helping around campus whenever possible.

Team 4146 takes an extremely active role in mentoring FLL, (Vex, and Vex IQ-Sorry, FIRST!!) teams across Arizona. In our past years, we have mentored many FLL teams - some being local community teams, others being the schools in our district. Over 7 years and across 18 elementary and middle school teams we have mentored for a total of 53 individual team seasons. This year alone we collectively spent 280 hours assisting teams. Our teammates were inspired to pour themselves into mentoring because of their interaction with past generations of Sabercats; who pushed them to learn and grow. We hope to continue inspiring the next generation of engineers and spreading the values of FIRST to each team we encounter.

Not only does our club regularly participate in mentoring, but we also have a tradition of hosting the Scottsdale FLL qualifier. This began in 2014, and has continued to grow each year. This year, our team once again hosted this qualifier with 34 teams. It was wonderful to see the culmination of so many team's seasons all in one place. Combining elementary and middle school teams with volunteers from high school, college, and robotics alumni creates a unique environment that makes this qualifier one of our favorites to coordinate.

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Sabercat Robotics has incredible connectivity throughout all of our platforms. We are well respected in the greater FIRST community. Our advice is sought out, our technical skills are admired and we are likeable!!! We build a good robot (most years anyway, RIP 2017☐), and during the off season we hosted CAD workshops at our school, where we invited all Arizona FRC teams to learn Solidworks from our design team leaders. We have a strong relationship with the other teams in Arizona, which we've been fostering throughout our FIRST tenure. Before the Arizona West regional last year, we helped several teams with assembling parts of their robot. In addition, we are constantly available to send volunteers to help other FRC teams in the heat of competition. We regularly have members work with other teams in competitions; we assist with anything from programming to Chairman's. In 2018, Sabercat members also had the chance to work with Plasma Robotics to gather and send clothes to children in the Philippines. We ended up providing 4 large boxes of shirts to people in need and would not have had the opportunity to participate in something so worthwhile without the support of the other teams in Arizona.

As a part of our mission in FIRST, Sabercat Robotics tries to share information about FRC with as many people as possible. In addition to participating in club rush each year within our school, our team has had multiple interactions with the media. We were involved with other SUSD teams in petitioning our district's school board to add Robotics as a credit-class. After robotics became a science elective class, Fox 10 News reached out to our mentor asking to come to our school to interview and video our Robotics team for television. Following the 2018 season, we once again appealed to the school board and made robotics an honors, eighth hour class. In the 2018-19 school year, 22 of our 30 team members are in the honors class. Because of our accomplishment of making robotics such a high level class, we had KTAR Radio News interview one of our students to talk about our role in the process. Our team had David Schweikert, an Arizona Congressman and alumnus of Saguaro, reach out to us for a meet and greet. He and his 6 year old daughter took turns inspecting our robot, and the entire team had a wonderful time showing him how our team functions and explaining the purpose of FRC.

Sabercat Robotics doesn't just focus on our past accomplishments - We're constantly looking forward to the future. The last few years have been devoted to the growth of our team and our community, and every day we focus on how we can grow even more. Being a part of Team 4146 creates a profound change in every member, every moment, and every memory. Our motto is, "To inspire and encourage a lifestyle of curiosity," and we follow through with it, making history every day. Many members of our team were not interested in STEAM before joining robotics, but STEAM major after STEAM major emerging out of our ranks shows that our team is leaving its mark. Being a part of Sabercat Robotics is fundamental in shaping the lives of members, both while on the team and after. Outreach has become our identity, and we feel that we have truly earned the title of Sabercat Robotics. With each year, we plan to reach out in new ways, improve the events that we already host, and continue to introduce as many people as possible to the world of STEAM. We hope that our legacy of inspiration and encouragement follows our team, and we will continue to impact the world for years to come.