

Chairman's Award - Team 4400

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2018 - Team 4400

Team Number

4400

Team Name, Corporate/University Sponsors

PEÑOLES&COLEGIO CERVANTES DE TORREON

Briefly describe the impact of the *FIRST* program on team participants with special emphasis on the 2017/2018 year and the preceding two to five years

Along the years, our team members have discovered the power of technology and how it is essential for human development and progress. Some of the team members learn the Mexican sign language to give courses for deaf people. We have deeply changed 185 team members' lives, by generating in them the huge spirit of Coopertition. Through the last 5 years, team 4400 has had 29 members that are studying an engineering degree, and today, 5 members are working in prestigious companies.

Describe the impact of the *FIRST* program on your community with special emphasis on the 2017/2018 year and the preceding two to five years

Mexico has problems spreading STEM. To change this perception, team 4400 has innovated by creating specific solutions, such as the GNE and Robocamp, where 450 children and teens can have a close encounter with science and technology, and every year we organize some of the biggest robotics events in our state like the Peñoles-Cervantes TryOut and RoboLeague. Also, we take part in altruist projects donating clothes, food, computers, and giving STEM courses to our community, impacting 2,200 people.

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

Our team members created an innovative method to teach deaf kids and teenagers about STEM. It was a hard task, especially with programming; we had to get translations from the non-translatable programming language to sign language by using translatable synonyms. After teaching them robotics, we put them in practice in our own robotics competition RoboLeague with students from other schools. By this, we broke the language barrier and showed that any person in any condition could be part of STEM.

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

For the last three years, we have been responsible for the creation and development of magazine OMGRobots, in which national and foreign teams contribute. This year we were invited by Team 2486 to host the event Chairman's Exchange (ChEx) in the Laguna Regional and Arkansas Rock City Regional, as a recognition of our efforts in the past season, ChEx is an event where we will help all Chairmans participants by giving the opportunity to share ideas, give presentations and provide Q&A sessions.

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

We know that dreams also require an enormous amount of encouragement from people who have already achieved those dreams. To help this become possible, Cerbotics 4400 was an advisor to teams 7037, 4603 and 5312 during their registering process. After that, we shared our FIRST experience with five regional schools and their students to light up their passion for science and technology, start their own FRC teams and inspire them to be the engineers of the future.

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

Despite the huge educational delay that exists in Mexico, we know that a lot of children and teenagers aspire to become the generation that will achieve a change in the world. That's why we decided to help through financial aid (\$50,000 MXN) the foundation of one FLL team and one FTC team, and is planned to increase the help given throughout the next seasons. Also, our children focused on events such as GNE, elementary courses and Robocamp create interest in belonging to a robotics team.

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

Peñoles-Cervantes TryOut is organized by our team to create a similar environment to the one that is experienced during a Regional event. Also, the fields are saved for practicing before the real match. The use that we have made from social media has become an amazing tool (videoconferences) towards helping and establishing relationships with all FIRST categories teams from 7 different countries. We also created FIRST Connection, where specialists shared their knowledge with the local teams.

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)

One way FIRST encourages us to be better people is by motivating others to be the best version of themselves. Our team has been responsible for the mentorship of teams 4603, 5312, 6199, 7037, 7040, 7161 and 7217 during their Rookie year; to help 2 of these teams we traveled 2,326 km. To aid them, we provided mentors, training and materials. We maintained a close bond with them during all the season. At least once a week, we had contact with them, all this happened throughout the building season.

Describe your Corporate/University Sponsors

Our sponsors have always been in accordance with FIRST values perfectly in their constant pursuit for the validation of STEM. Throughout our team's history the main sponsors have been Peñoles and Colegio Cervantes de Torreón. Peñoles is the biggest metallurgical enterprise in Mexico, with absolute focus on sustainability with many activities, that include the introduction of FIRST in our region. Colegio Cervantes is one of the best schools of our state that promotes STEM and its applications.

Describe the strength of your partnership with your sponsors with special emphasis on the 2017/2018 year and the preceding two to five years

The partnership with our sponsors has earned them a special place in our team. They help us in many ways; Colegio Cervantes provides us with three fully equipped workshops, one of them destined for our FLL team as well as a \$45,000 USD sponsorship. Taking into account direct donations, supplies and priceless work hours provided by Peñoles mentors, they have granted us over \$63,100 USD. Sponsorship makes itself present during all the season and Regional events.

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

The simple way to say it, would be: FIRST is the biggest association in charge of promoting science and technology among youngsters. But FIRST doesn't reduce to that. FIRST is the path of a whole generation on the pursuit of a better world. It is a lesson for cooperating even with your opponents no matter gender, nationality or language. We build a robot, we build knowledge, but most importantly, we are building the future.

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

In 2013 we participated in Expociencias, the most important Science Fair in Mexico, we won a gold medal in the robotics division, and our team earned a pass to an International contest in Uruguay. We are the only Mexican team that has participated as a BETA team for 3 consecutive years. During environmental campaigns, we removed a ton of garbage from the streets of our city and collected 300 kg of cardboard, 30 kg of paper and one ton of PET. We provided a local nursing home with 1,600 diapers.

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

Angelica Garza

Essay

Everything needs a FIRST step. From inspiring a classroom, to stepping foot on Mars. Imagination, creativity and team work trace the way toward achieving what we want. We are Team 4400 Cerbotics, founded in 2011, in Torreón, Coahuila, México.

Education is the main support of any society. Unfortunately for Mexico, in the subject of Science and Math, less than 1% of students achieve an excellence level in competence and exams applied by the OECD. The enormous educational delay and apparent abandonment of research in Mexico have impeded progress and diffusion of science and technology, not only in our region, but in the whole country. FIRST is one of the greatest reasons to believe this doesn't have to be this way.

Team 4400 is aware that interest, curiosity and disposition are the first steps towards change. Along our history, we have made an impact on more 2,470 students in more than 30 schools of our region, sharing our experience and knowledge. Due to the shortages that many of these schools presented, we decided to donate 100 desks and, to inaugurate a school library, we involved our student community in a book fundraising. This season, we began our project Una escuela a la vez, which has the support of the association Laguna yo te quiero and seeks to change the lives of 450 children by modernizing their schools completely. Besides, through our project Cerbotics Community Center we will donate a complete computer lab to a community center in one of the most outcast neighborhoods of our city. This way, we will teach kids and adults programming and computation, apart from this, high schoolers will have the possibility to do their social service here, an obligatory requirement to graduate.

Over the last five years, Cerbotics has had the difficult task of promoting STEM through presentations in public spaces and streets of our city. Thanks to government and diverse enterprise invitations, we have had the amazing opportunity to have presentations on several events such as: Expo Metal-Mecánica CANACINTRA, the National Week of Science and Technology or La Noche de las Estrellas, among others, making an impact in more than 22,415 people. Moreover, massive media have been of great help, we sum up more than 171 radio, newspaper and television appearances, that have been a way of introducing our team and its work; yet, undoubtedly, our greatest tool of diffusion has been OMGRobots, our magazine, dedicated to approach FIRST message within and outside its community. Conformed by articles of more than 15 teams from over 5 different countries, we have achieved a total of 5,000 readers.

The best way toward diffusion is by giving the right tools to the people who surround us, to help them discover their full potential. Through activities like Grand Novelty Expo (GNE), organized since 2014 and, since 2017 with Robocamp, our own summer camp, we granted over 450 children direct contact with science and technology, via LEGO Mindstorms, videogame design courses, drone driving, etc. Team 4400 recognizes that each one of us deserves the chance to be extraordinary. That's why, this season, we began the task of approaching LEGO activities to the Pro Neurogenic Childhood Association (APIN for its Spanish acronym). Besides this, for 3 years now, our team has given mechanics, electronics and programming lessons in the Institute of Hearing and Language (ILAL for its Spanish acronym) to deaf children and teenagers and this year, our classes are considered an extracurricular activity. Five members of our team can speak in Sign Language and every member must know the sign alphabet. One of the difficulties we faced was the lack of translation to certain words, that's why we used symbols to teach programming, electronics and mechanics. This teaching has given amazing results; at the beginning of 2018, Cerbotics started a completely innovative activity, RoboLeague, a line follower robot competence designed to embrace one of the most important values in FIRST: inclusion. Seventeen regional teams, of which 23% of the members are deaf teens, who had the chance to sign in at no cost. As a matter of fact, the second place in the competence was won by one of the teams of ILAL.

The two main FIRST values: Gracious Professionalism and Coopertition involve hard work not only to win, but to teach and learn from others. That's why, one of the main objectives of Team 4400 is to aid other teams, collaborating to reach goals that we couldn't achieve on our own. Along our history, we have mentored teams 4603, 5312, 6199, 7037 and 7040, helping them on their register, providing them with material and training courses. Additionally, we created a strong relationship during the whole season and gave them support each week while they were building their robot. To help them, we traveled 2,326 km to Fresnillo, Zacatecas and to Turuachi, Chihuahua. We also know that promoting STEM not only means helping teams that already exist, but creating new ones too, therefore that, this year, team 4400 invested 50,000 MXN in starting both FLL and FTC teams. The huge impact Cerbotics has produced is portrayed on their ex-team members, more than 98% of them studied a degree, and 80% studied an engineering. Eleven remain on the team as Mentors or Jr. Mentors and 8 that today are mentoring 10 teams from FRC, FTC and FLL.

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Nevertheless, mentoring is not the only way to help other teams to improve themselves, so we have implemented innovative tools to share our knowledge, experience and material. Regionally, we have helped 10 FRC teams by offering them programming, pneumatics and safety courses, as well as events like FIRST Connection, an institutional communication workshop, moreover, we try to have a strong bond with other teams within our region organizing a SWOT event with teams: 4355, 4401, 4403, 4603, 4735, 5312, 5526, 5708, 6199 y 7217. At a national level, in 2015 we traveled to San Luis Potosi capital city FRF (First Robotics Fest), where we imparted pneumatics and Beta kit courses to 9 teams from 7 different states. For more than 5 years, we have organized and hosted the Peñoles-Cervantes TryOut, one of the biggest robotics competition in our state; focused on simulating a real FIRST regional event and that along its history, has had the participation of more than 15 national teams, coming from 6 different states, with a total audience of 4,000 people. This year, several team members will be lodging in their own homes all the participants of the TryOut, coming from places like Fresnillo, Caborca or Turuachi, located in 3 different states in Mexico. For Team 4400, borders don't matter, we have assisted more than 20 teams from countries like the Mexico, US, Canada, Chile, Brazil, Turkey, France and Israel. Furthermore, thanks to the labor done in the last 5 years, Team Coconuts 2486, selected us as host of the Laguna and Little Rock Regional Chairman's Exchange, to provide guidance and share our experience with the teams that are trying to win the Chairman's Award.

FIRST is about being innovative and creative, but also being compassionate. On September 19th last year, a devastating earthquake severely affected Oaxaca and Mexico states. Beyond the tragedy it was for the whole nation, it was an example of union, sympathy and solidarity. Helped by our community, our storage center collected more than 2 tons of supplies (food, water and first aid material) that were sent to Oaxaca, Puebla and Mexico cities. But, for us, the spirit of helping should not begin with a tragedy but with the ideal of supporting, constantly and effectively, those who need it. Following this, we began "Time to Share", that for 5 years has brought happiness to more than 250 families by the donation of clothing, food, toys, comforters and most of all, a moment of happiness during holidays.

The first thing we must think about is health. A really serious problem in our region is cancer, that is ranked as the main cause of death. It is a really difficult task to tackle, therefore, Cerbotics has made campaigns of both prevention and treatment. The Self-examination campaign is done every October, in which we give conferences about breast cancer and, as a general message, we film an informative video where 5 teams participate by showing the importance of prevention and breast self-examination to avoid cancer, specially the one that affects the breast. With this activity we have impacted more than 5,000 people, not only women, but men as well. "Tapaton" is an initiative of our team to support "Destapa una Esperanza" organization. It consists on a bottle cap collection we complete with our community's help. For every ton of caps collected, a chemotherapy is donated to a child affected with any kind of cancer. Along these 3 years, we have collected more than 535,000 bottle caps that have successfully funded chemotherapies, added to the whole treatment and travel expenses. This way, we contribute to the diminishment of this problematic in our community

Everything needs a FIRST step. For five years now, we have taught our team members and other people, the power of science and technology. we have inspired them to be the best version of themselves, we have diffused the FIRST message through many activities, no matter the conditions, we think that letting someone know they're not restricted by their limitations, that language barriers can be easily surpassed, that science is not some private club only a few are allowed into, but a growing circle anyone with the enough spirit can join, is the main mission not only of team Cerbotics 4400, but of FIRST as well. Of course, this cannot be achieved as fast as we wish it could, it requires a series of steps, and we, already gave the FIRST step.

*All terms used to describe our team's efforts and impact strictly match FIRST definitions for 2018 Chairman's submissions.