

## Chairman's Award - Team 3354

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2019 - Team 3354

### Team Number

3354

### Team Name, Corporate/University Sponsors

PrepaTec Queretaro/MSA/Herco/Liceo Mexicano Canadiense/TDR Soluciones Logísticas/Ferretería Unión/Z promocionales/GM/Coca Cola&PrepaTec Queretaro

### 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

Everyone on the team agreed gaining values such as teamwork and responsibility, which turn into strong synergic ties between members. Currently, 50% of our directive board is composed of female members, which at the long run becomes in getting more opportunities for women in STEM. *FIRST* alumni created TecDroid Mentors, a group of mentors to guide the newer members of the team. Of our former members, 100% of them go to college, with 90% going into STEM related careers.

### 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

By dedicating an entire area to community service, we got to develop 4 main social services, ranging from ecology, charity, education, and project development. Continuity has been a key factor for community impact, as our team has been able to carry social projects for more than 5 consecutive years. Examples of our projects: Robotics, English, & Science classes; charity fundraisers; prosthetic hands development; etc. Over 8300 hours of social service back our projects.

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

We are going through the third year of our elective course implemented in our school. There, an FRC-style competition is set for the students to show how they work as a team to create everything from scratch (including award submissions, publicity, robot building, and sponsor gathering). Furthermore, we did 6 STEM and leadership oriented Congress for teens in the last 5 years. By going on various press conferences, we spread *FIRST* message through our mission and values.

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

Role modeling starts within a team, therefore most of what our team knows in each area has been the resultant of generations of team members teaching the newer ones how to excel in various areas. TecDroid has become a family where the older ones pass down the knowledge to the younger ones, creating structures of role-modeling throughout the time. As an example of this, the two engineering coordinators teach other members how to program and basics in engineering.

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

We spread FIRST's message in every media appearances we have, as well as in every event & campaign. Also, we encourage young teens to get involved in STEM and build their own FRC team with our help whenever they reach the age. As well, we encourage teachers and parents to mentor and help in the creation of FRC teams.

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

We visit elementary schools regularly to spread FIRST message and our experience, to encourage them into creating their own FIRST team. We also created workshops and events for children and teenagers where they experience different aspects from FIRST, ranging from business & logistic, to STEM areas.

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

We offered and made available all of our machines and fields to all Mexican teams during building season. Created a Safety Manual to spread during events. Offered our engineering, logistical, and business skills to help other teams during off-season. During build season we had regular meetings with FRC teams to advise them and exchange ideas, either on engineering or on team administration.

**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 collaborated with 4 FRC teams giving workshops to 30 teams in the Mexican Kick-Off. Participated with 20 FRC teams on the Mexican Engineering Forum. Gave a Chairman's Award workshop for other teams at the FIRST Day Mexico event & two Entrepreneurship Award conferences at the FIRST Robotic Fest in San Luis Potosí and Irapuato respectively.

**Describe your Corporate/University Sponsors**

Our biggest sponsor is our school, PrepaTec campus Querétaro. They support us with physical spaces for our events to take place, transportation, a construction laboratory, mentors, and all of the supplies for the building season. Herco, MSA, LIMECA, and TDR Transportes are our other sponsors, who help us either with mentoring or financial support.

**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 relationship with the sponsors has always been a reciprocal interaction, where both parties give something they excel at or have to the other one. This relationship has gotten us big sponsoring seasons, where we got to have up to 10 various sponsors, ranging from mentoring to economic sponsoring. We aim to have long-lasting relationships with our sponsors in order to have a substantial and stable economic income, so we can be able to organize more free events, as well as make more donations.

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

FIRST is an organization dedicated to spread STEM into the younger generations, through a creative way of exploring various fields. They aim to increase the interest of these younger generation into STEM in order for them to further develop the various fields of it.

**Briefly describe other matters of interest to the *FIRST* judges, if any****Team Captain/Student Representative that has double-checked this submission.**

Mauricio Michelle Betancourt Martínez

## Essay

### The TecDroid Community

TecDroid. A seemingly simple 8 lettered-word. And while that technically may be truth, behind those letters one can find the ideals of 60 young teens willing to change the world. "Changing the World" may seem like so much work for so few people, but it's the small changes with big intentions that matter, and we as a team devote ourselves to impact our community. Our community? Yes, it's ours. The TecDroid community. Conformed not only by our team members, but also by our mentors, classmates, neighbors, families, sponsors, and anyone willing to be part of the TecDroid family. Our two biggest compromises with the community are to make it grow, and to retribute to it.

### Community Growth

Since the conception of TecDroid, our community and our impact had been consistently growing, and this is all thanks to our neverending sense of perseverance and commitment towards them. When TecDroid started 10 years ago, we were just 6 members and our head coach, and slowly started gaining both members, and followers for our community. To reach bigger and bigger audiences every year, we started with several events in order to both spread FIRST message and get people involved in STEM and TecDroid.

Going back to 2012, we organized and hosted our first STEM oriented event, "Construye Tus Sueños Congress", where STEM fields were presented to our city's population. This Congress was so successful that we did two more editions in the next years.

On 2014, we created another of our most successful events, the Touch&Play. This event was intended for children from 6 to 14 years to learn about STEM through video games and robots. This year we also focused on spreading a safety culture, by organizing a Safety Conference on our school.

Jumping into 2016, we redesigned "Construye Tus Sueños Congress", and turned it into CON4STEM, a Congress dedicated to STEM and its applications in real life. This Congress gained popularity amongst our school students and got two more editions in the following couple of years. Amidst 2016, one of our biggest projects got approved by our school, and we finally got the opportunity to open an elective course for 12th grade students interested in STEM related careers. This free elective course recreated FIRST and FRC, by creating two different teams which competed one against the other in an FRC-esque season (including sponsor search, robot building, award submitting, and social service). This elective course got us to finally reach the 100 members mark, and got so popular that our school implemented it on other campuses. To this day, 6 different campuses are in this program, hosted and organized freely in our school, hoping more and more teams and campuses participate in our off-season competition.

In 2017, we wanted to get our community a more inclusive focus, thus, started to develop projects and events for a wider audience. This year's Touch&Play, now renamed Learn&Play, got two versions, one with a general audience, and the other one for children living in the streets. This year we also redesigned yet again the CON4STEM, recently called Sci-Life Congress, focusing on how daily activities relate to STEM through conferences and workshops.

Our most recent event, currently under planning, involves the creation of a Science Fair for Middle Schools, in order to engage younger students into doing research and experimentation on any STEM subject they are interested in.

All of these events help us through the years to engage more people into STEM through FIRST message and TecDroid ideals, getting them to become a member of the TecDroid family.

### Community Retribution

Once we have a community around supporting us, it is vital for us to keep in contact with them and thank them for the support. For this, we developed a 4-cause plan in which we can retribute to our community and give back two of the most valuable things for us, support and knowledge. This 4-cause plan is divided into: ecology; charity; education; and project development.

Starting with ecology, our main goal is to raise awareness on ecological sustainability. We developed different projects such as "Ecology and the 3R's" workshops to low income children, where we taught them the importance of taking care of our planet. Also, we regularly take small groups of our members each week to go garbage-picking in our city's public spaces. Asides from the external work, we also try to maintain an ecological mindset in our lab, by recycling and reusing last season's wastes.

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Next we have charity, in which our goal is to help the least fortunate get access to basic resources. Our biggest supply collect was two years ago for the Mexican Earthquake, but we have constantly done clothing collects on winter for people living in the streets, and food collects for people in the hospital. On the future, we plan to develop more charity projects, by collaborating with our school's students groups and other caritative causes, hoping to create an even bigger impact not only on our community, but on a national level.

For the education section, our goal is to give personalized classes, according to their interests, in robotics, English, sciences, first aid, and psychomotor skills. Our first and longest running project is in a nearby rural community called "La Monja", where we have been going every Saturday over the past 9 years to give English and Science classes to the children, while also playing with them in order to create a bigger interest in STEM. This project was replicated on two different foster homes, where we taught them Science classes. A middle-school contacted us to give regularizations for their students on Math, English, and Science, and thus, we have been going every Friday evening for the past year and a half. Since the beginning of TecDroid, our team has encouraged a safety culture, and thus, in the last years we have been certifying all of our members in first aids, for our team to be prepared for any inconvenience. As part of a request by a private school (Our sponsor LIMECA), our team developed an online platform with activities and courses for teacher to give and students to learn the basics of robotics, programming, and mechanics. And lastly, our most recent project: robotics and programming courses to a honors public middle-school group. In this, every student has excelled in STEM-related subjects, and are willing to take extra classes to get a deeper knowledge on how basic programming and robotics work, by using an Arduino kit. This Arduino project has gotten the attention of other schools and we will implement it on the next academic year.

Lastly, in the project development cause our main goal is to motivate innovation in our community, for everyone to be able to develop their ideas into real life projects. A year and a half ago, a mentor approached us and presented the Hand-Challenge to us, which consists of the building of 3D printed prosthetic hands in order to donate them to those in need. After setting some plans, we will start distributing our prostheses on April, working side by side with the IMSS (Mexican Institute of Social Security). With the beginning of 2018, two new projects arose, a robots comic for children and "Visión con futuro". The robotics comic was made in collaboration with one of our former team members and a literature student group; this comic was translated into Otomí (an indigenous language of our region), in order to spread robotics knowledge to highly secluded rural communities. To this day, the book has been printed and distributed in 3 different communities. "Visión con Futuro" on the other hand is a project proposed by a community member in collaboration with us, aiming to distribute graduated lenses to low income people and conferences about this subject. Lastly, our most recent project, "Pink Thinking". This project was created by a few female members of our team tired of the patriarchal prejudice prevalent in our society concerning women and STEM. This made them realize that they should share their opportunities and experiences with other girls and women, by making conferences relating women and the STEM fields in order to encourage a new generation.

**The TecDroid Family**

Throughout the 10 years TecDroid has been existing, we may have received merits for our work (2 Chairman's Awards, 4 Entrepreneurship Awards, Judges' Award, Excellence in Engineering Award, Innovation in Control Award, best student group, government recognition), but after all, it was never about us, rather it was about the community effort and their support towards us. The community supporting the TecDroid.

TecDroid supporting the community.

Family supporting Family.