

## Chairman's Award - Team 4010

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2018 - Team 4010

### Team Number

4010

### Team Name, Corporate/University Sponsors

PrepaTec CCM/Motorola Solutions Foundation/National Instruments/Fundación Azteca/GE&Tecnologico de Monterrey, Campus Ciudad de Mexico

### 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

Thanks to FIRST, members of Nautilus have the opportunity to apply to different scholarships and thanks to their introduction to STEM areas, 82% of them are interested in finding their professional path in engineering and science related careers. We have also gained valuable lessons for our personal life, including Coopertition and Gracious Professionalism. We have found a trust network in the FIRST Mexico community, who have helped us through adversity, including the earthquake of September.

### 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

We have given Junior High school students from public schools the opportunity of being part of FLL teams. In the World Refugee Day, we engaged with refugees from Latin America, introducing them to the FIRST programs. We have worked with NGOs like World Vision and CELAMEX, to bring courses to children in disadvantage. Also, we have worked to bring Zero Robotics to Mexico, to give students the opportunity to take part in a free programming competition, allowing them to work with MIT and NASA.

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

Since 2014, we have invited Beakman to our school, to engage Elementary and Junior High students in the STEM world. We invited over 300 students to compete in a science competition. Inside our school, we have participated in different fairs, to invite students to join Nautilus. We have worked with kindergarten students, showing and doing activities with LEGO robots. In the Robotix Faire, we presented FRC to future High School students, as well as the FLL programs with our team LIANG.

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

Through our community service, we have become role models for the next generation that have an interest in robotics and science. With World Vision, we have given the youngest, the opportunity of developing their skills. It is satisfying to see they are now looking up to us as inspiration, that motivate us to help students to overcome challenges, and become leaders for their peers. Through forums, and the FIRST Mexico community page, we have helped the less experienced teams develop and improve.

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

In 2016, we helped Campus Irapuato start their team, TecGear 6106. With Get Up Tec, we help them get the money they needed for their regional. We helped CONALEP start their team Robit 6689. We helped them get contacts for sponsors, as well as participating during the 2017 season. We want them to acquire more knowledge and experience. This season, we have worked with Campus Guadalajara to start team Daedelus 7201. We helped them apply for the Rookie Grant, and we given them technical support.

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

In 2014, we started a project to have a FLL team in the 120 public junior high schools in Mexico City. We started with LIANG, and last year, Iron Bots and Robot Experiments joined the project. LIANG has competed for three years. Last season, they became the first mexican team from a public school to compete in the Championship. Robot Experiments and Iron Bots have participated for one year. We are currently searching for an alliance with Robotix, to expand the project with their reach.

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

With one of our main events, Get Up Tec, we have given around 15 FRC and FLL teams monetary assistance, inviting them to take part in it. This season, we hosted the event in November, and gathered around 12000 USD, which were distributed between 11 teams. During the Kick-Offs and other FIRST Mexico events, we have offered presentations of the Engineering Inspiration and Entrepreneurship awards, to share tips and help newer teams aiming to win these awards.

**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 have built a work network with the FRC teams around us, especially in the metropolitan area. Our main ally has been Tamán Keet 3933, from Campus Santa Fe. We work with them every Sunday, and help each other solve problems throughout building season. We helped team Robit 6689 every week, sending mentors to help them build their robot. Even though team TecGear 6106 is far from us, we offer help through technology, having online meetings whenever one of us requires it.

**Describe your Corporate/University Sponsors**

Our school, Tecnológico de Monterrey, has also helped us since our early beginnings, giving us facilities and spaces for building season. Thanks to our results, our school has provided us with a full equipped workshop and access to all other areas. Our school has supported us from the beginning, and they are proud of us being the only auto sustainable team among the teams of the institution. Our mentors have inspired us to reach our goals through their leadership, accompaniment and recognition.

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

Since our beginnings, we have had the support of Motorola Solutions Foundation, who has been our main sponsor ever since. In 2016 we won the National Instruments Grant of 1000 USD, and this year we were able to renew it. We also work with Fundación Azteca, who will help this season for the first time, with a grant of 2500 USD. We are also thankful with Transportes Mora, Robolab, Tornisur, Oracle Academy, Siemens, SIMMA and Boletópolis, who have helped and believed in us since the beginning.

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

FIRST may seem like just another robotics competition, but it is more than that. It is an opportunity for you to grow and find meaningful experiences surrounded by people who are passionate about the same things as you. It goes beyond conforming a team, you will learn to work together to achieve the same goal. It will give you the opportunity of changing your community and your surroundings. FIRST will show you that the biggest prize is not winning, but becoming the best version of yourself.

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

Jorge Santos

## Essay

What is life without innovation? What is life without improvement? What is life without the opportunity to change the world? For us, life is overcoming the challenges that stand before us. Life is not waiting for something to happen, but having the initiative to change the world. Since our beginnings, we have aimed to become a platform to help others and improve their life quality. Nautilus is a space where people can dream big, and launch themselves to greater things than they ever imagined.

We targeted the biggest challenges our community and country are facing, to understand and give people the best chances to succeed. Education is one of the most alarming weaknesses for the next generation. We know that children are the future, that is why we want the youngest and most creative minds to represent the future of FIRST and Mexico. In 2014, we began an ambitious plan to introduce junior high students from public schools into the FIRST and FLL world. We started with team LIANG, from Secundaria Tecnica 101 (public middle school in Mexico). As seasons pass, we have witnessed their growth and improvement, both academically and personally. During the 3 years that they have competed, they have earned a Programming and an Inspiration Award. Last year, they became the first Mexican FLL team from a public school to attend the FIRST Championship. This gave them the opportunity to travel outside of Mexico, and live a once in a lifetime experience with people from all over the world. One of the Nautilus members that worked with them, Diego Montaña, earned the award for best FLL mentor at the Championship. It is amazing to see how a 17-year old mentor can inspire a team, and become a guide and role model for them. Through each and every one of our team members, we are impulsing change and improvement, as well as inspiration and leadership for the next generation. During the 2017 season, we formed three more teams to continue with the project, Iron Bots, Robot Experiments, and Pandators. The first two teams competed in the Mexico Regional. Public education in Mexico is not up to the level that youngsters need in order to be prepared for their professional career. Including them in FIRST will give them the knowledge and tools they are lacking, and improve their chances in the real world.

We know that not everyone has the access or the ability to participate in a FIRST team, that is why we searched for an alternative in which high school students could take part. Zero Robotics is a competition held every year by the MIT and NASA since 2012, in which teams program SPHERES (micro satellites) to complete different tasks based in research real problematics. This competition is completely free for countries that are part of the International Space Station, unfortunately, Mexico is not one of them. Since 2016, we have worked to bring the competition to our country, and try to cover the annual fee of \$100k USD. During the last 2 years, we have opened the competition in a pilot and trial mode for different teams all over the country. This project has had an exponential growth, in just one year we increased the number of teams from 5 to 15. Our own team, TECQUIUM, has reached the finals twice in a row, and formed an alliance with a team from Monterrey this season. With this initiative, any high school student in Mexico will have the opportunity to learn and improve their physics, math and programming skills, as the only things needed are a computer, and access to internet.

One of our main goals has always been forming an auto sustainable team. In order to achieve this, we have worked to get key sponsors, who will help us complete all of our objectives. Our first sponsor was Motorola Solutions Foundation, who has helped us ever since. We have also applied for different grants, including the FRC National Instruments Grant. Thanks to our commitment to the ideals of FIRST and our plans for the future, we were one of the teams who received \$1000 USD to continue with our program. This season, we will be sponsored by Fundacion Azteca, one of the most renowned non-profit organizations in Mexico. Fundacion Azteca has been one of the main partners of FIRST Mexico for many years, and it makes us proud to join this national network, that will bring us closer to other teams. We also have strategic alliances, such as the Mexican Red Cross. During the last year, we worked together with them to develop an app that would measure resilience levels in the most vulnerable communities in Mexico. With this measures, we can see the weakest spots throughout the country, in order to prevent damage when facing natural disasters. Our partnerships go beyond financial aid, we have had the opportunity to learn and grow, as well as continue participating in FRC. Our sponsors have become mentors and guides for all of the team, as they challenge us to grow and reach further and further every time.

We want to help other FIRST teams cover the expenses of their season, that is why we started hosting GetUpTec. In 2016, we had the idea of hosting an event in Six Flags, where we could raise funds and invite other teams to collaborate and take the part. The first edition of the event was held in January 2016, with the participation of around 3000 members from the FIRST and Tec de Monterrey community. Since then, we have hosted the event every November. Over the three editions, we have had the help of 15 teams from FRC and FLL, with 11 taking part in the 2017 effort. Last year, we had a profit of \$12000 USD, which were distributed between the participating teams. With events like this, we have developed a network with different teams from all over the country, where anyone can give and receive assistance, and share experiences and knowledge.

FIRST has proven that it is more than robots, and we have used this belief as the foundation of our team. The economic and social context in our country is not balanced, and most people lack the help and resources they need to thrive. We are committed to make a change in Mexico, that's why we have partnered with different organizations and associations that will help us get the broadest reach possible.

Along with World Vision, one of the most recognized NGOs worldwide, we have given different courses for children in disadvantage. We have designed robotics, nutrition, leadership and education courses that have been recreated in different communities in which World Vision works. Our most recent course was given in the community of Tulpetlac, and we reached around 30 children.

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We worked with refugees during the World Refugee Day 2017, in an event held by the government. This event presented laboral options for refugees from Latin America, and we presented FLL robots to the children in attendance. Several of the attendants were interested in the competition and its vision, as well as in the opportunities robotics could bring to their future. We have also worked with "Casa de la Amistad" and AMANC, associations that help children with cancer. We do storytelling that involves FIRST and its values, along with different robotics related activities.

When adversity strikes, Nautilus is ready to help and show its true colors. In September, our city suffered one of the most devastating earthquakes in its history. Several people lost their homes not only in Mexico City, but also in other cities. Several buildings and constructions suffered damage, including our school campus. A lot of FIRST teams showed support and lend their hands and hearts to us, which gave us the strength we needed to move forward and continue this challenging journey. Even though we were going through a difficult time, several people needed help, and we took action. Along with one of our sponsors and allies, "Transportes Mora", we offered help to transport materials and goods if anyone needed it, that is how "Mano a Mano", a civil association, contacted us. After the earthquake, they started building houses in Izúcar de Matamoros, one of the most affected towns in Puebla. During October and November, we sent trucks with construction materials to the affected communities, and the houses were ready by December. We attended the presentation of the houses to the 15 families that lost theirs. We spent the day time with them, listening to their stories and learning how resilient people can be during adversity, and the impact we can have if we join forces. In December we organized a collection of toys, goods and clothes, which we will deliver in San Gregorio, a community located near our school.

We know that we have come a long road since our first season in 2012, but we still have a long way to go. We have taken many steps in our path to become the change we want to see, and to help each and every person we can reach. FIRST is not about being the best in a competition, it is not about winning a trophy, it is more than being the strongest team, it is about making a change, and using all our possible resources into giving people the life they deserve. In order to achieve all of our goals, we have to dream big, think outside of the box, and take risks even if we are not sure we are going to succeed. We grow, learn, improve, help, persevere, and most of all, we inspire. There is not a perfect team, and we are not the exception. However, we recognize the potential of everyone in our surroundings, and we give them the tools they need to reach their maximum capacity. We are a team, we are a family, we are Nautilus 4010.