

Chairman's Award - Team 1156

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2019 - Team 1156

Team Number

1156

Team Name, Corporate/University Sponsors

John Deere/National Instruments/UTC/Severo Industria/Metalthaga/LRB Química/Plastfera&Marista Pio XII

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

Due to the FIRST program, our members become more responsible and competent both personally and professionally. The influence of STEM is huge, 99% of our students go to college and, for the 4th year in a row, they have all chosen STEM degrees. We have members working at world-class companies such as UTC, Riot Games, SAP, and Weatherford. Most of us are volunteers at FIRST events and all 1156 mentors are FIRST alumni, proving the efficacy of the FIRST message.

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

We work towards building a value-centric community where STEM is recognized and regarded. Since 2008, 1156 helps to organize the biggest robotics event in our state, where we reach more than 2,200 children yearly. 1156 and JD Inspire Program are together creating and mentoring several new FLL teams in Brazil. Due to our projects in unprivileged schools, we inspired other institutions to emulate us. This led to many local companies reaching out to us to learn more about our projects and FIRST.

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

We're reframing the way people view STEM, through the FIRST message with our recent creations, such as LEGO assembly books and Clue-inspired games with FRC themes, which can be used anywhere in the world. We also held workshops in underprivileged schools, teaching LEGO to children. We were featured in a whole episode of a nationwide-transmitted TV show, in which we presented FIRST. Highlight for the Olympic torch relay, published in the Rio 2016 Twitter account, that has over 600,000 followers.

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

Our team members do not measure efforts to inspire other FIRST team members. 1156 has traveled more than 204,557 man-miles doing workshops and participating on events all over the country. Our team members take part on many projects, such as volunteer work in FIRST events, sharing knowledge and experiences and, by doing so, we prompt other teams' members to do the same. Due to our passion and commitment to the FIRST values, Brazilian FLL, FTC and FRC members see us as role models inside FIRST.

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

After several meetings and a guided tour in the last World Championship, 1156 has worked on many fronts to convince the Brazilian FLL Operator to start and establish FRC teams in Brazil. 1156 helped to create 4 new teams (an increase of 44% in Brazilian teams). We traveled 1500+ miles to support and mentor them through workshops focusing on technical areas, fundraising & outreach. We also provided them translated FRC materials. Now we're helping SESI to organize a Brazilian FRC offseason event.

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

For the first time in 10 years, Brazil has FTC teams. Brazil's FLL Operator chose 16 schools across the country to start 16 FTC teams. In a two-day event in our country's capital, we helped training each one of them on all areas of FTC. Due to our help on founding and mentoring all these teams, the 1st National FTC Tournament in Brazil will happen in March. We have also developed materials and trainings that can be effectively applied to assist in the creation of new FLL teams in the country.

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

1156 participated actively in the progression process of some of the best Brazilian FLL teams, including the 2018 FLL World Champion. Through lectures, trainings and hangouts, we helped 20 FLL teams to progress to FTC or FRC this year. Support materials were made to help these new Brazilian teams. Besides those projects, we also participated in FLL events, demonstrating our robot, thus inspiring and encouraging members from other teams to progress to FRC when they finish their cycle on FLL.

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)

Our team believes in joining forces when it comes to helping others teams. We invited team 6404 to join us in the Knowledge Olympics (OC), an event with over 46,000 visitors in Brazil's capital, and, by being recent rookies, we invited them to help us train 4 new FRC Brazilian teams. Our team is also working with FRC team 2526 from Minnesota and FLL team Migbotics from Uruguay to create materials and a common scalable curriculum to mentor new teams all around the American continent.

Describe your Corporate/University Sponsors

We have a constellation of excellent sponsors: UTC provides funds; John Deere funds us and gives FLL mentoring support; NI, beyond funds, helps with resources and professional support; Marista Pio XII School provides funds and work facilities; Metalthaga and Diedrich provide machining services; Plastfera offers plastic and other derived products; Entremalhas, Dinarte and Clássica contribute with artistic and supplies for team shirts; And, Cypress Turismo assists us on travels & insurance.

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 National Instruments goes beyond their funding, we encourage other teams and our members to use NI LabVIEW (out of 5 people in our state that are certified by the NI CLAD exam, 2 are on the team). We developed a robot in partnership with Severo to optimize their manufacturing process. JD Inspire Program made possible for us to mentor FLL teams from underprivileged schools and Marista Pio XII helped us develop a presentation folder for sponsors.

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

FIRST is an institution that promotes STEM and soft skills development. It's much more than just a robotics competition, it's an experience for the rest of your lives, where the learning, teamwork and the cooperative growth with other teams is worth much more than a medal. Where its challenges, goals and synergy apply in the real world. Most of 1156 members decided their college degree because of their involvement with FIRST, besides that, job offers emerged from sponsoring companies.

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

Our team contributed with FIRST by creating new Brazilian FLL teams, organizing training events for mentors and judges, helping Brazil to reach the milestone of over 1000 FLL teams. 1156 was invited to OC, one of the most renowned STEM fairs worldwide. We'd also like to remark the increase in female representation in our team, from 15% of overall members in 2018 to 45% in 2019. We also strengthened FIRST in a new country by volunteering in the Uruguay FLL Championship for 3 years in a row.

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

Paula Souza

Essay

Hello visitor, welcome to 1156's space mission! On this journey, we'll take you on a reconnaissance fly-by over the development of our spacecraft. You'll see that each part of it has its specific role, and how they all fit together and work synergistically, to achieve our ultimate goal.

The mission objective is to ignite STEM passion from within our community to the whole galaxy, as a mean to teach indispensable skills and inspire people to get involved with FIRST and its values.

Since 2002, our motivation is not only to build robots but to change the lives of every single person who gets in touch with 1156.

DOCKING MECHANISMS: MATERIAL CREATION

For new teams and members, getting started in the FIRST universe can be an uphill battle. Thinking about that, we created a plan to help them have a softer start: We made support materials, such as translating "The Secret Book of LabVIEW" (more than 231,000 chars) and CAD webinars, both available to all FRC teams. In the last 3 years, we helped to translate the Game Manual, facilitating the interpretation to Brazilian teams. We also developed a Clue-inspired FRC themed game and LEGO assembly books to take to underprivileged schools, introducing our work to those who didn't have access to technological education yet.

The docking mechanism links our spacecraft to other teams, assisting on their journey through FIRST and STEM education.

CONTROL STATION

Behind every successful mission, there's a strong team. We carry out multiple initiatives to recruit a team of A-Players to our control station: Public annual lectures at our school about STEM and robotics; We developed the project REPIO 2.0, offering to School students, courses in maker, business and coding, so they can discover their talents and develop soft skills that ease their entrance in the "FIRST Universe" and on the upcoming "real world"; There's also our FLL team, which had a 100% students progression rate to FRC in 2018.

We achieved a solid renewal of our team in 2018, with 18 new members, an increase of 38%. Our team seeks to inspire members to follow FIRST values and create their own future. We help them become the best version of themselves and encourage them to do the same with others. In the last few years, 4 alumni were hired by sponsors confirming that our members' lives and careers are directly impacted by FIRST.

Our workplace is an example of how the gender imbalance inside STEM areas can be overcome. In 2018 alone, the female representation in our crew tripled, going from 15% to 45%. In our team, gender diversity is treated with its due importance, where girls take leadership positions, breaking old paradigms. They feel confident to learn and be themselves without treatment inequalities, working along with girl mentors.

ANTENNAS: COMMUNITY EVENTS

The Antennas transmit data for the spacecraft. We use them as a way to spread our message to the community. In the last few years, we have attended big events like Kids Run, a children's marathon where we took robots to interact with the public.

We built a telepresence robot for the CEO of Banco do Brasil, the largest bank in Latin America, taking it to Brasília at a technology event with 2500+ people. At the 2016 Olympics, we were a part of our city's Torch reception, interacting with the public with our robot and appearing in the Rio 2016 official Twitter account, with over 600,000 followers.

We also perform social work, such as visits to AMO CRIANÇAS, a children's cancer institute, to play with FLL robots and donate bottle caps for recycling (one of their sources of income with broad community support). More than 6600 pieces of clothing have been donated to families in need, 320 lbs of food for nursing homes, generating more than 2200 hours of volunteer work.

But above all those numbers, we have found in social work a way to impact our community. With these actions, changing the world becomes both a goal and a reality for our team.

AMPLIFIERS: MULTINATIONAL EVENTS

We believe that when you have the tools to change someone's life, it becomes your moral obligation to reach every person that can be benefited by your work in some way.

That's why we need amplifiers. They boost the transmission power from the antennas so they're strong enough to be heard, increasing our range to spread our message worldwide.

With them, for the 10th year in a row, we help to organize the largest robotics event in our state, the Marist Robotics Festival. This year, the event had more than 2200 participants and 5000 visitors, from all over the country.

Due to our success in organizing robotics events, in 2016 we were invited to be judges and volunteers on the 1st FIRST event in Uruguay, the 2nd largest FIRST event of Latin America.

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For this to happen, the technological education governmental program in Uruguay, Plan Ceibal, kept in touch with us for months, where we provided training and assistance. This process led to a great partnership with the program's director, that opened the doors for us to participate in their next events. Due to this work, Uruguay will host the first FLL International Tournament of Latin America, counting on our members as official volunteers. In the last 2 years, we provided lectures & workshops to all 60 FLL mentors from the neighboring country.

In the last 4 editions, we participated in Knowledge Olympics, the largest technological education fair in Brazil, and qualifier for WorldSkills. Combined, the events had more than 596,800 people, from 62 different countries. We also traveled 1940 man-miles to volunteer at the FLL Tournament of Santa Catarina, demonstrating our 2016 robot, presenting FRC and our team to 12,000 visitors.

We are also helping to organize the FTC premiere in Brazil, thus having its first National in Rio de Janeiro, a great chance to help on expanding and solidifying FIRST in Brazil, changing the lives of thousands of youths. All the judges and mentors there were trained by us.

PROPULSION: MENTORING AND CREATION OF TEAMS

The Propulsion System corrects the spacecraft's flight path to get into orbit, it makes us want to go further to spread our goals and projects to other teams around the world. In 2018, we mentored 20 teams and assisted 118. With our support, 1 of our main sponsors, John Deere, implemented the JD Inspire Program in Brazil, mentoring 6 FLL teams over the country. On the 2019 season, we created a pilot project called "UnderBinars" that consisted of video conferences with new FRC teams, approaching several subjects to their development, involving robot design, team attributes and what they should expect in the regionals, providing 6 UnderBinars during the 6 building weeks. Our team participated in the progression and mentoring of FLL teams to FRC. Through training, we helped to found and mentor 4 new FRC teams in the country, an increase of 44% of Brazilian teams in the category. This is due to the great partnership we have with SESI (Official FLL Operator in Brazil) in the last years. Because of this relationship, we helped to bring FTC to Brazil, a category formerly nonexistent. We helped to create and mentor 16 FTC teams from 15 Brazilian states, totalizing 20 FLL teams progressing to FRC & FTC, making them aware of their programs and assisting with their official registration process. We traveled 5100 man-miles to mentor these teams, training new coaches and judges to prepare them for their 1st season, in 2019.

It's essential to highlight the importance of the implementation of FTC in Brazil. Before it, every year thousands of students had to give up on their STEM education because there were no available options for progression when they reached FLL's limit age. Now, they can keep progressing in their STEM journey, which creates a huge cascade effect to the development of STEM in Latin America, whereas every one of those new students will share the FIRST message with even more people, expanding the range of FIRST and STEM exponentially.

LAUNCHING: FUTURE PROJECTS

It's time for takeoff, but our mission is still expanding! Many projects are getting stronger, taking us even closer to our goal. In collaboration with FRC team 2526 from Minnesota and Migbotics from Uruguay, we are creating an "Evergreen Process" for mentoring new FRC & FLL teams, that can be easily replicable. This creates a huge potential for mass creation of new teams across the American continent.

And that's just the beginning. Our mentoring projects will increase even more, as we plan to solidify FTC in Brazil, with the creation and mentoring of other 24 new teams in 2019.

Due to our strong relationship with SESI representatives, an FRC offseason event organized by SESI is also being planned for 2020, counting on our help.

OUT OF ORBIT:

During our 17 years of history, we had many milestones. Holding great events and creating projects that serve as an example to many people. These actions helped our spacecraft to get out of orbit, leading it into deep space. During our journey we had fascinating achievements:

- 204,557 man-miles traveled to assist and mentor FIRST teams in the last 4 years;
- 8 countries supported: Uruguay, Argentina, Paraguay, Honduras, Ecuador, Guatemala, Colombia, and Brazil;
- 22 million people reached through TV, newspapers & social media, in the last 5 years;
- 18,000 people directly involved since 2017, spreading FIRST and STEM around the world;
- 20 mentored teams in 2018 and 112 mentored teams in the last 5 years;
- 118 teams assisted in 2018 and 868 teams assisted in the last 5 years.

During the process, we changed the lives of many people who became part of our mission and will join our future journeys. 1156 brought new possibilities to the country and continent, where teens from all around could have a place to call their own, finding themselves inside FIRST. We see robotics not just as another activity, but something that will lighten a sparkle of confidence on a teenager's life... And we are glad to be a part of it.