

Chairman's Award - Team 3990

[Print](#)[Close](#)**2020 - Team 3990****Team Number****3990****Team Name, Corporate/University Sponsors**

ABB/APCRA/Fondation du Collège Regina Assumpta/Centre culturel et sportif Regina Assumpta/INGÉNIA TECHNOLOGIES INC/Desjardins Caisse de Sault-au-Récollet-Montréal-Nord/RBC/Academia Chaussures/ Écolopharm/Rm Plastiques Inc.&Collège Regina Assumpta

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

Each of our students, 30% of whom are girls, have received 100 hours of training in programming, machining, communication, strategy, electricity, CAD, and pneumatic every year. Combined to over \$212K in scholarships, the training allows all of them to go to university, 95% in STEM. This leads them to work in companies like Bombardier, Amazon or ABB and in countries like Mexico, Belgium and Japan. With over 30 hours of volunteering/year, students become more aware of their community's challenges.

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

3990 created a robotics concentration where students build greenhouses and give their homegrown products to their community. Other activities are for mentally/physically handicapped children, and we visit elementary schools and nursing homes. Not only have we touched the children's and the parents' hearts, but we have showed them that robotics is for everyone. Our activity Girls and Science, a Winning Alliance! empowers young girls by showing them they are a part of science.

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

Every resource we have is used to spread the FIRST message to people from diverse backgrounds: 4000 parents & children at our school's open house every year, farmers from our unique agriculture projects, handicapped kids & young girls twice a year who attend our robotics camps and 2100 students in our robotics concentration since its creation. Plus, we keep our 25 000 social media followers updated & reach readers from many local journals, including Quebec girls' favorite magazine, Cool!!.

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

Because our students develop such a strong love for FIRST and STEM, 80% of our mentors are alumni, and they have initiated projects like robotics camps for girls, 2 FLL teams in a mosque, a way to furnish electricity ecologically to Haiti (Powerball), a strategy app for FIRST teams, a promotion of FIRST at the Canada Parliament and classes about electronics to art students for their projects. The creativity and the great outcomes of these projects are inspiring for other FIRST team members.

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

We started Team 8067 Alpha Lab. Last year, we convinced them to join FIRST and supported their whole process. We helped Alpha Lab with their registration process. We also provided them with equipment such as tools and allowed them to use our installations whenever they needed it. We gave them advice on multiple subjects and were happy to mentor them, helping them in any way we could. Starting one team is great, but we want more and are going to continue. We also helped start 4 other FRC teams.

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

Team 3990 created 6 FLL teams (4 in our school and 2 in a mosque). We also led and mentored Tech for Animals with their project, an application to help with animal adoptions. We led Robocasques with their BLOK'Ô KALITÉ MATERYO project, where they created bricks out of used plastic water bags, a huge pollution problem in Haiti. By doing activities and camps in elementary schools in our community, we created interest in FLL which led to the creation of multiple teams

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

Our team assisted 359, 5553, 8236, 4957, 1640, and 3550. We provided them with answers to their questions about any topic related to FIRST as well as inviting them to our facilities when they came to Montreal for regionals. We lend them our tools and machinery so they can conceive robot parts, etc. We also donated material to FLL teams like Marie-Clarac school, which started a school-wide robotics program with our help. Some of our alumni/students also have become mentors for these FLL 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)

We collaborate with other QC teams on First Franco, a platform to help FRC teams from all around the francophone world to communicate and exchange ideas, encouraging the growth of the FIRST francophone community. Through live streams which reach more than 165 people, a Discord group chat, a website, a Sound Cloud and a Twitch, we allow teams to connect and to help each other. One of our mentors is also a part of Polystar, a group of university students who provide mentors for QC FRC teams.

Describe your Corporate/University Sponsors

To ensure our team's sustainability, we have 21 sponsors with varied areas of expertise, allowing for a comprehensive & diverse partnership. Our main sponsors have been involved since our creation and continue to support us; APCRA-ABB-CRA-Centre culturel et sportif-LRTek-Desjardins allowed us to build a \$1/2M robotics center. Our sponsors help us with logistics and finances. They provide technical expertise, material resources, facilities, educational support and internships for our mentors.

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

We believe our sponsors are full members of our team. They provide dedicated mentors for training sessions and create educational content. They advise students on post-secondary education, offer them internships and open their facilities to us. To thank them, we invite them each year to many important events such as the inauguration of our robotics center, our competitions or functions hosted by our school's foundation. We also thank them by giving them gifts and products from our greenhouses.

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

FIRST is a robotics organisation that develops young people into self-confident leaders in STEM. It teaches students how to work as a team & prepares them for any obstacle. FIRST helps and brings hope to every team's community. It develops every student's courage to stand up & make a change by giving them a unique way to express themselves. It started with the idea of inspiring teenagers to build robots, but it also creates people who can change cultures & shape the course of humanity.

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

We created a robotics concentration in our school for 2100 students, offering courses in Arduino, CAD, and mostly the development of their own agricultural system, including an irrigation system and its programming. We teach people how to make their own biological food, and our students raise awareness in our community about self-sufficiency and healthy local food. We gave 300 sprouts pots to students, teachers and parents. We educate people and being STEM ambassadors in our community.

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

Our partnership with our school continues to go further as we developed lab material for other departments such as the Physics one. Also, our team creator and mentor received the Prime Minister's Award for his fight to increase girls' presence in science, for his teaching style focused on practice and experimentation, for the way he ties his teaching to what youth are actually interested in and for the 21st century skills he transmits, enabling students to link their learnings to their future.

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

Massimo Di Maulo

Essay

Since 2012, our team, 3990, has been working hard with the strength and the passion of over 250 students, mentors, volunteers and sponsors to support and develop the team we have built. Over the years, we have developed a vision, we have become a motivation, and we have shared our energy. Tech for Kids (T4K) has evolved from the small seed we were to the immense tree we have become. This has allowed us to set our vision in motion: cultivate the future.

OUR ROOTS: Our Team

The seed is our team's desire to both help children and build a solid and cooperative team. Not only have we cultivated an awareness of STEM in our school but we have also captured the interest of our community, which has allowed us to grow our roots and create a network welded together of passionate students, inspiring mentors, motivated parents, a supportive school and devoted sponsors. Our roots have been reinforced by parents who are as engaged in our projects as we are, by our 100 hour annual training program, and by moving from the school basement to our new Robotics Center two years ago. The center shines a spotlight on the FIRST program, and its cutting edge technology such as lathes and 3D printers, is available for students and other teams to use on their projects.

OUR TRUNK: Our Values

The trunk of our tree represents our values and motivations; in short, everything that defines us. Our welded network allows us to create projects that represent our passion and our values: promoting STEM and putting an end to stereotypes in order to cultivate a better future. We believe in education for the young and the old, regardless of their financial situation or handicap, and for girls, as much as for boys. We are also concerned with being self sufficient through Urban Agriculture, towards which we have started many initiatives. After all, students and the environment, the main issue of our generation, are our future and its hope.

OUR BRANCHES: Our Projects

T4K students have acted as agents of change and STEM ambassadors by initiating multiple projects: an engineering day for girls, introductory STEM activities and robotics for elementary schools, including Saint-Pierre-Apôtre, a school for intellectually challenged students, Tech Applications to help organize our team, and electronics classes to help art students incorporate robotics in their creative projects.

To share our passion with students in our school, we have gone where nobody has been before by creating a Robotics concentration unique to North America, which is integrated into student schedules. The program offers more than 2100 students a three-year program where they develop not only skills in electronics, programming, 3D printing, DJI and technical drawing, but they also develop autonomy and leadership skills. These students benefit from fifty additional hours of science, technology and robotics every year, a first for Quebec.

Thanks to our bilingual English-French content, we function as a bridge between the FIRST organization and Francophones. This bridge continually grows stronger, thanks to our online learning platform, Tech Academy, to the bilingual publications on our social networks, and to the connections we have with other teams throughout the world. These resources have contributed to the start-up of teams in France, and to the education of Canadian and American students and other teams who consult our course notes and videos. Our online platform alone has been consulted over 54 000 times.

Along with teams from Quebec, we are also highly invested in the First Franco project which aims to increase FRC francophone teams by developing infrastructure to facilitate communication. Through concrete actions such as being the only team to publish our work in French on the beta version of the 2015 roboRIO, we have made it our mission to create and sustain a francophone presence in FRC.

Essay - page 2

We are very lucky to be a part of the FIRST family, and we believe that others should also have the opportunity to become the innovators of tomorrow, so we created 1 FRC team, helped create 4 and created 6 FLL teams, two of which have received the Project Award. We have mentored more than 150 students on FLL teams from a mosque, elementary schools, and our own school. We are the first team in Quebec to organize and host 2 FLL qualifications where our members volunteered and built eight game tables.

We are proud to have helped eight teams organize their trip to the World Robotics Championship as well as helped teams 359, 5553, 8236, 4957, 1640 and 3550 by allowing them to use our tools and facilities, by giving them materials or furnishings, and by providing help with their mechanical concepts or with their Chairman's Award. Many of our alumni volunteer at regionals, and they are also involved in the francophone Robot en 100h initiative.

We also inspire elementary and high schools such as Montreal's Marie-Clarac, whom we mentored as they created a school-wide robotics program. We organized informative and training workshops for Quebec technicians, allowing several schools to consider the FIRST adventure. We advised three schools from Quebec on how to create a scientific educational program, on purchasing and maintaining installations and technological equipment, and we provided the necessary professional training.

Our unique approach to countering the lack of women in science is to introduce girls to STEM at a young age so they can develop a long-term sense of belonging in the field. Our fun activities and inspiring female role models help them develop self-confidence and give them the chance to exploit their talents. Each year, we organize comprehensive STEM awareness classes in 20 elementary schools, followed by an engineering day: Girls and Science, A Winning Alliance! when the 80 nine-to-eleven year old girls are introduced to programming, LEGO Mindstorms and FRC robots.

Collaborating with foundations such as Enfants en têtes, Mélio, le Dr. Julien and La Relance, we give mentally, physically and economically challenged children the chance to learn more about robotics with annual workshops where they learn to control FRC robots, DJI's, VEX robots and robotic arms. We show them that they belong in robotics and that their handicap or their financial situation is never an insurmountable barrier.

To reach even more people, we have presented the FIRST competition to over a million viewers on TV shows such as MATV, Planète Techno and Salut Bonjour!. Local newspapers have carried stories about us, such as Courrier d'Ahuntsic, Metro, La Presse and Cool!, the most read magazine for young girls in Quebec. Our goal is to influence our community to give robotics more importance in society and education. On our YouTube channel, we have over 80 videos on control systems explanations, Q&A's, etc., and over 155 000 views. In total, we reach more than 25 000 people with our social media. This exposure allows us to build an environment in which science and its leaders are celebrated.

Our tree branches extend to people all over the world, including Haiti and Morocco. We helped the Casque Noir organization and our FLL team Robocasques (environmental engineering specialists) build the BLOK'Ô KALITÉ MATERYO project, which collects plastic bags that pollute the streets of Haiti and recycles them into bricks. Two students created POWERBALL, a soccer ball that generates storable energy. These projects won us the Engagement Project award from Forces AVENIR. In Morocco, we helped build game modules for kids, where our students learned how to reduce waste and use recycled materials. They were more than happy to share these projects and the environmental issues that they care about to students in elementary schools

At the center of all of these projects is our desire to teach our students and our community how to produce their own food, so with our concentration students we created the project Tech culture. Using diverse and recycled materials, our students have cultivated their creativity by building their own greenhouses. We found the best active and passive watering systems as well as a control system for temperature and humidity, which we will integrate into our team's greenhouse. Tech culture aims to build greenhouses in our school and offer what we grow to our sponsors and our community. For this project, our mentors went to farms to receive training on food culture so they could help their students. Showing the community how to cultivate their own food raises awareness of the benefits of urban agriculture: reducing the need for pesticides and limiting food transportation to more local areas reduces the overall pollution related to food consumption.

Our students have also created a 3D printed green version of our school to present to the Administration so we can make tangible changes like building an automated greenhouse on our school's roof, reducing parking spots, adding solar panels, etc. We are instilling in our students a greener lifestyle that they will pass on to their parents and community.

OUR LEAVES: the people we reach

Roots, trunk, branches, leaves; a tree needs all those elements. It is this whole tree of people and projects that defines the essence of 3990 and encourages us to aim higher, serving youth, the environment, and our future society. The future is in the hands of today's youth and it is our duty to help them grow and be the best version of themselves.

We have spread the FIRST message to more than 50 000 people since 2012, people with different personalities, stories, ages, and professions. Whether it is students, mentors, parents, partners, children from diverse backgrounds, school administrations, organizations, companies, the general public in Quebec or people from all around the world, our projects cause everybody they reach to grow, just like branches nourish their thousands of leaves so they can ride the wind to new horizons.