

Chairman's Award - Team 1241

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2018 - Team 1241

Team Number

1241

Team Name, Corporate/University Sponsors

Pratt & Whitney Canada/General Motors of Canada/Johnston Industrial Plastics Limited/CSC/Zerox/DBG Canada Limited/Symcor/Rev Creations/Rakla Tires /Click N Print/Trans Canada/99Cent Depot/Dreams Convention Center/Studica/City of Mississauga/Peel District School Board&Rick Hansen S.S

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

2016-17, 100% of graduates attended university; 75% in fields of STEM; 80% return as mentors. Accelerated student learning through our Evolutionary Cycle by founding programs to encourage progression through FIRST, and set examples through a mentorship system with our junior team: Team 1285. Team has become inspired to bring FIRST and STEM to Jamaica, Guyana, Atlanta, and Sri Lanka. Under member of Parliament; Omar Alghabra, a student is part of the Youth Council as a changemaker.

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 brought 100 newcomers to the 2017 District Championship and created a Peer to Peer volunteer program to share opportunities with them. Our 7 year partnership with FIRST Canada enabled the growth of readily available STEM programs in libraries, using our robotics curriculum, by providing grants as incentive to implement them. Hosted our Girls in STEM Olympics to grow equity in STEM and inspire girls in Ontario to pursue their passions. We held 20-week STEM workshops for 80 newcomer families.

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

Launching our Redefining Girls a social media campaign in 2018 to challenge gender roles and show the ambitions, power and strength of females. To promote the FIRST message, we have met with changemakers from various institutions, influential business leaders, and officials from our municipal and federal government, including former Prime Minister Stephen Harper. Created multilingual handbooks to help newcomer families bridge the language gap and understand FIRST Robotics.

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

Compete as an all girls team during the offseason to empower females within and beyond the team, inspiring others to follow suit. Recruited 5 FRC teams (771, 1285, 4001, 4939, 6070) to help run 20-week long workshops for newcomers, showing how FIRST can be used as a tool of integration for immigrant families in our society. Published robot & business playbooks online as step-by-step guides for teams to follow based off of our best practices during the season which have been viewed 15,000 times

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

In the last 5 years, we have started and continued to mentor 9 FRC Teams and aided in their process to become fully sustainable. Through a former student, we connected with a school in Atlanta to start FRC Team 6905, who will be competing in the 2018 season. To increase leadership roles and accelerate learning, we created Team 1285 within our school. Presented to conferences of teachers in Ontario and in Singapore to get them engaged in FIRST to start FRC teams in their schools (2013-2017).

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

Presenting our robotics curriculums to our school district and city has directly resulted in the growth of 196 FIRST teams in the last 5 years. We plan on branching out internationally to other school boards to start FIRST teams. Held interactive sessions to advise school board faculty and other teams on how to start sustainable FLL and FLL Jr. teams, showing the use of FLL kits in curriculums. We held 142 library robotics workshops to kids 5-12, sparking creation of 6 FLL Jr. and 20 FLL teams.

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

Held 109 workshops dedicated to mentoring 31 FLL teams and assisted 190 FLL Jr. teams. Hosted FLL Jr. Expo's and FLL Regionals for 268 teams in total for the last 5 years. Super Hub opens our facilities to other teams, at competitions we dedicate members to assist teams; resulted in assisting 70 teams in the last year. Sent 56 members to volunteer at the Annual Ontario Quick Build to help get rookie drive bases running from day one. Our team and alumni have collectively mentored 20 FRC 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)

To make our Super Hub more accessible, we recruited 30 teams across 7 countries, to enable all teams to reach their full potential. We are one of 13 teams helping to run FIRST Help Now, a 24/7 hotline for build season support. We have presented at FIRST team conferences and held 14 workshops to ensure team sustainability, as well as 88 workshops for team operations. Taken 5 FRC teams under our wing for 20 weeks, showing an innovative approach to broaden their reach and run STEM workshops.

Describe your Corporate/University Sponsors

Industry Sponsors: Provide engineering expertise, parts, materials Pratt & Whitney Canada Johnston Industrial Plastics CSC Rev Creations Studica GM Canada Outreach Partners: Provide opportunities to spread FIRST City of Mississauga Dreams Convention Centre Peel District School Board Trans Canada Corp. United Way Polycultural: Immigrant & Community Services Toronto-Dominion Bank Monetary Sponsors: Provide team funding Xerox 99 Cent Depot Click N Print Apple DBG Canada Dreams Convention Center

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

In 2016, Pratt & Whitney Canada saw the impact 1241 has on our communities, connecting us with United Way and Polycultural to the spread our message further. The pairing of our 7-year long partnership with our city, and relationship with FIRST Canada was a driving force in bringing the 2017 Ontario District Championship to Mississauga. We have grown alongside our sponsors because our understanding of each others goals has allowed for more opportunities to mutually develop future leaders.

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

FIRST is challenging the minds of tomorrow to reach new heights by collaborating in a goal-oriented environment. To create a global community, they are connecting industry professionals, parents, mentors and students, to grow and explore their fields of interest. This creates a support system built on the values of respect and giving back to the community. FIRST is founded on more than building robots, it's about growing leaders and creating lifelong experiences through the program.

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

Devoted 60,000 volunteer hours to our outreach efforts since 2013. Presented to Min. of Science & Technology, TEDx conference, Sick Kids Hospital, Discovery Channel, Rogers TV, Ontario Library Association, and held a workshop at largest youth STEM conference in Canada. Our members include 4 Volunteer of the Year, 2 Woodie Flowers Finalists, 5 Dean's List Finalists, 1 Dean's List Semi-Finalist, and 1 Dean's List Award winner. In 2017, TD rewarded us with \$2500 to fund our efforts in STEM Equity.

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

Nameerah Hasan

Essay

TEAM 1241: THEORY6 has a clear image for the future of the world around us. This vision has been in the making for the last 15 years, reflecting the stories of 600 teammates, 90 mentors, 17 teachers, and our home, the machine shop. Driven by our passion, we have become the difference makers of today, committed to inspiring the innovators of tomorrow. Using FIRST as an international platform, we are advocating for every individual to have the opportunity to explore STEM as a future pathway. Valuing the importance of reaching STEM equity, we have created sustainable programs surrounding income inequality, cultural barriers, underserved communities, and gender equity. THEORY6 knows no bounds when it comes to spreading this vision of innovation and changing perspectives in order to challenge the status quo.

Supporting Sustainability

Our team's sustainability cycle begins with sponsors and partners, many of whom have been integral to the growth of our team and the larger impact our initiatives make within our communities. To cultivate the increased interest for robotics at our school, we started Team 1285, doubling the leadership opportunities available, and promoting a junior-senior mentorship system. By partnering with GM Canada, we were able to fund a machine shop at our school, aiding in the development for the first Manufacturing Specialist High Skills Major program, now available at 48 schools, providing students with hands-on learning and certifications recognized by workplaces. By building our partnership with the city, we advocated in bringing Ontario District Championship to the city as well as revealing the power of FIRST to the Peel District School Board. This led to the school board playing a major role in integrating robotics into curriculums, starting 131 FLL and 65 FLL Jr. teams. Using the diverse support that our sponsors and partners equip us with, we are able to reach our mutual goal of developing the next generation of industry leaders.

Incorporating Innovation

Valuing the importance of dedicating our time to share our knowledge and resources with the FIRST community led to our development as the first, FIRST Canada Super Hub. Teams come to us to gain access to facilities, machine and assemble parts, and attain mentor support. We published robot and business resources which have been viewed 15,000 times. They outline every step including design strategy, prototyping process, and team organizational guidelines which should be considered throughout the season to be successful. During competitions, we send out a team who troubleshoot and aid others using our resources, and mobile machine shop, to get their robots competition ready. We are also a part of FIRST Help Now, a 24/7 platform used to provide teams worldwide with on-call help during build season. Our efforts have directly assisted 70 FIRST teams in the last year. The various streams we are using to provide support to other teams have become an outlet to acquire new skills, and obtain valuable resources in order to reach their fullest potential while helping others reach theirs as well.

We have transformed 12 libraries in Ontario into multi-dimensional learning spaces, helping them create a diverse range of connections within their communities. Our Library Program diversifies the uses of these environments through more interactive, hands-on curriculum and simplified engineering principles, building an understanding of robotics in children aged 5-12. FIRST Canada saw the impact of this curriculum on our local community and made it accessible nationally by adding it to their website and providing grants as incentives for libraries to integrate robotics programs. This has allowed us to directly impact and assist 247 FIRST teams. We are strengthening communities, engaging the minds of the future and creating a culture shift within libraries.

We acknowledge that individuals deserve to be recognized for their achievements and the vast range of skills they acquire through FIRST. We pioneered The Badge Program for students and mentors based on guidelines taken from FIRST Canada and the Ministry of Education. This program allows for participants to show evidence of their knowledge and capabilities in the workplace and in post-secondary education. FIRST Canada saw the impact and potential of this program, the physical representation of hard-work, adopting it to their organization, impacting over 14,500 participants in the last 4 years. Now, FIRST Canada provides a variety of bilingual badges, ranging from participation, safety and EDI (Equity, Diversity & Inclusion). These badges have become a symbol of certification within FIRST and is building a bridge from the FIRST world to the their futures.

Connecting our Communities

Essay - page 2

We recognize the challenges families face when integrating into a new country. Using our influence, we created our New to Country (NTC) program which pushes for inclusivity by making the difficult transition easier for newcomers through STEM. We have created handbooks in various languages, partnering with school board settlement workers to outline opportunities available to NTC families in our communities. Our sponsor, Pratt & Whitney Canada connected us with the international organization United Way and their partner, Polycultural Immigrant and Community Services, to hold a series of robotics workshops for newcomer youth. Beginning as a Robotics Day at the Comfort Inn, which grew to a week-long winter camp and expanded into two sets of 10-week workshops at Polycultural. These free workshops provide youth aged 5-14 with the learning tools needed to build and program LEGO robots, with a curriculum designed to accelerate individual growth. To inspire others to spread the impact of this program to their communities, we recruited 5 other FRC teams from 4 cities across Ontario. Learning that STEM is an influential agent for inspiration, the United Way supported our venture of bringing over 100 newcomers to our 2017 District Championship, continuing again in 2018, to lead them into the FIRST family. By creating a safe and engaging environment, we have created an influence on 330 newcomers. Our program has come a far way in the mission of becoming a gateway for NTC youth to pursue STEM, as we are turning immigration into integration.

Our team strives to foster an environment where unity is the most important step towards gender equity, within ourselves, community and the world. Starting within our own team, 100% of our girls are involved in both the technical and business aspects. To increase leadership opportunities, we have been competing as an all-girls team at an offseason FRC event for the last 5 years. Bringing this experience beyond FIRST, our inaugural Girls in STEM Olympics challenged 50 young minds aged 13-15 around Ontario to develop critical thinking skills through a day of STEM activities. We are empowering girls to break out of their comfort zones, overcome obstacles, and giving them confidence to reach their fullest potential.

Cross-cultural Collaboration

Our team is a driving force that is bringing STEM and robotics education to an international level through our Beyond Borders program. We have connected with a delegation from Denmark and educational leaders from Singapore to share how they can integrate FIRST into their school curriculums. We have also held online webinars with an ESL class in China where our students used robots to teach mechanisms and electrical systems. Last year, we contacted Glen View High 1 School in Zimbabwe, in order to introduce both them and later, neighbouring schools to technology based programs. Our team sent NXT Lego kits and hold a series of online workshops with the robotics club we helped form. Collaborating with the Women's Transformation Zone of Zimbabwe, to encourage young women with the opportunities to pursue an education which will help overcome the 47% of females who are out of school. This year we established a partnership with Cuso International, a non-profit, to make STEM available to schools in Jamaica and Guyana with resources based off of our developed curriculum and FIRST robotics. In our journey to make the world a smaller place, with new opportunities for all individuals, we are sparking an interest in future STEM leaders.

We have made international inclusivity a collaborative effort as a founding member of The Compass Alliance (TCA). As a group of 10 FRC teams around the world, we are working to tackle FIRST-wide issues including the resource gap amongst teams. This year through TCA, we have expanded the Canadian Super Hub program by recruiting 30 teams across 7 countries (Canada, USA, Mexico, Australia, Israel, the Netherlands, and Poland) to become Hubs. The initial partnership between FIRST Canada and Team 1241, has grown to a global network of machine shops and practice facilities. Beyond Hubs, we have leveraged the expertise of 46 teams contributing to TCA's initiatives, creating a union of teams allied together with a common goal to provide universal support to FIRST Teams.

Our Vision

FIRST provides participants with the ability to create, while THEORY6 extends the FIRST family to those beyond the program, by making STEM and robotics education accessible in all-embracing environments. We have been able to shift mindsets through multifaceted learning hubs, encourage progression through FIRST, bridge gender gaps, and turn STEM into a pathway for newcomer integration, using it as a universal language to create global leaders. Built on the belief of determination and self-improvement, our vision of reaching STEM equity shines brighter every day as we build on top of the relationships and initiatives we have pioneered. In spite of the barriers we have conquered, we are not yet satisfied and know that tomorrow promises the infinite possibilities for FIRST Team 1241 to challenge, as we continue to ask ourselves our driving question, "Who can we impact next?"