

The Brain
1241 Chairman's Essay 2013-14

Our team consists of many diverse minds, some are right dominated and some are left. The right side has boundless imagination and creativity while the left side is strategic, linear and analytical. A successful team needs both creative and scientific minds. With a burning passion to provide insight for communities, teachers and students, we impact and change culture to develop strong leaders. FIRST Team 1241 - Team Hansen Experience of Robotics Youth (THEORY6) strives to find new ways to emulate the motto of Rick Hansen, "The End is Just the Beginning". Entering its 11th season of competing in the FIRST Robotics Competition, THEORY6 is continuously creating new pathways to spread FIRST values. In our most recent season, the team broke new ground through several accomplishments.

Our shop doors are always open for other teams, and our old robots have found multiple homes in which they serve as learning tools. This year, our robotics program has grown so large that we had to strategically allocate our resources in order to manage the number of students eager to participate. By creating a second team, FIRST Team 1285 - The Big Bang, we have spread the mission of FIRST to more members of our community by developing their creativity, intellect and leadership qualities. We increased our leadership positions by 15% and created Rick Hansen Robotics (RHR). RHR encompasses both teams, consisting of about 100 students, where everyone is eager to learn about science and technology.

THEORY6 participates in a variety of public events where we;

- Promoted FIRST through Robots Rule (Ontario Science Centre)
- Recruited future members for 1241 at Rick Hansen Secondary School's (RHSS) Grade 8 open house and Grade 9 Orientation night
- Presented our robot at the FLL Ontario East Provincial Championship in Oshawa, ON
- Showcased our robot to key business leaders from all over the country at a TEDx conference

We are spreading the word of FIRST locally and internationally through media outlets such as Discovery Channel-Daily Planet, CITY TV-Breakfast Television, Global TV, Omni News, Rogers TV, the Toronto Star and the Mississauga News.

We proudly hold two Dean's list winners among our alumni, and one of our mentor's has won Female Mentor of the year at the Bloomfield Hills All Girls Competition 2013. Additionally, after winning the 2013 FRC World Championships in April, our team had the opportunity to have FIRST recognized by the House of Commons and our Prime Minister, Stephen Harper.

FIRST Team 1241 empowers members to embrace new initiatives, which enables them to gain skills that accelerate growth while progressing through the program. The team promotes gender equality, resulting in more than 50% of the leadership roles being held by female students. By including multiple sub-teams we actively broaden the scope of our team to encourage females to join and explore new opportunities. This has led to an increase of girls on the team by 13%. Of this 13%, 90% are on both the robot and non-robot side. With this increase in the number of female members, for the first time, we were able to send the team to compete at the Bloomfield Hills All Girls Competition in Michigan. This encouraged seventeen girls to step up and take on key roles for the first time. We have also created an evolutionary cycle that promotes the mentoring of younger students in all FIRST programs in Canada. This cycle is completed once a student progresses through Jr. FLL and FLL and enters our FRC team and returns to mentoring Jr. FLL & FLL teams. This creates a sustainable flow of the STEM curriculum that will build future difference makers.

THEORY6 adopts the philosophy that builds opportunities, breaks barriers, and bridges minds. We have a 91% student retention rate. We have created opportunities in the FIRST community by founding a second team to work alongside Team 1241. By creating Team 1285, we build opportunities, which allows for an increase in sub-team participation. Team 1241 breaks barriers by consistently seeking out what is not readily available to us. For example, we are actively searching for a practice

facility that we will make available to local teams. THEORY6 bridges minds through continuously reaching out nationally and internationally. Currently, we are implementing our New to Country (NTC) Program for new immigrant students that will provide a sense of community through peer to peer mentorship. Driving this type of diversity resulted in team growth by 3%.

Team 1241 has been growing a partnership with public libraries across Ontario and the Peel Board of Education. In the last three years, we have held 84 workshops at Mississauga's Central Library. The main objective is to increase the knowledge of FIRST in children and to explain basic concepts of design, mechanical, controls and core values. In the last two years, THEORY6 has supported 98 Jr. FLL and 12 FLL teams by holding workshops for teachers and students. Alongside the workshops, we have hosted Jr. FLL expos and FLL Qualifying Tournaments that have allowed 61 teams over the last three years, from across the GTA, to compete. Team 1241 has pioneered a National initiative to spread the message of FIRST to libraries across Canada through the "Guide to Robotics in your Library" and the online FLL Curriculum as a reference for other FIRST teams to implement. This information is available on the THEORY6 website and the FIRST Robotics Canada website. This will enable growth of all the FIRST programs and brings more opportunities for communities to experience FIRST. The library initiative is a huge catalyst that shifts the culture into embracing and leveraging FIRST as a key learning vehicle.

Team 1241 provides tools to other FRC teams within the FIRST community by providing videos that guide other teams on how to secure sponsorship, how to prepare for an FRC competition and on team structure and organization. Our team has helped 20 FRC teams by extending our resources, shop facilities and by providing our mentors to assist them during build season. Students on our team have hosted international webinars to help develop a robotics curriculum for schools in China to expose them to the basics of STEM. Our students presented three times and have made FischerTechnik models which were used to assist ESL programs in China. We billeted a team from Singapore and provided the necessary equipment to allow the team to compete at GTR West in 2013.

Team 1241 collaborates with other veteran FIRST teams to help younger teams. For over three years, we offered workshops at the annual Oakville Symposium on topics like; 3D Modeling, Mechanical Systems, Parent Engagement, Team Management for Rookies, and VEX Robotics. On Kick Off day, THEORY6 mentors and students volunteer to complete working drivetrains for Rookie FRC teams at Quick Build. Alumni mentors from Team 1241 hold key positions on robotics university based-committees to develop and support regional FIRST programs. We support several Ontario FIRST planning committees and regional competitions through extensive participation from 11 of our mentors.

We are pioneering and implementing the Badge Program which recognizes and certifies skills acquisition. FIRST Canada is partnering and facilitating the rollout of this initiative with our team on this to grow it nationally. The purpose of this program is to recognize acquired skills based upon FIRST and the Ministry of Education's curriculum standards. MapleSoft and National Instruments have partnered with the team to create standardized online testing methods for the Badge Program as a way of differentiating skills and certification. Our goal is to provide global recognition and tracking for skills attained through FIRST. The potential of this initiative is far reaching and will impact the entire FIRST community.

The strength of our partnership with our sponsors is vital to prosperous sustainability. The strong partnership with General Motors since 2003 and recent support from Pratt & Whitney Canada has led to our team rapidly growing over the years to become one of the largest endeavours at RHSS. Our long standing bond with our City Council enables them to work towards getting other city wards to join FIRST programs. In addition, as our sponsor they also provided us with a practice facility for the 2013 season. The strong relationship between team members and sponsors is beneficial in two ways, we assist their companies by contributing to their internships. In turn, the sponsors dedicate their time and effort towards

our students by acting as mentors and role models. Sponsors allow us to have hands-on experience by assisting our team with machining and providing access to a variety of resources. We involve our sponsors through presentations, robot demonstrations, and online communications to keep them updated. To maintain the strength of our connection we invite them to our Kick-Off, Bag and Tag event and our annual Spring Banquet where we recognize their contributions.

D. Eagleman once said, "A typical neuron makes about ten thousand connections to neighbouring neurons... this means there are as many connections in a single cubic centimetre of brain tissue as there are stars in the Milky Way galaxy." Just like the brain, the breadth of what we do is endless. Team 1241 strives to be role models that others can emulate. Our team reaches out to the youth to build the leaders of tomorrow. Robotics is like love at first sight - once you are exposed to it, you know in your heart and mind that you want to know more about it and devote all your time and efforts into making everyone's experience the best it can be. The team is in the process of giving back to the community that has inspired a generation of STEM enthusiasts. THEORY6 wishes to drive success of all through consistently bridging analytical and creative thinking, coming together as one collaborative team.