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MAGAZINE



ROBOTICS AT JAMAICA COLLEGE THE NEVER ENDING JOURNEY



ROBOTICS AT JAMAICA COLLEGE: THE NEVERENDING JOURNEY

There is a space for all our members irrespective of their skillsets



The main aim of The Robotics Club is to inspire creative young minds to build work-efficient robots to assist humans in work and play. As well as building an innovative team to surpass previous members and elevate to the World Championship overcoming any obstacle which we will face in the process.

The Mission of the Jamaica College (JC) Robotics Club is to entrust our knowledge to the future members of our club in order to maintain sustainability. In addition, strive to achieve excellence in all aspects of the competitions.

As a science-driven institution, JC seeks to embrace the best practices while integrating technology and realizing value from the resources available. Appropriate use of technology encourages achievement and student success. Projects embarked upon by JC include the implementation of the Information Communication and Technology (ICT) Steering Committee, integration of a school management system, subscription to

an electronic library, upgrades to the core networks infrastructure and the training of all staff members in the relevant technology as desired.

The Jamaica College Robotics Club was formed in 2009 as an initiative to inspire high school students to be science and technology leaders in their pursuit of higher education and ultimately their careers. It also engages students to cultivate engineering and technological skills through innovative thinking. Since its inception, The Robotics Club has been an active part of the school's community giving club attendees/ members, and to a lesser extent the rest of the school's population, an opportunity to apply what is being taught in the classrooms. This programme has reignited an interest in science, technology, engineering and mathematics (STEM) based courses in accordance with the way the world is currently focused.

There is no specific requirement for students to join the club. However, a requirement to be a part of the competitions is that you have to be

an affiliate of a US organization. The Jamaica College Old Boys Association (COBA) New York Chapter registered our JC through their company in New York. They (Old Boys) brought the idea to the then Principal, currently, Senator the Hon. Ruel Reid, Minister of Education, Youth and Information. Some outcomes we hope to achieve through participation for the lower school members is exposure, networking and building rapport with persons outside of Jamaica. For the upper school members, it is the same with the added opportunity to secure scholarships for colleges and universities overseas.

Over a nine-year period, the team has entered competitions to not only challenge themselves but to prove to the world that talent exists right here in Jamaica and have won approximately twenty awards. The competitions typically are not about who comes first, second or third but rather to showcase talent. This season the team won over five awards and last season over four awards. The Inspire award was won in 2013 and 2018 which is a top

award given to a team demonstrating multiple criteria outlined in the chart to the right.

One of these competitions is the FIRST Tech Challenge which is a world championship competition for students in grades 7-12 to develop lifelong skills such as problem-solving, organization, and team-building by designing, building, and programming robots to perform prescribed tasks. FIRST Tech Challenge is more than a robot competition; in addition to robot matches, teams are also eligible to win judged awards. Choosing award winners is a difficult task. The judged awards represent a positive way to recognize teams who embody important values like gracious professionalism, teamwork, creativity, innovation, and the value of the engineering design process.

As a result of the experiences shared during these competitions, the majority of the boys remain a part of the club and the team. Some of the coaches are past members of the team like the programming coach, technical coach and advisors from the 2013 team who won the 1st inspire award. The support for the club is overwhelming as is the number of persons wanting to join the club. As a result of this, there are now two meeting times, one for lower school and one for upper school as the space in the lab doesn't allow for one meeting. Members of the club are boys with interest in technology. However, how the club is structured, there are different departments, namely, Engineering, Technical, Technical Writing, Marketing and Public Relations Departments. This means that there is a space for all our members irrespective of their skillsets as they cover quite a range for all with interest in the club, even

Required criteria for the Inspire Award:

- **Team shows respect and *Gracious Professionalism*[®] to everyone they meet at a *FIRST Tech Challenge* event.**
- **Team is a strong contender for several other Judged awards. The Inspire Award celebrates the strongest qualities of all the Judged Awards.**
- **The Team is an ambassador for *FIRST* programs. They demonstrate and document their work in their community.**
- **Team is positive and inclusive, and each Team member contributes to the success of the Team.**
- **Team must submit an Engineering Notebook. The Engineering notebook must include an Engineering section, a Team section and a Business or Strategic Plan. The entire Engineering Notebook must be high quality, thoughtful, thorough, detailed and well organized.**
- **Robot design is creative and innovative, and the Robot performs reliably on the field. Team communicates clearly about their Robot design and strategy to the judges.**
- **Team presentation is professional and engaging.**

those that might not have been originally thought to be associated with the disciplines typically associated with a technology-based club.

There are four main areas of expertise required for competitions which are the actual building of the robots, the programming which enables the robot to move, drivers for the bots that navigate the courses to complete the required tasks and the Computer Aided Design (CAD) which is the creation of the 3D Design of the robot in soft copy. These are all requirements and must be submitted prior to competitions. Initially, everyone wants to be a driver of course, but engineers and program-

mers are excluded as they have their own tasks to do while the driving is in progress. As a result, members have in-house competitions to pick the two best drivers for competitions. The team matures significantly with the challenges provided at these competitions as the boys are allowed leverage to explore. Coaches cannot be seen interacting with the members of the team during this time and if there is a problem they have to fix it on their own. Prior to the competition, however, assistance is provided with the programming aspect as the language taught in the syllabus is not the language used in the competition. They are given homework and provided with different links to expand their knowledge.

A challenge faced by the club though, is that there are not enough resources to facilitate learning and interaction with a very hands-on approach. Due to lack of space and components, the resources are only used by the competition team. In light of this fact, the bots created cannot be retired/preserved at the end of competitions. A disassembling ceremony is held at the end of the year where the robots are disassembled and the parts that can be reused for the next competition are safely stored until the next competition. Unfortunately, the robots



get damaged during each competition and we lose components. When this happens, it diminishes the available resources and components for the next time we compete. It is the hope, however, to get to a point where the robots can be retired so that the club can look back and see how far they have grown and how much has been achieved through the hard work and dedication of its members.

As a testament to the work and achievements of the club, there have been placements in TTech as they have taken some of our boys for internships. The Gore Foundation, on the other hand, wants to start a robotics camp and has asked some of our members to be a part of the camp and assist with training. The Liguanea Sports Club also invited the members to be facilitators of a Robotics programme/summer camp. Other members have been speakers/presenters at conferences such as the Jamaica Teacher's Association (JTA) Annual Conference, e-Learning Jamaica Company Limited's Technology Day, TTech, Excel Community College etc.

On a lighter note, a fun part of the process is getting to name the bots before they are entered into the

competition. The names of the robots for this year were Scorpion and The Butcher. They were decorated with vinyl with the logos of our sponsors. The Scorpion was given the name after building the robot for the super regionals in Pennsylvania, it started to look like a scorpion. The Butcher is named after Mr Butch Hendrickson, owner of the National Baking Company, our major sponsor.

Sponsorship is a vital part of achieving what we have done year after year. Ability alone can only take us so far, but without the financial assistance and support from sponsors, we would not have been able to turn up and represent our school or nation at these events. In all the years we have been competing, this year, in particular, we really felt the love and support. We felt the support from JC as they helped with fundraising and in cases where the boys were pulled from classes, they were given supplemental papers to make up for test and exams.

With regards to corporate Jamaica, this year we had a few companies willing to come on board. This year one of our biggest contributors was the National Baking Company and Gary 'Butch' Hendrickson has also committed to refurbishing the JC Robotics Lab which should be

completed by mid-September of this year. Others include the Gore Foundation that provided the airline tickets, TTech for helping to prepare the team for interviews, Burger King for providing food at the airport, the JCOBA for providing transportation and registration, the Port Authority and Jamaica Broilers as well. The Engineering Department of the University of the West Indies has helped to coach the members of the team.

Additional funding will always be appreciated as we compete against first world countries. Our competition has the advantage of better support from their school and interest groups, funding and access to a greater variety and quality of parts and other components needed to build the robots, practice with and test them prior to competing in events. We acknowledge the love and support received to get the team to the competitions, house and feed the team keeping us healthy and well cared for. But we also recognize that if we had better equipment and components, we could build a better robot and compete head-on with our first world counterparts.

Going forward we are committed to continuous growth in the development of the boys with the honing of their skills, like problem-solving and critical thinking, as they learn and develop while playing their roles in the projects, fostering a greater involvement of STEM in Jamaica and the exposure of our members to first-world technology.

Again, we love and appreciate all the support from which we have benefited. As we grow, as we develop and as we hone our skills and recognize that competing in these events is not just about the JC Robotics Club but that we represent our nation, Jamaica, we thrive to consistently improve our performances and reforge our dedication in each iteration to show the world that we are here to compete as equals!

Much love from us to you as we continue to look forward to your continued support in our future endeavours.

