Barbados Junior Robotics Camps (BJRC)

Camp Rationale

The Barbados Junior Robotics Camps (BJRCs) are annual summer enrichment programs for young Barbadian students interested in robotics. The aim of the day camps is to introduce basic technology and engineering concepts to children. The camps are targeted at children who are passionately interested in science, technology, engineering and mathematics (STEM) and enjoy hands-on work. The broader vision is that: (1) the growing interest in robotics will spawn the formation of robotics clubs in our schools, (2) more Caribbean students will become skilled enough to compete with other youngsters in international robotics competitions, (3) the youngsters who participate in such camps will have a head start in joining the technology-competent workforce of the future, and (4) a fraction will go on to create new globally-competitive technology industries that will help to diversify the economies of the Region.

The Camps make use of the facilities of the UWI Cave Hill Campus, as part of the partnership between the CSF and UWI. The Camps are consistent with CSF's primary goals of: (1) helping to increase the numbers of Caribbean students pursuing advanced degrees in science and engineering, (2) helping to diversify the economies of the Region, and (3) helping to stimulate more technology-based entrepreneurship within the Region, and thereby raise the standard of living of the people.

Camp Description

The camps were first offered to 21 students in 2015 at Level I. In 2016, a more advanced level of the camp (Level II) was added to the Level I camp, and in 2017 level IIA was added, serving a total of 46 students in all 3 levels. Applicants for the Level I camp are at least 10 years of age and less than 13 years of age on July 1. Students from low-income households and girls are encouraged to apply. The aim is a balanced class of 50% girls and boys. At the Camp, students participate in team-based projects in a fun environment, supervised by approximately 1 coach for every 5 students.

The VEX Robotics curriculum employed, comprises a mix of class room teaching, and hands-on building through the use of VEX Robotics Kits. VEX is recognized as a leading classroom robotics platform (see http://www.vexrobotics.com/). Through this curriculum, the students learn about the basic components of robots, and see examples of how science and math are applied to engineering. Specifically, the curriculum includes: learning about simple machines and motion such as motors, pulleys, pendulum and gear ratios, learning how sensors work, and an introduction to the basics of programming. The Level I camp focuses on "tele-operated" robots (robots operated remotely), although we also begin to introduce concepts of autonomous robots at level I.

The Level II camp is open to students who have completed the Level I camp, and Levels II and IIA focus on completely autonomous robots. The goal is to have these campers design and build robots which can run a fairly sophisticated obstacle course autonomously (without human intervention). At the end of the month-long camp, the students demonstrate the operation of their robots to the public, and certificates are awarded.

Now that these camps have been piloted in Barbados, the CSF is ready to work with others to develop similar camps in other Caribbean countries.