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Local robotics team takes first

Amanda K. Lowe , Daily Times

Ten local children will be heading to Atlanta this spring to compete in a competition they have been preparing for since September.

The Engineers of Tomorrow, a Warwick-based team of 10 children who build robots, took first place at Rhode Island's FIRST LEGO League (FLL) Competition on Saturday. That award came alongside several others earned by peers on other teams from Coventry, West Warwick and Warwick.

Hundreds of excited 9- to 14-year-olds swarmed the Roger Williams University campus on Saturday for the sixth annual robotics competition. The competition, hosted by Roger Williams School of Engineering, Computing, and Construction Management, was designed to spark a passion for science and technology in kids.

Also among the competitors were the Rosebots, a team based out of St. Rose of Lima School in Warwick; the Nanobots, a team based out of Coventry; the Techno Freaks, a team based out of Knotty Oaks Middle School in Coventry; and the Nano Geek Squad and Nano Virus, both based out of West Warwick Community School.

"FLL is an international program for children that combines a hands-on, interactive robotics program with a sports-like atmosphere. Teams consist of up to 10 players with the focus on such things as team building, problem solving, creativity, and analytical thinking," Rebekah Gendron, tournament director, said.

Forty-eight teams gathered at Roger Williams University at 7 a.m. Saturday and presented research projects and their robots to judges throughout the day.

"We are excited to have it here. This is the second year we have had the opportunity to host this competition, and we are delighted to do so," said Robert Potter, dean of the Roger Williams School of Engineering, at the opening of the competition. "I want to congratulate the team members, coaches, mentors, parents and other family members for the dedication it takes to prepare and then execute a competition like this. What we do, our faculty and staff and myself, everyday, is to help prepare young men and women, such as yourselves, for careers in the increasingly technological world we live in. Our support of this event serves as recognition that students like you, with an interest in how things work and why they work, will play a key role in the future of our nation."

According to FIRST LEGO League, each September a new challenge is unveiled to teams across the world. Over the course of eight to 12 weeks, the teams strategize, design, build, program, test, and refine a fully autonomous robot capable of completing the various missions of the FLL Robot Game using the LEGO MINDSTORMS technology. They also search the Web, talk to scientists, visit libraries, and develop presentations based on the theme topic.

The theme this year was "Exploring Existing Sciences at the Molecular Level - Nanotechnology."

"There is a new frontier that will impact every facet of society, from medicine to computers to the environment," the league states in its marketing materials. "As visionaries and scientists, the 2006 FLL teams will explore unimaginably amazing new technologies that start in the Nano world and lead to things we do and use every day."

The competition is broken up into different parts, and the teams score points for how well they do in each portion. The morning of the competition started off with the teams presenting their research presentations to a panel of judges.

"For the research portion, we look at how well and how deep into the topic the team went," said Sun Fung, a judge of the competition. "We also look at their presentation of their research. We don't have any restriction on how they present so we look at how creative they are and how well they get their info across."

Along with the research, the teams are graded on how well they can explain how they programmed their robots.

"In the technical portion, they tell us how they programmed their robots, so we look at how well they know the solutions and what kind of thinking was involved," Fung said.

In the afternoon, the teams brought out their robots and put them through an obstacle course. For two and a half minutes, the robots tried to get points by completing missions - at least one per trip. The obstacle course contained nine missions, including removing at least one white LEGO from a surface without removing any red, dumping out dirt, releasing a ball, and hitting a lever that allows a LEGO elevator to move up and down.

Each team had its robots complete the obstacle course three times throughout the day; the highest score from those three rounds was counted.

Each round of the obstacle course was watched by a panel of judges and a group of referees. Scores for the obstacle competition were tabulated and a maximum score of 400 could be achieved. Both the Engineers of Tomorrow and the Nanobots scored in the top three teams of the competition. The Nanobots scored 208 points in round one, 233 points in round two, and 160 points in round three. The Engineers of Tomorrow scored 284 points in round one, 148 points in round two, and 220 points in round three.

"Sometimes we measure success by a number only, but in this case No. 1 represents hours of strategies and improving team member's mechanical and programming expertise," Gendron, the tournament director, said at the awards ceremony. "The teams that won the competition are the teams whose overall package in robot design and program and strategy helped them win at the competition tables today."

The Nanobots came in third place and the Engineers of Tomorrow came in second place in the robot competition, being beat by the EG Lancers, of Archie R. Cole Middle School in East Greenwich, which scored 301 points.

Between competitions the teams met back in the "Pit," a room where team members gathered to reprogram their robot and run through a practice obstacle course.

"We actually did okay seeing that it was our first competition ever," said Jonathan Petteruti, 11, of the Rosebots Team, from St. Rose of Lima School. "We worked hard and are proud."

At the end of the day, awards were given in numerous categories. The Nano Geek Squad, from West Warwick Community School, received an honorable mention for its research quality.

"The research quality award was given to the team with an impressive presentation that shows their dedication and perseverance and also putting the time and effort to read and formulate an in depth understanding of the science that surrounds the project question," Gendron said at the awards ceremony. "This award is given to the team that utilizes diverse resources that positively impact the overall presentation."

Both West Warwick's Nano Virus and St. Rose's Rosebots received honorable mentions for their innovative solutions.

"Solutions to problems come in many different forms limited only by your team's imagination," Gendron said. "This award recognizes the team that developed the most thought provoking and innovative solution to the Nano Quest project."

The Nanobots, of Coventry, received first place for robot dependability.

"Some designs may be hit or miss, but when they work, people say 'Wow that's cool.' Other designs may not be as fancy but they do the exact thing time and time again. The robot design awards recognize teams whose strategy, construction, or programming stand out because of fresh thinking, innovation, or they are very precise, dependable, and thoroughly explained," Gendron said. "The best designs gave you products that are consistent over time and are dependable under changing conditions. The robot dependability award goes to the team whose robot was the most consistent and dependable and dependably worked every time."

The Nanobots, of Coventry, also received second place for the programming of their robots.

"The programming award is presented to the team that understands standard programming principles," Gendron said. "This team's robot demonstrated programming mastery."

Knotty Oak's Techno Freaks team received an honorable mention for the FLL Value Award.

"This is one of our most highly regarded rewards," Gendron said. "The FLL Value award goes to the team who best displays FLL values of interest in science and technology as well as respect for team members and competitors."

Warwick's Engineers of Tomorrow received the most prestigious award of the day - they were named champions of the competition.

"This most prestigious award goes to the team who, in the big picture, was the strongest in all the categories combined. The Champions Award winner is the total package, the embodiment of the FLL nation," Gendron said. "The Champions Award encompasses five key elements of technical and team performance awards - robot design, robot performance, research

presentation, and teamwork as well as honoring the teams for their understanding and practice of gracious professionalism, exemplifying FLL values, and their understanding of the true meaning of FIRST and FLL."

"The FLL is more than building robots and attending competitions," Gendron continued. "It begins with the robot but most importantly it is defined by how the children unite to form a team. The program impacts each of them as an individual and as a team mate. This award celebrates the ultimate success of the FIRST mission and FLL values."

As recipients of the Champion Award, the Engineers of Tomorrow will join 100 teams at the FLL World Festival held at the Georgian Dome in Atlanta in April.

"We are so happy and very excited about the outcome," said Harry Johnson, 12, of the Engineers of Tomorrow Team. "We knew our presentation went really well and we thought we were in good shape because we got first place in the first round of the obstacle course."

This was the Engineers of Tomorrow's third time entering the FLL competition. According to Johnson, last year the team finished in third place overall.