Brooklyn Daily Eagle
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& DAILY BULLETIN
Volume 53, No. 203, WEDNESDAY, JANUARY 30, 2008 E-mail: edit@brooklyneagle.net
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BROOKLYN Heights Press & COBBLE HILL NEWS
THURSDAY, JANUARY 31, 2008 TWO SECTIONS 50 CENTS

Central Brooklyn Robotics Initiative Brings Hi-Tech to Urban Students

From left to right: Aaisha Nance, a student at P.S. 21; Industry Professor of Humanities at Poly Tech University Dr. Noel Kriftcher; Poly Tech University student mentor to P.S. 21 Andrey Ivannikov; Dr. Vikram Kapila, Associate Professor, Mechanical Engineering, Poly Tech University; Thomas Smith of P.S. 21 and Principal Harold Anderson. *Photo* by Marian Goldman

By Mary Frost

Last Saturday, the gym at Riverbank State Park in Manhattan literally crawled with robots. As crowds cheered from the bleachers, rabbit-sized automatons installed model solar panels on the roofs of tabletop LEGO buildings, dammed simulated rivers, moved fuel to power plants and ran power lines to communities.

The robots' human creators, hovering over cities built on wooden platforms, had just two-and-a-half minutes to put their creations through their tasks, and the air cracked like a sports tournament – especially when the P.S. 21 cheerleaders jumped into action.

It was the New York City "FIRST LEGO League Championship Tournament," and roughly eighty 4th-9th-grade teams competed in this spectacle of science, math and technology.

Among the schools vying in the tournament were five central Brooklyn teams that were mentored by Polytechnic University students as part of the Central Brooklyn Robotics Initiative (CBRI), led by Polytechnic University Professors Vikram Kapila and Noel Kriftcher.

"We started from scratch building the robot," said fifth-grader Thomas Smith, a team member from P.S. 21, Crispus Attucks school in Bedford Stutvesant. P.S. 21 took the top prize, the Director's Award, in the Brooklyn-wide qualifier event last month, and won the Team Spirit Award in Saturday's city-wide competition. "We completed eight missions," Thomas said.

One mission was to activate a solar -powered satellite. "We programmed the robot to go straight, and we had to angle it to hit the target before our opponent did. Another mission was to [install] wind turbines and trees. We put a special attachment on the robot to do this.

"We had to do a lot of practice," he said. "We practiced till we got it perfect. I was very nervous because we had to make sure we had time to do all the missions."

Ms. Carla Arnold, the math coach at P.S. 21 and the team's teacher coach, said that at first she thought the program would be merely a fun enrichment activity. "It turned out to be much more exciting than we anticipated," she said. "You see them use the computer's Mindstorms software, build the robot using the LEGO pieces, use problem solving skills. There's a sense of accomplishment when the robot does what you program it to do."

Ms. Arnold noted that of the eight students on the P.S. 21 team, five were girls. "Our programmers were girls; the boys tested the missions," she said.

Thomas's team would never have entered the competition were it not for CBRI, funded by Independence Community Foundation with additional funding from JP Morgan Chase. CBRI introduces middle- and high school students from Central Brooklyn (and their teachers) to the foundations of robotics technology.

"The object is to work with schools in Central Brooklyn areas with a large minority population, usually economically depressed, with not a lot of science or engineering events going on," said Polytechic University's Professor Vikram Kapila. Amazingly, five out of the ten CBRI teams qualified for Saturday's citywide competition. "It was a vigorous competition," Kapila said. "Three of our teams won awards there. While it was not necessary to win awards, it was the icing on the cake."

Besides P.S.21, Benjamin Banneker won the Teamwork Award and Bedford Academy took home the Against All Odds award. P.S. 11 and P.S. 81 also participated in the CBRI program.

Dr. Noel Kriftcher, Industry Professor of Humanities and executive director of the David Packard Center at Polytechnic University, said that CBRI Fellows from Polytech worked with teachers and students to master the various tasks.

It's Kriftcher's belief that a rich resource in women, African-Americans and Latinos is "basically untapped."

"We're not only concerned with kids who score in the 1500's on the SATs; we believe you can encourage young people by giving them an opportunity," he told *Learning Curves*. "What they learn is that science, math and their application in the real world is invaluable."

Polytechnic University senior Andrey Ivannikov mentored the P.S. 21 students. He says that his students gained "lots of research skills, knowledge, teamwork and a different way of thinking – how to program a robot the way a robot might think. They understood the concept of keeping it simple, instead of complicating things."

Kelechi Stuart and Thomas Smith from P.S. 21 in Brooklyn. P.S. 21 took the top prize, the Director's Award, in the Brooklyn-wide qualifier event last month, and won the Team Spirit Award in Saturday's New York City "FIRST LEGO League Championship Tournament." Photo by Marian Goldman

BROOKLYN ROBOTIC TEAMS' NAMES AND TEACHER COACHES:

MS 51K
Generals
James Hoffman

PS 372 K
Static Fanatics
Rita Fasano
Vicki Holland
Haiva Albuliwi

St. Edmund School
Nerd Herd
Christine Zaremba

Packer Collegiate Inst.
Pack-a-Watt
Maureen Reilly

The Carroll School
Black Hornets
Keith Wynne

PS 58 The Carroll Sch
Black Heroes
Keith Wynne

PS 21K Crispus Attucks
Panthers
Carla Arnold

PS 11K
Behan Robots
Rasheda Lyons

PS 261K
The Energy Freaks
Jen Lindauer-Thompson
Chris Peyser
Scott Howard

Benj Banneker Academy
RoboWarriors
Imani Fischer

Bedford Academy
BedBot
Cluny Lavache

IS383
Philippa Schuyler Skybox
Lindrick Outerbridge

Brooklyn Tech HS
Brooklyn Tech Knights
Gordon Williams

PS 282 K
RoboWarriors
Aisha Marsh

MS 88 K
Masterminds2
Andy Singh

MS 88 K
Masterminds3
Andy Singh

PS 81
PS 81 RoboKids.com
Bell Bishop