NSF Fellows Help Brooklyn Robotics Team Win Challenge

NSF Award:
New, GK12: Applying Mechatronics to Promote Science (AMPS) (Polytechnic University of New York)
State:
New York
Congressional Districts:
New York District 10

Research Areas:
Education, Mathematics, People & Society, Computing

Students from the It Takes a Village Academy in Flatbush, N.Y., not only have the math, physics and programming skills to make a working robot, it appears they have the fastest, most agile 'bot in New York City.

The teens--many of them recent Haitian immigrants and survivors of 2010's devastating earthquake--teamed up with a graduate fellow Zachary Nishino to take first place in a robotics competition, the New York City FIRST® Tech Challenge.

With a robot that proved to be strong, maneuverable and the quickest to unload batons, they bested 63 teams.

Nishino and other graduates mentor economically disadvantaged students in 18 Brooklyn schools via NSF's "Applying Mechatronics to Promote Science" (AMPS) program at the Polytechnic Institute of New York University. AMPS also pairs the fellows with teachers to develop the robotics and hands-on science, technology, engineering and math (STEM) lessons.

The AMPS program offers multiple benefits, helping to:

- develop the Fellows' teaching and curricular skills
- give them experience in communicating science
- promote STEM disciplines among K-12 students and thus contribute to a stronger national workforce
- Give K-12 students a once-in-a-lifetime experience as they learn math and science by building, programming and operating robots

The larger robotics education initiative in Brooklyn has attracted philanthropic and corporate support of more than $1.6 million. A spring 2010 independent evaluation showed that:

- 74 percent of the 810 participating students increased their overall grades one half to a full letter grade
- 80 percent saw science and math grades improve one-half to a full letter grade

More than three-quarters of the students reported that the program increased their interest in STEM subjects and careers. For example, seventh-grader Keyanna said: "I feel very proud of what I have done in robotics. Not many other girls get to do what I do."

Caption: ITAVA students celebrate being part of the alliance of three teams that won the citywide FIRST Tech Challenge.
Credit: Adriana Groisman

Caption: GK-12 Fellow Carole Chen works with students on a robot as they prepare for competition.
Credit: Yan Cain, teacher, PS 3, New York City Department of Education