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Teacher Charlie Giacomarra, right, and sophomore Calvin Lai, of the Middlesex County Academy, left, work on their robot for the FIRST robotics competition Saturday, February 14, 2009, at Piscataway High School.

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## Central Jersey teams ready for major robotics competition in Trenton

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While most of their classmates were sleeping away the President's Day holiday, a handful of battle-worn high school students, their teacher, a few parents and one grandfather spent much of the day gathered at a local machine shop to squint, scratch their heads, and make a few final but critical tweaks to a computerized metal frame they hope will make their team a champion.

Piscataway High School Team 224 — The Tribe — is one of more than a dozen Central Jersey schools competing in this weekend's FIRST Robotics New Jersey Regional Competition at Sovereign Bank Arena in Trenton.

### **SIX-WEEK SPRINT:**

The teams had six weeks to design and build a robot to play a newly invented field game. Tuesday, Feb. 17 was the deadline for teams to load their robots into a crate and ship them to a storage site in Pennsylvania until the competition.

Feelings were mixed.

"I'm a little nervous," said sophomore Brittany Mason, a first-year member of the Piscataway team. "I don't want anything to get messed up in the shipping."

FIRST, an acronym for "For Inspiration and Recognition of Science and Technology" is an annual competition that charges high school students, with the help of engineering professionals or college engineering students, with creating working, multi-skilled robots. This year, those robots will play a game called Lunacy. For the game, each school and its robot will be paired with two other schools on an "alliance." The robots — sometimes acting autonomously and sometimes under human control — rove

around a closed low-friction (slippery) surface as players try to score points by landing "orbit balls" into trailers attached to opposing alliance's robots.

Teams can go to multiple regionals if they can afford the travel expenses. Winners from each regional qualify for a national competition from April 16-18 at the Georgia Dome in Atlanta.

## **ROBO-REHEARSAL:**

Travis New, a senior and team captain for Franklin High School's Team 613 "RoboWarriors," said that while the team cannot replicate an entire game field, he and his classmates have been practicing with authentic orbit balls and an improvised game field.

"We did purchase quite a few balls and did just basic practicing of throwing the balls into the garbage can so we can see who would be a good human player," he said. "We just don't get enough time for practice."

In Plainfield, the team is called the Killer Cardinals, Team 136. Senior team member Chelsey Slade said she's optimistic for her team.

"I think we have a pretty good chance this year," she said. "We love going out there and just seeing what other teams do and how they did their programming and building and everything."

Indeed, FIRST competitions are about much more than just the robots. Teams design costumes and exchange buttons. They send out scouts to scope the competition and look for potential alliance members. And all the while they practice "gracious professionalism" — a FIRST concept that downplays competitiveness and emphasizes good sportsmanship.

The competition also is about fundraising. The base kit each team receives costs \$7,000, and teams must also pay for other equipment and travel. Some teams get corporate sponsors, sometimes from the companies supplying the engineer mentors. Many schools receive money from their school districts, and others hold fundraisers.

Plainfield physical science teacher and robotics team adviser Deborah Johnson said her team has cut costs by sewing their own aprons to use as team uniforms and by cooking their own lunches for Saturday work sessions.

"We realized with the economy that it would be more economical for us to go grocery shopping and preparing the meals," she said. "So we have a team of students that their job is to go through and plan the meals."

Johnson said some students couldn't join the team this year because they had to take up part-time jobs.



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Calvin Lai, a sophomore at Middlesex County Academy, left, gets help from volunteer Tim Mason of Piscataway as they make a part for the Piscataway High School FIRST robotics competition entry Saturday, February 14, 2009, at Piscataway High School

## RANGE OF STUDENTS:

Johnson and Piscataway adviser Charles Giacomarra said their teams both have a lot of freshmen this year. Piscataway team member Joseph Schiavone, a junior, said rebuilding is part of the game.

"It's been tough but it is rewarding," he said. "...I think we have some very intelligent kids, they're very resourceful."

The teachers said their robotics teams attract a wide range of students — even those who don't consider themselves to be science-oriented. The competitions build skills and help connect students with possible career aspirations, they said.

The competition teaches students to use power tools and high-technology skills building the robots. But Franklin teacher Linda Puglio said the budding engineers also learn the value of persistence.

"We (as advisers) have to kind of take a step back and realize that the club is trial and error, and they're learning from their mistakes and it's making them better," she said.



Calvin Lai, a sophomore at Middlesex County Academy, assembles a sprocket to a drive wheel as he and other team members work on their FIRST robotics competition entry Saturday, February 14, 2009, at Piscataway High School. (JODY SOMERS/ MyCentralJersey)