

STUY

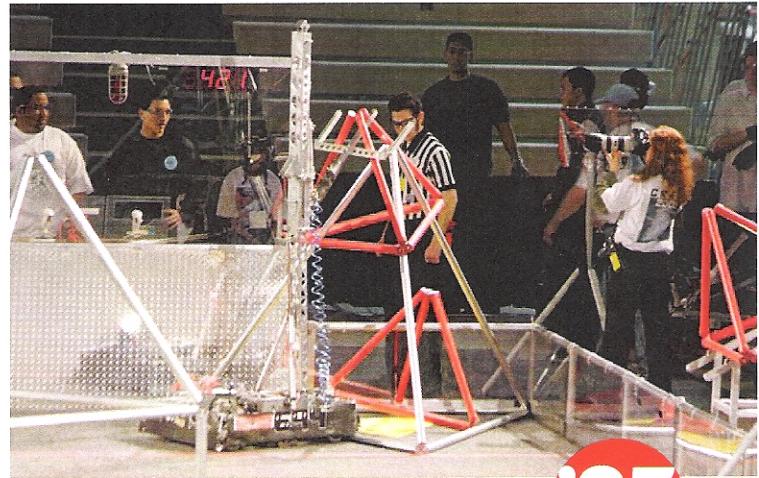
AMERICA'S WEEKEND MAGAZINE



Building the Robot, Part V

**WINNING THE
CHAIRMAN'S AWARD!**

**CAPS OFF
TO YVETTE!**



Robots: Start Your Engines!

'05

Building the Robot, Part V



Every year, FIRST gives us six weeks to design, construct, and program a robot. This year we were asked to build a robot that would manipulate tetrahedron-shaped objects known as "tetras" and place them on top of similarly shaped goals. For this task we built Yvette.

At the beginning of the six-week period we attend a kick off event, during which the game is explained and the new technology that we will be provided is presented. Following this we begin the design stage. This year we quickly agreed

that we wanted a six-wheel configuration with a tetra manipulator, which has come to be known as the "lance." How we were going to manipulate the lance was an issue of heated debate, until we came upon the elevator idea that is now in use.

Once we come upon a basic idea of what we want to build, we begin a simultaneous construction of prototypes and the creation of a finalized design. We lay out our finalized plans in a form of CAD called Inventor, a software with which we can realistically emulate

a system of parts that move in unison. We judged the worthiness of these designs in our prototypes. This year, we constructed a prototype gearshift and other mechanisms.

Work is also done on the software for the robot. In each year's game there is a short period called the autonomous mode, during which the robot acts entirely on its own. FIRST provides us with a number of sensors to obtain objectives in autonomous mode. This year, we were given a camera that could differentiate colors so that we

could acquire a tetra with bright green coloration. This had to be prototyped and worked on as well.

Finally, once we've created a successful prototype, we begin construction on the final robot. We fabricate our parts out of metal and wire up the robot controller to our sensors and speed controllers, as well as download the last of our code. Once all of these projects are brought together into one machine, we have a robot that must be tested and prepared for final competition. Tweaks are made, but we have finally created a real robot.

The 694 Marketeers



Robotics is not just for the right-brained, and 2005 has been a year of great firsts for the marketing division of Team 694. Our team mascot, the 694 Ninja (Nathan Bixler), made his debut at the NYC Regional. Our psychedelic crate for shipping Yvette was the most colorful crate at all of the competitions we attended. Winning the prestigious Chairman's Award qualified us to compete in the

Championship Event. Our first submission for the Woodie Flowers Award, the most celebrated honor given to a mentor, not only won, but was described as "well-written" by the announcer at the event.

Marketing has grown from just publicity and recruitment to being an indispensable backbone of our team. Under co-president Sonia Gollance, it encompasses everything from edible giveaways (our delicious fortune cookies) to personal team items such as our 694 Ninja Headgear. Inspired



by the anime Naruto, this year's ninja theme had the team manufacturing black headbands with our team logo engraved onto an aluminum plate. For the first time, our "marketeers" were using band saws to get the job done, and junior Amy Suen was particularly effective in getting the engineers to help sew the headbands. As she says, "a needle is like a really, really tiny drill."

The marketeers look forward to 2006, when they hope they can continue their ever-expanding role in 694 Robotics.



A Tradition of Excellence

As team 694 finishes up its fifth year, we find ourselves in the best shape ever! As a team, we have never done so well, proving that experience and hard work pay off. This season, we demonstrated how far we have come in all aspects of the team.

At the NYC Regional, FIRST awarded us the Radio Shack Innovation in Control award, our first programming award. This was a tribute to our control board and amazing autonomous code, which enabled us to achieve a four-point combination in the first fifteen seconds of each match. We were the only team there able to cap a tetra in autonomous mode.

The team also nominated our outstanding mentor and parent, Tom

Ferguson, for the Woodie Flowers mentor award. We were thrilled when he won this award for his dedication to our team and the other teams he helped. Tom was among 30 recognized mentors this year from all around the world.

Yvette made it to the semifinals in New York, but what made us consider ourselves champions was winning the NYC 2005 Chairman's Award, FIRST's most prestigious regional award. This was awarded to us following continuous hard work and dedication since our team was founded. Over the past few years, we have striven to do anything and everything we could to be recognized as a role model team, from organizing community and city events to being honored by the city government with a proclamation to helping other teams in every way possible. We raised awareness within our school, worked late hours in the lab, recruited new members and mentors, inspired the creation of a new school Robotics class, and held meetings even during the summer.

The Chairman's Award gave us a ticket to the Championships in Atlanta to compete with hundreds of other worldwide teams under one roof, the Georgia Dome. In an amazing event, Yvette managed to hold first place for a period of time in her division, and finished ranking in 13th place out of 85 teams. Because of this, we were picked by the 4th seeded team for an alliance at Nationals. Ultimately, we got to the division semifinals, which was quite an accomplishment for a team that had never before proceeded past the qualifying matches.

All in all, this year we passed many milestones in Stuy Robotics history, and we hope to continue our success in years to come.

“YVENTS”

JUNE 6TH: One hundred years since its founding, Stuyvesant High School hosted its Centennial Alumni Reunion, during which alumni toured the school while student groups presented their various clubs and teams. We exhibited all of our existing robots to entreated alumni from as far back as the 40s, many of whom contribute generously to student activities.

OCTOBER 27: We were invited to City Hall by Councilman Alan Gerson to receive a proclamation in honor of our robot Lola. We demonstrated what she could do and explained to the City Council in the main legislative chamber what FIRST Robotics is all about.

DECEMBER 11: Volunteers from the team went to P.S. 89 to teach a third grade class the basic principles of engineering, electronics, and pro-

gramming. With our guidance, they harnessed their creativity, along with what we taught them, to put together their own moving Lego Robots.

APRIL 18: Inspired by the press release of our award-winning performance at the NYC Regional, NY1 News contacted our Director of Publicity, who arranged for the team and our robots to be featured live in a morning news broadcast. The coverage was so popular that we were congratulated by the owner of our local pizza place.

JUNE 21: At the Parents Association meeting for incoming parents, we had simultaneous demonstrations of our newest robot Yvette, a presentation of a team video, an exhibit of our team's history, and explanations of what we do by team members and parents.

Lending a Hand, Among Other Things



According to the team, "Robotics never ends." This has proven true every day of the year. From the first day of school, the Stuyvesant Robotics Team meets to recruit members and accustom them to the lab. In the winter, members and mentors stay late to build and test the robot. In the spring, we travel and compete. In the summer, we meet and strategize. In the fall, we repeat the cycle, and become closer-knit in the process.

However, this saying extends far beyond the confines of our team's attendance list. Throughout its five-year history, the team has had a growing outreach department. Its members' jobs include seeking out teams that need a helping hand, as well as organizing events in which different teams can

exchange information and bond with each other.

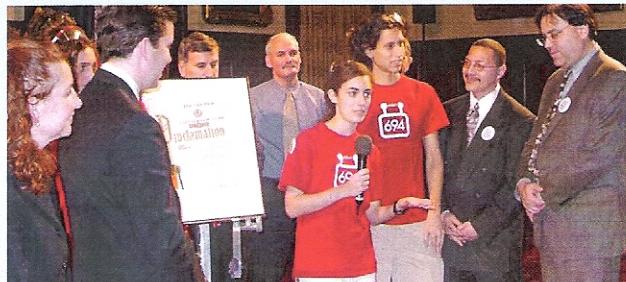
This year alone, we have reached out to over a dozen robotics teams, and our aid has varied greatly, both in setting and magnitude. Everywhere we have gone, we lent other teams anything from a spare wrench or a particular size bolt to a living, breathing, programming team member! Our Director of Engineering, for example, spent a day during the New York Regional helping a fellow team program an autonomous code. He came back beaming, wearing their team shirt, which they had given him out of gratitude.

Similarly, we took a rookie robotics team from an all girls high school, Brearley, under our wing. We invited them to our lab and shared our knowledge with them on safety procedures, lab setup, team organization, and fundraising. Our team visited their school during build-season and helped them out with the engineering of their robot. We continued advising them throughout competition, and we cheered with them when they won the Rookie Inspiration Award at the New York Regional.

For the past few years, we have mentored Lego Robotics team at I.S. 89. This year, we expanded our Lego League mentoring to include M.S. 51 in Brooklyn. Team members, mentors, and parents volunteered at the Lego League competition in NYC, even though it took place during our frenzied construction season.

We even reached out as far as providing the British team, Systemetric, with parts they couldn't obtain, and sent practice targets overseas. Later, when they traveled to New York to attend our hometown regional, we invited them to our lab and exchanged tips on our robots. Then, like any good New Yorkers, we showed them the best pizza place in town.

Ultimately, the outreach department has done as many wonders for our own team as it has for others. Bonding with members of other teams has been like welcoming new ones into our own community. It all builds up to form a network for exchanging information, which we can use to benefit of everyone involved.



THE SENIORS

FROM LEFT TO RIGHT

1 | BETH GOLDSTEIN
Virginia Tech (Architecture)

2 | DAVID PORTNOY
Washington University
in St. Louis

3 | SONIA GOLLANCE
University of Chicago

4 | IAN FERGUSON
Princeton University
(Engineering)

5 | DAVID FERGUSON
John Hopkins University

6 | WILLIAM SILVERSMITH
Rennsalaer Polytechnic
Institute

7 | JOSHUA CASNER
SUNY Binghamton



FACULTY

RAFAEL COLON, Robotics Team Advisor

JAMES LONARDO,
Coordinator of Technology Education

ANNE DE SOSTO MANWELL,
Research Dept. Member, Team Advisor

STANLEY TEITEL, Principle

RAYMOND WHEELER, Assistant Principle
Music, Fine Arts, and Technology

FRED GORDON, Asst. Robotics
Room Advisor

STUYVESANT ROBOTICS

IAN FERGUSON, Co-President

SONIA GOLLANCE, Co-President

PAUL DESIDERIO, Vice-President

DIANA SANDY, Treasurer

JOSH BUDOFSKY, Director of
Engineering

YON ZLOOF, Director of Publicity

BETH GOLDSTEIN, Director Strategy
& Design

VICTOR LIU, Primary Machinist

SAMI YABROUDI, Director of
Lego League

DAVID PORTNOY, Director of
Procurement

JASON RASSI, Director of Programming

JOSH CASNER, Director of
Field Construction

ENGINEERING

Tal Akabas, Steven Cao, Jena Cutie,
Polina Daniliouk, Allan Dong,
Nathan Keyes, Theodora Kunicki,
Amanda Kwok, Andrew Mandelbaum,
Joanna Ma, Steven Lam, Yi Li,
William (Bill) Silversmith, Sho Uemura,
Brendan Wolff, Flynn Zaiger, Danny Zhu,
Maya Zloof

MARKETING

Nathan Bixler, Grace Fried, Amy Suen,
Garvin Ming

PROGRAMMING

Josh Hecht, Edward Kaplan

MENTORS

James Carpino, Michael Cassidy,
Tom Ferguson, Gordon Franken '04,
Tom Franken, Ethan Heller '03,
James Heller, Steve Hilton, Jessie Hong,
Ed Jackson, Ron Kunicki,
Catherine Kunicki, Abby Laufer,
Justin Li '02, Leo Li '04,
Donovan Moore, Ann Moore,
Joe Ricci '03, Andy Woo '96

PARENTS

Meg Akabas, Daniel & Beth Budofsky,
Mark & Leah Casner, Mary Christopher,
Tom Ferguson, Abby Laufer, Steven &
Judy Goldstein, Phil & Carolyn Gollance,
Steve & Margaret Hecht, David &
Wendy Keyes, Ron & Catherine Kunicki,
John & Connie Ma, Howard &
Joan Portnoy, Michele Rayvid Rassi,
Mery Sandy, Jamil & Nancy Yabroodi,
Avi & Anat Zloof

SPONSORS

Yvette & Larry Gralla

Cox and Company, Inc.

Time Inc.

The Wallace Foundation

Con Edison

Stuyvesant HS Alumni Assoc.

Stuyvesant HS Parents Assoc.

Lucidity Awards & Signage



▲ Workin' hard
Mentor and Woody
Flowers Award
recipient Tom Ferguson
working with team
members

Lab Partners!

There would be no Robotics Team at Stuyvesant High School without our mentors, parents, sponsors, and supporters. They have done so much that it has become hard to keep track of their contributions, so we've divided our benefactors into separate categories for easy reference.

MENTORS: Engineers, programmers, graphics designers, and professionals from all walks of life. We value their real-world experience, because it allows our team to thrive. Some team alums even come back during their college vacations to join the ranks of our mentors!

PARENTS: They make food, handle logistics, drive us to competitions, host team dinners, and help us any way they can. Robotics is a real family activity—some of our siblings even get involved!

SPONSORS: Our invaluable sponsors run the gamut, from large corporations to school organizations to small neighborhood businesses. We show our thanks by putting their names on our team shirts—the robots from the past two years were named for title sponsors Yvette and Larry Gralla ('48).

SUPPORTERS: From school personnel to our local Councilman to the neighborhood press, we have many fans who help us with events, contribute to our publicity efforts, and cheer for us at competitions.

Although all of these wonderful people help our team run, we are always looking for new people to join in the experience that is Team 694.