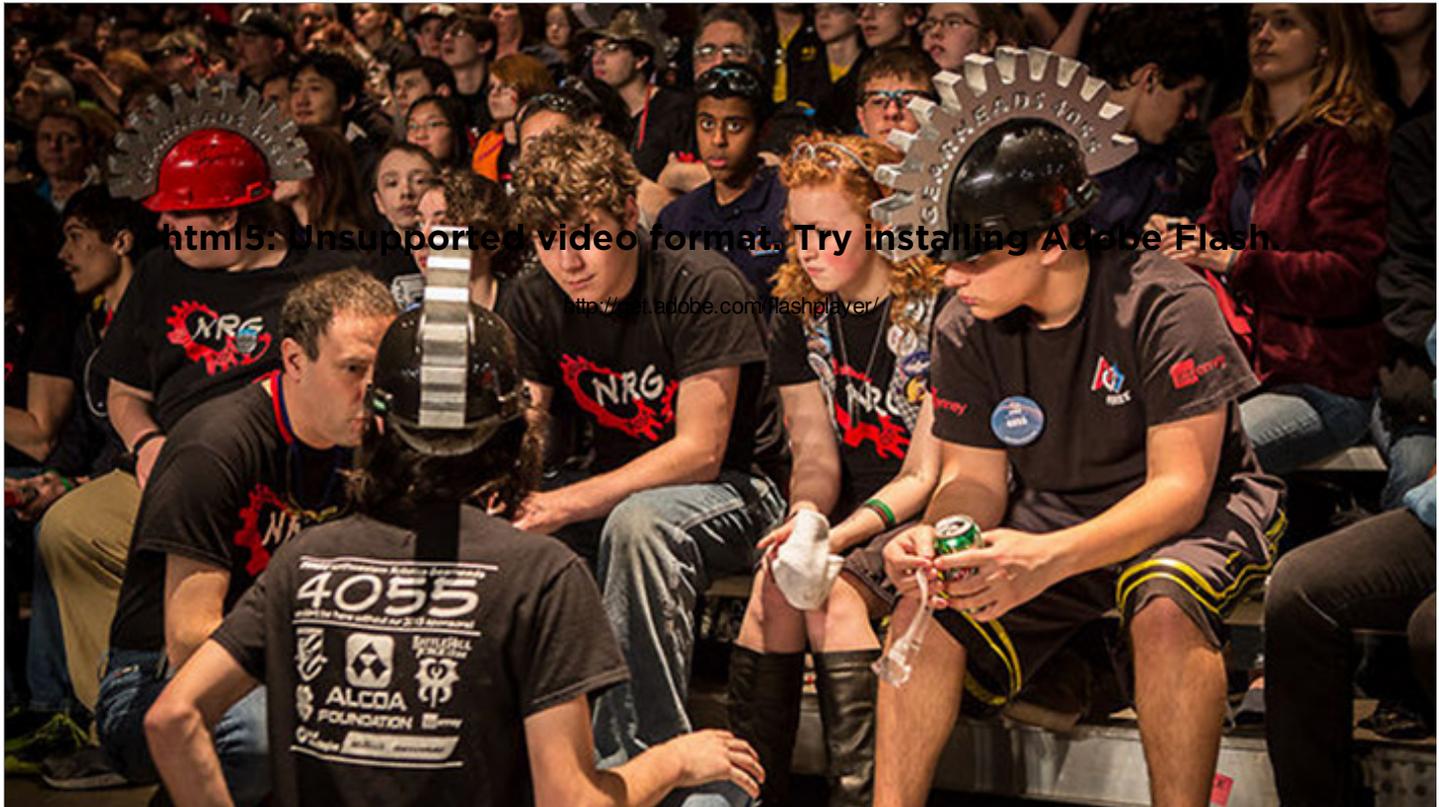




## Next Generation Engineers and UTC Mentors Excel at FIRST Robotics

Competition Marks 18-Year Partnership

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[Click here to view video footage of the 2013 Connecticut Regional FIRST® Robotics Competition.](#)

With music thumping and bright lights illuminating the field from overhead, an enthusiastic emcee sporting a bright red Mohawk and a goatee to match whipped the massive crowd into a frenzy. With virtually every seat taken at the 2013 Connecticut Regional FIRST® Robotics Competition (FRC), sponsored by United Technologies, it was standing room only as thousands of onlookers – many wearing the brightly colored T-shirts representing their team – clapped and cheered. Larger-than-life mascots – a huge red bulldog and “gearhead gladiators” among them – wove their way through the crowd.

And then, six robots that had been hundreds of hours in the making scooted across the court, controlled remotely by the high school students who had built them from scratch, many under the guidance of UTC mentors. The chrome, rectangular robots hurled Frisbee after Frisbee at the window goals on either end of the field and, half way through the 2 minute and 30 second match, climbed pyramid towers in the center of the court. They were followed by students who physically shot Frisbees at the targets, attempting to add a few extra points to their team’s score as the crowd roared.

Minutes later, the match was over. The winning alliance, made up of three randomly selected teams, was announced to thunderous applause.

This scene was replayed throughout the 14 hour duration of this UTC-sponsored event, held March 29 and 30 at the



SLIDE SHOW

Connecticut Convention Center. On Saturday afternoon, the top eight teams competed for the chance to advance to the FIRST® International Championship in St. Louis, set for April 25-28. The winning alliance was comprised of Team 195, the Cyber Knights, from Southington, Conn.; Team 20, the Rocketeers, of Clinton Park, N.Y.; and Team 95, the Grasshoppers, of Lebanon, N.H. The Cyber Knights team is sponsored by UTC and supported by seven UTC mentors: John Calabrese (UTRC), Adam Gwara (UTAS), Don Hastie (P&W), Chris Herms (UTC HQ), Steve Shubat (UTAS), Eugene Stanhope, Jr., (P&W) and Stephen Yanczura (UTAS).

The Hartford event was the culmination of countless hours of work by students, teachers, mentors and volunteers leading up to, and following, the announcement of this year's "Ultimate Ascent" challenge.

Each January, thousands of high school robotics teams around the world are given a month and a half to conceive, design and build a robot that can perform the assigned tasks more quickly and efficiently than its competitors.

"At the beginning of the season, FIRST® provides us with a kit – a box of parts. Other sponsors will fabricate and donate specialty parts, and we're able to spend a certain amount of money for other parts," said Chuck Nystrom, a teacher with East Hartford High School and the 18-year leader of Team 173, dubbed Team "RAGE." Team RAGE was one of 36 teams sponsored by UTC at this year's Connecticut Regional.

The goal of FIRST® competitions is to get students excited about science, technology, engineering and mathematics (STEM), and hopefully guide them toward a career in a STEM field. Along the way, these young people learn not only how to conceptualize and create a robot, but a variety of other skills – self-confidence, leadership, collaboration, problem-solving and "gracious professionalism" among them.

"They understand deadlines, commitment, and time management skills. When you go on to college or university, you're going to need those skills," Nystrom said.

His team's dedication has paid off. "We were the national champions in 2002," he noted. "In 2003 and 2007, our robot was third in the world for making it to the top of the pyramid."

Mark Sims, a Farmington High School junior who has been a member of Team 178, "The 2nd Law Enforcers," for three years, knows a lot about the time commitment required.

"During the six-week building season, we meet six days a week – Monday to Friday from 4:30 to 8 p.m. and Saturday from 10 a.m. to 4 p.m.," he said. "As the season progresses, everything is longer; sometimes we work until midnight." But he said the investment of time and energy pays huge dividends.

"As a freshman, I was involved with music but I knew that I wanted to be an engineer. In the FIRST® program, you learn everything from how to drill holes to project management, handling money and public speaking," he said.

"I'm definitely planning to continue in the program. It's awesome. It's the most fun I've ever had in high school, and the best experience I've ever had. I feel bad for everyone else who is not involved, because I'm going to have a head start [in my career]." Team 178 is sponsored by Otis and supported by Matt Hall, a systems engineer at Sikorsky and Jim Rivera, Director of Product Design at Otis.

Matt Hall, who works as a lead on CH-53K helicopters, has been a volunteer mentor for 10 years and until recently, was "easily putting in 500 hours a year." His wife Michele is a head coach for the team. He said the FIRST® program makes a career in the STEM fields seem much more attainable.

"The kids may look at cars or helicopters and think, 'I could never be involved in designing or building something like that.' This program demystifies it for them. They start networking early. There are some alumni from this team that I would hire in a heartbeat," he said.

That was exactly the intent of a surprise exhibit unveiled at the Regional on Friday morning: the revolutionary X2 helicopter, which was conceived, designed and built by a small group of engineers at Sikorsky.

The X2, which can fly at 287 mph – twice the average speed of a traditional helicopter but with improved maneuvering and hovering capabilities – is poised to transform the helicopter industry.

Kevin Bredenbeck, Sikorsky’s chief test pilot and director of flight operations, was “swarmed” by 50 students when he showed up in his bright orange flight suit to answer questions about the X2. He explained that the chopper was the brainchild of a small team – the size of their own robotics team – and that if they showed the same commitment and drive that they’d demonstrated in the FRC competition, they could one day be involved in a similar project. “You just have to have the drive and the passion,” he said.

Jacob Kowalski, a sophomore at Robert E. Fitch Senior High School in Groton and a member of Team 2168, “The Falcons,” was just one of the scores of students wowed by the X2.

“I think it’s really impressive. It’s a really cool design,” he said. “Twenty-five to 30 people worked on the team that designed it. It inspires you to think that what you’re doing in robotics could lead to a career doing something like this or another technical achievement.”

Kowalski said that his long-time interest in science “has been strengthened through the robotics program. It’s my favorite thing, my best experience so far. And seeing the X2 is just beyond exciting. It’s amazing.”

Dr. J. Michael McQuade, UTC’s senior vice president for science and technology, encouraged the kids to reach for their dreams when he addressed the crowd on Saturday morning.

“What you do here today has a direct relationship with creating the economy, the growth, the future that we are all going to live in,” he told them. The FRC, he said, “gives UTC an opportunity to support a program that will inspire the next generation of engineers and scientists – the exact employees we want working at UTC in the future.”

Afterwards, he said that in addition to exposing young people to STEM opportunities, UTC and more than 100 employee mentors guide the students toward scholarships, good college programs, internships and more.

“The mentors stay in touch with the students during their college careers. Their direct connection to these kids helps them in terms of reaching for a choice to follow their passion,” he said. “There have been lots of students who have gone into STEM careers after being involved in the FIRST® program. I think it’s incredibly effective in opening the doors to those fields.”

Besides Team 195, The Cyber Knights from Southington, Conn., several other UTC sponsored teams were award winners at the Connecticut Regional, qualifying them for participation in the International World Championships in St. Louis, Mo., April 25-April 28. Below is a list of the UTC sponsored winners.

<b>Team Number</b>	<b>Team Name</b>	<b>Location</b>	<b>UTC Sponsor</b>	<b>Award</b>
178	The 2nd Law Enforcers	Farmington, Conn.	Otis	Engineering Inspiration Award and Woodie Flowers Finalist Award
195	Cyber Knights	Southington, Conn.	UTC HQ	Regional Winner and Gracious Professionalism Award
228	Gus Robotics	Meriden, Conn.	UTC HQ	Industrial Design Award
230	Gaelhawks	Shelton, Conn.	Sikorsky	Regional Finalist, Chairman's Award and <i>FIRST</i> Dean's List Finalist
571	Team Paragon	Windsor, Conn.	Otis	Imagery Award
839	Rosie Robotics	Agawam, Mass.	UTAS	Entrepreneurship Award
1784	Litchbots	Litchfield, Conn.	UTC HQ	Innovation in Control Award
2067	Apple Pi	Guilford, Conn.	UTC HQ	Regional Finalist
2836	Team Beta	Woodbury, Conn.	UTC HQ	<i>FIRST</i> Dean's List Finalist, Excellence in Engineering Award
3525	Nuts & Bolts of Fury	Waterbury, Conn.	UTC HQ	Team Spirit Award
4812	Crosby Robotics Team	Waterbury, Conn.	UTC HQ	Highest Rookie Seed

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