

Oregon Robotics Tournament and Outreach Program

FTC Briefing

2008

*Opening doors to the worlds of science
and technology for Oregon's youth*



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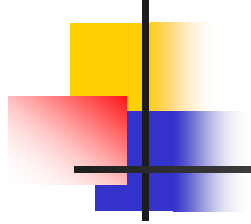
Today's Goal

- Provide an understanding of the ORTOP and FIRST FTC programs
- Show the value these programs bring to our young adults
- Demonstrate the fun and excitement the programs generate
- Explain the opportunities for your involvement



Agenda

- Introductions
- Overview
- The ORTOP FTC Program
- Showcase Video
- Questions and Discussion



Introductions



Overview



ORTOP (Oregon Robotics Tournament and Outreach Program)

*Opening doors to the worlds of science
and technology for Oregon's youth*

- Runs the FLL and FTC programs in Oregon and the surrounding counties
- Connected to the Chancellor's Office of the Oregon University System
- Heavily volunteer based



Additional ORTOP Focus

- Reach out to girls and minorities
 - Look for partners that can help: Girl Scouts, Boys and Girls Clubs, 4H, etc.
 - Special outreach to schools and community organizations with the demographics that fit our focus
- Every team that registers gets to participate
- Success for a team is participation



Target Range for First Programs

FIRST Robotics Competition

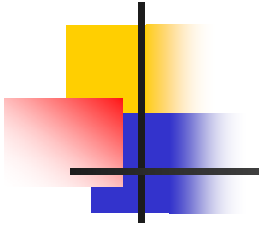
FIRST Tech Challenge

FIRST LEGO League

Junior
FIRST LEGO League

K 1 2 3 4 5 6 7 8 9 10 11 12

Grade Level



The ORTOP FTC Program

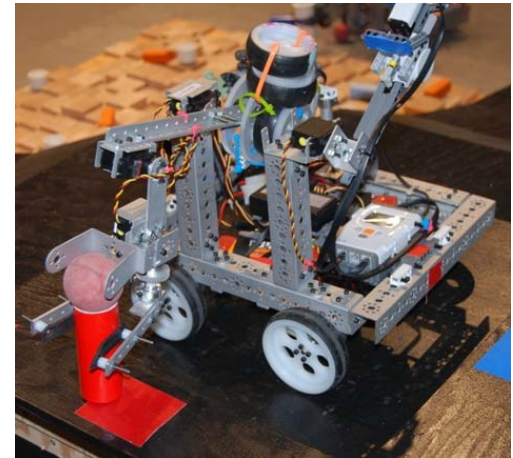


ORTOP FTC Program

- Goals: Anchored in the ORTOP FLL Tradition
- Target audience: Late Middle School and High School
- Hardware:
 - Tetrix kit: Similar to an Erector set with a Lego NXT controller, advanced motors and sensors
 - Arena: 12 x 12 foot playing field
- Cost: estimate \$800 - \$3000
- Timeline:
 - Sep 13: FTC Kickoff
 - Feb 21: Oregon Regional
 - April 16-18: National in Atlanta
- Competition: Driver Control, Autonomous, Engineering Notebooks
- Teamwork and Alliances

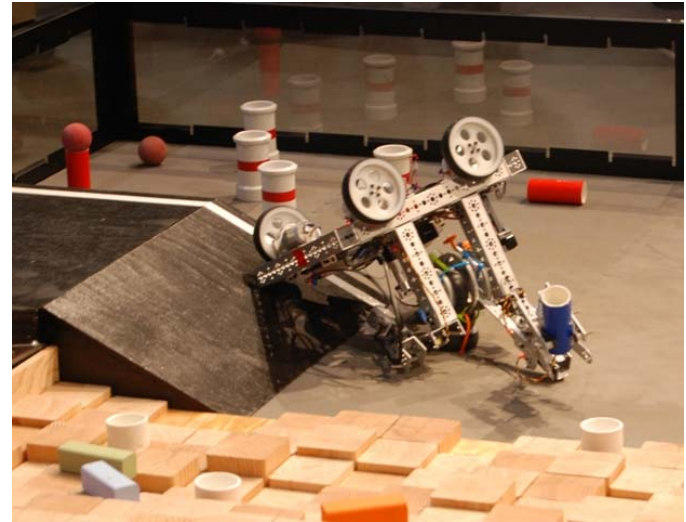
Section Outline

- Why First Tech Challenge
- Last year's challenge
- Teams
- Cost
- Timeline
- Tetrix kit and competition arena
- Tournament Structure and Judging
- Links and resources



First Tech Challenge (FTC)

- More accessible, affordable *FIRST* experience
- Creates bridge between FLL and FRC
 - FLL: First Lego League
 - FRC: First Robotics Challenge
- Teams of middle/high-school students:
 - Design and build robots using Tetrix system
 - Create and test innovative designs
 - Explore robotics concepts





FTC 2007/08 National Experience

- 31 Teams in ORTOP regional
- 799 Teams total
- Thousands of students
- Most states represented
- 31 Regional and national events



ORTOP Goals for FTC

- Extend the FLL outreach program to support more advanced and older students and FLL graduates.
- Build on the strengths of FLL
- Establish a permanent mid level program for teenagers



What Is an FTC Team?

- Up to 10 teens each
- Late middle school through high school
- At least one adult
 - Coach – team responsibility
 - Mentor – technical expertise
- Sources of teams
 - Schools
 - Community groups
 - Neighborhoods



The Team Experience

- Miniature engineering project team stressing
 - Creativity and teamwork
 - Engineering principles: requirements, alternatives, rapid prototyping, testing, ...
- Hands-on problem solving
- Context is a real-world situation
- Illustrates multiple roles: Designers, Builders, Programmers
- Insights into possible careers
- The youngsters do the work – Coaches' Honor Code and Team Promise





The Team Timeline

- Teams register NOW!
- 2008 Season Kickoff is September 13
- Robot kits will be available early September
- ORTOP FTC workshops mid September
- Building, programming, testing: Sep-Feb
- Culminating events
 - Scrimages: Jan-Feb, 2009
 - Oregon tournament: Feb 21, 2009
 - National tournament: April 16-18, 2009



2 Step Registration

- Register with FTC
 - <http://usfirst.org/community/FTC/content.aspx?id=750>
- Register with ORTOP
 - <http://ortop.org/>



The Tetrix robotics kit

- The Robot's maximum dimensions at start of challenge:
 - 18" W x 18" L x 18" H
- Tetrix kit (at registration): \$900
 - \$450 for returning teams
- Developed by Pitsco and LEGO
- Over 500 parts per kit
- Subset of the parts pictured here





Robot Control

- Autonomous
 - NXT G
 - Robot C
 - Lab View
- Remote control
 - Bluetooth
 - USB Game Controller

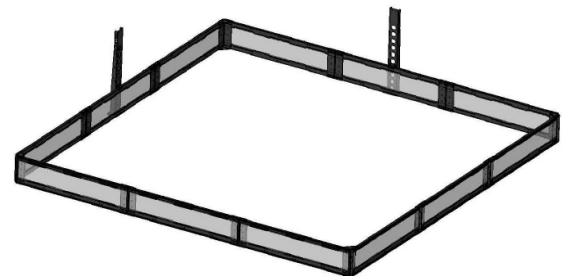
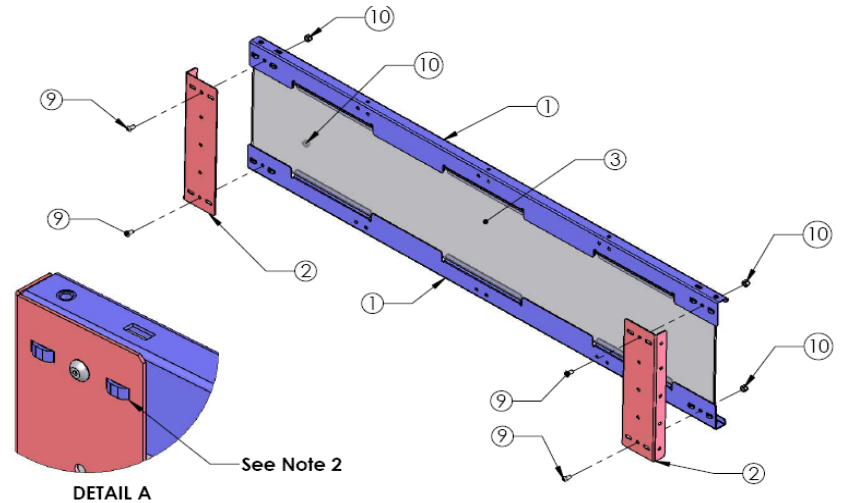


Arena

- 12 x 12 feet
- Cost

- Official arena: \$1000-\$1500
 - Field perimeter: \$530
 - Field USB hub: \$50
 - Foam field tiles: \$170
 - Challenge specific materials: \$?

- Non-official cheaper solutions
 - Field perimeter: \$130
 - Challenge specific materials: ?





FTC Team Costs

- Materials
 - Tetrix Kit: \$900 for new teams
- Registrations
 - National Registration Fee: \$275
 - State Registration Fee: \$50
- Arena - optional
 - (\$200 to \$1500)
- Total: \$1300 lower bound
- Realistic Budget: \$1300 - \$3000

Tournament Structure *

- Structured on FRC tournaments
- ORTOP Regional tournament
 - February 21



* Under development

Engineering Notebook

- It records the engineering design process
 - Obstacles faced, lessons learned, and sketches of ideas
- One notebook per team
- The real thing
 - Permanent ink with cross-outs
 - Not a high production showpiece

Task Column	Reflection Column
① Move front wheels back a little.	Started up system, it runs, but slowly. Needs improvement - Reason
② Wheels unstable and wobble - Add more support	still learning tank and arcade styles (NV)

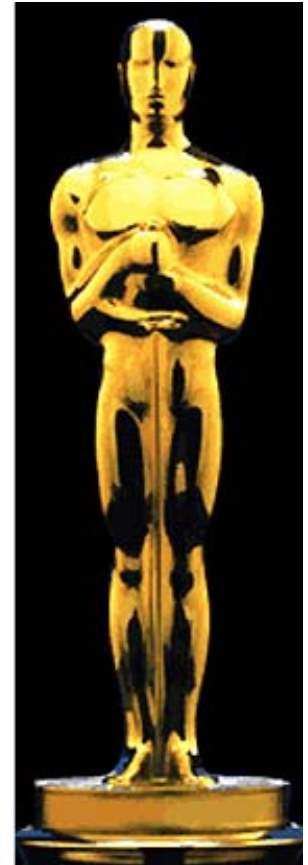
Judging - Showing What They've Learned

- Results of autonomous competition
- Results of remote control competition
- Engineering notebooks
- Teamwork



Last Year's FTC Tournament Awards

- **FIRST Tech Challenge Winning Alliance Award**
Determined by the final match.
- **FIRST Tech Challenge Finalist Alliance Award**
Determined by the final match.
- **FIRST Tech Challenge Inspire Award**
Determined by the judges.
- **FIRST Tech Challenge Amaze Award**
Determined by the judges.
- **FIRST Tech Challenge Connect Award**
Determined by the judges.
- **FIRST Tech Challenge Innovate Award**
Determined by the judges.
- **FIRST Tech Challenge Think Award**
Determined by the judges.
- **FIRST Tech Challenge Motivate Award**
Determined by the judges.



Volunteer Opportunities



- Coaches
- Mentors
- ORTOP Planning Committee
- Regional Tournament Planning
- Tournament Staffing
- Financial Support



Our Mailing Lists

- Totally voluntary, and you can opt out
- ortopvex
 - All interested parties
 - One way from ORTOP
 - We add you on request
- ortopvexcm
 - Coaches and mentors
 - Communication among that group and with ORTOP
 - We add you when you complete a workshop



Next Steps

- Sign-up for FTC workshop
 - ortopreg@ortop.org
- Register
 - Register with FIRST: Click on the registration link on <http://www.usfirst.org/vex/> -- \$275 fee
 - Register with ORTOP: Click on the registration link found on <http://ortop.org> -- \$50 fee

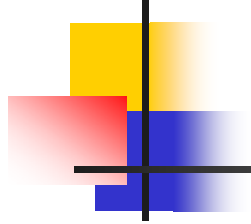


Contact Us

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Showcase Video



Questions Discussion