FIRST Team 1511 Rolling Thunder

Penfield High School & Harris RF

Business Plan

Table of Contents

Rolling Thunder FIRST Team 1511 Business Plan Executive Summary

Mission Statement - Inspiring students to become leaders through engineering and the fun of FIRST Robotics.

About the Team - FIRST Team 1511 was formed in 2004 as a partnership between Penfield High School and Harris RF. Located in Penfield, NY, the team was founded by FIRST Alumna, Kim Eckhardt, a former Harris Systems Engineer. After the development and execution of a transition plan, Kim passed the leadership of the team to Harris Electrical Engineer, Larry Lewis, when she moved out of the region in 2009. For the 2012-2013 school year, the team has 44 students (grades 9 to 12, all abilities accepted), 14 of which are new, 28 mentors including 2 new from Harris, 7 alumni, 3 teachers, and many supportive parents.

Sponsors - Harris RF is our main sponsor and provides approximately 66% of our funding. Harris provides mentors for our team who also volunteer in the Penfield High School Engineering Design & Development classes, as well as other Project Lead the Way and science classes. The team runs an annual patron drive to obtain sustainable funding from community sponsors. For this year, our sponsors at our Eagle Level ($500 and above) include:

S & W Technologies	Easton, Thompson, Kasperak and Shiffrin LLP	Veramark Technologies
Debbie Supply	Harris and Company	Chamtek Manufacturing
Callan Harris Physical Therapy	PHS Student Council	

A full list of sponsors is available on our team website (http://www.penfieldrobotics.com/sponsors) including our annual Patron Book, which is produced each year and distributed to the sponsors and the community. The team also organizes various fundraising opportunities throughout the year.

School Support - Penfield High School provides 3 teachers, 3 administrators, custodial overtime support, storage for our robots and field parts, 2 build areas, labs, computer resources, network resources, trophy case, FIRST promo board, sponsorship, and transportation to local events. Faculty and staff members show support by wearing our team gear on school spirit days. FIRST Team 1511 gets recognition and strong support from the school board.

What We Do - We introduce students to the engineering and technology field through a year-round program where engineering and business mentors work with students to accomplish our team goals. The program is centered on the design and fabrication of a robot meeting specific FRC game requirements.

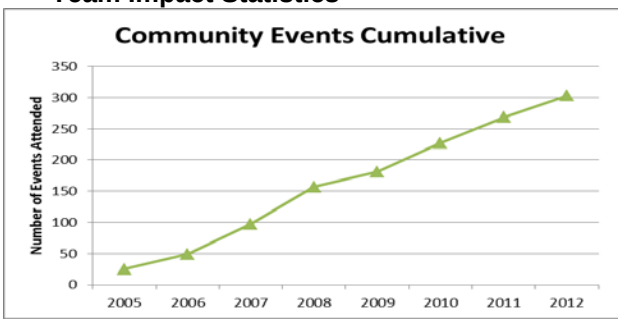
Our Team Goals Are:

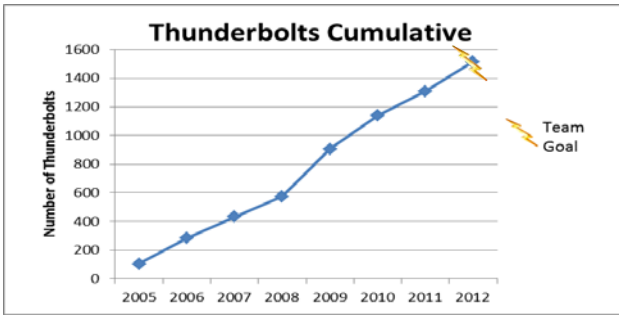
- Develop student leadership
- FLL focus & development
- Community involvement
- Design process focus
- Organization & communication
- Education (school curriculum & safety training)
- Individual growth, team growth & team building
- Fundraising
- Have fun!

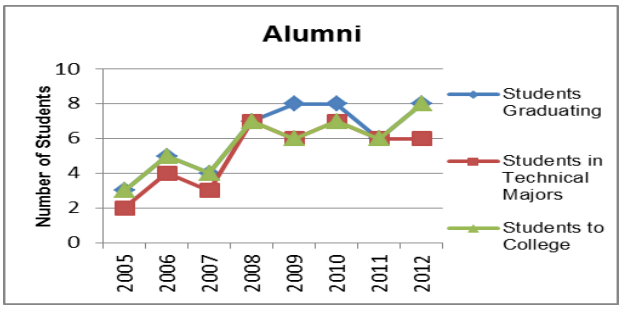
- **Introduce Young Students to Technology** - We do this through hands-on robot demonstrations at schools, fairs, parades, and science centers, and in the mentoring and sponsorship of FLL and Jr. FLL teams.
- **Run Events** - We organize these events to encourage support of FIRST Robotics, enhance the experience of other FIRST teams, and introduce FIRST to a variety of audiences.
  - **Rochester Rally**- An annual FRC pre-ship scrimmage (2005-2013).
  - **Rochester Rumble**- An FLL off-season competition (2006-2007, 2009-2012).
  - **Rah Cha Cha Ruckus**- An annual FRC off-season competition organized by FIRST community members, led by 1511 (2005-2012).
  - **Razzle Dazzle** – Pre-Ship FLL event (2006-2007, 2012)
  - **Rochester Rampage**- A summer off-season event that's 5-days long with multi-robot demonstrations at the Monroe County Fair (2009-2012).
  - **All Rookie Meet and Greet**- An annual event, at Championships, that started our Rookie year to welcome All-Star rookie teams to Championships (2005-2012).
  - **Rookie Quick Build Session**- We organize and run the event to assist regional rookie teams with getting a kit drive train built and computer interface up and running on kickoff day (2011, 2012).
- **Support FIRST Program** - We help FRC, FTC, FLL and Jr. FLL teams through mentoring, volunteering, beta testing and refereeing at events. In addition, we promote FIRST outreach to the Rochester community through our website, social media and public relations programs as well as participation in community events such as Eyes on the Future Economic Summit, the Monroe County Fair, NY State Fair and TEDx Rochester.
  - **FLL Regional competitions-** We provide referees, volunteers, judges and mentors for local Regional FLL competitions (2006-2012).
- **Celebrate Success** - We have won 33 FIRST Robotics awards in our history! Significant ones include: **Chairman's Award** (Finger Lakes 2007, Chesapeake 2009, Boston 2010, Washington D.C. 2011), **Dean's List Finalist** (2010, 2011, 2012), **Woodie Flowers Finalist** (2012), **FLR Volunteer of the Year** (2012), **Engineering Inspiration** (Finger Lakes - 2006, 2008, 2010, Connecticut 2012), **Championship Judges Award** (2009), **Championship Rookie All Star**

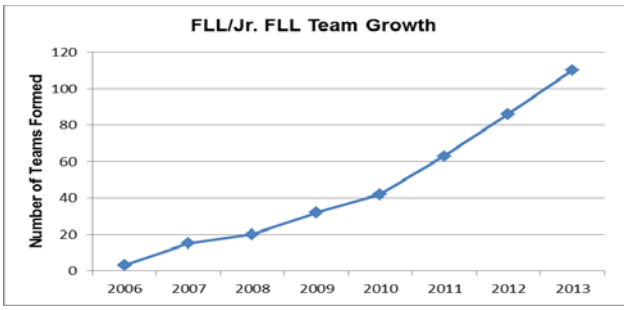
(2005), **Regional Champions** (Toronto 2005). **Other recognition**: Monroe County Legislature, Penfield Town Board, NYS Senate, Monroe County Youth Bureau, National Make a Difference Day $10k Award (2013)

Team Impact Statistics -









2012-2013 Plans and Goals

Team Focus, Individual Growth, Team Growth and Team Building -

- Leadership: Start selection process for student leaders, provide leadership training, review lessons learned
- Celebrate: Fourteen graduating seniors at the end of the year team picnic for the team and families
- Alumni: Host alumni reunion in summer of 2013, continue to develop Alumni Network
- Recruitment: Begin recruitment of incoming freshmen at spring activity fairs, continue through fall
- Training: Academy-style technical training, boosting skills for the next competition season
- Team Building: Various fun activities, and participation in local fairs, festivals, parades and events
- Team Administration: Continue to define roles and tasks for student and adult team leadership

Sponsorship and Fundraising -

- Thank Harris for sponsorship at Harris year-end celebration and other events
- Produce 2012-2013 Patron Book
- Plan 2013-2014 Patron Drive
- Student fundraisers throughout the year and at Greentopia (FIRST Green E-Watt LED Light bulb Sales)
- Sponsorship transition - transitioning sponsors from exiting seniors to underclassmen

Community Outreach -

- Student planned community service throughout the year including Penfield Town Clean-Up Day, Red Cross Blood Drives, sorting and packing food and supplies at Foodlink (food bank), Make a Difference Day, Cystic Fibrosis Foundation, Leukemia and Lymphoma Society, Toys For Tots and many more
- Student-planned demonstrations at schools, clubs, boy and girl scout troops, NYS Fair, Monroe County Fair, County and Town Legislature, Eyes on the Future Economic Summit, Penfield 4th of July parade, ImagineRIT at RIT and other community events,
- FLL Outreach: coach seminars, help sessions, and at least 4 FLL summer camp programs
- Promote FIRST at business events and to potential sponsors throughout Rochester as opportunities arise

FIRST Support –

- Continue to promote the development of FRC team at Monroe #1BOCES for 2013-2014 season
- Apply for 2013 Beta Test Program
- Start and mentor new FLL/JrFLL teams
- Thundermart – Share team resources, parts and equipment
- Open Source Team – Continue to share our team designs and structure on our website through webcasts, wiki, and reference documents

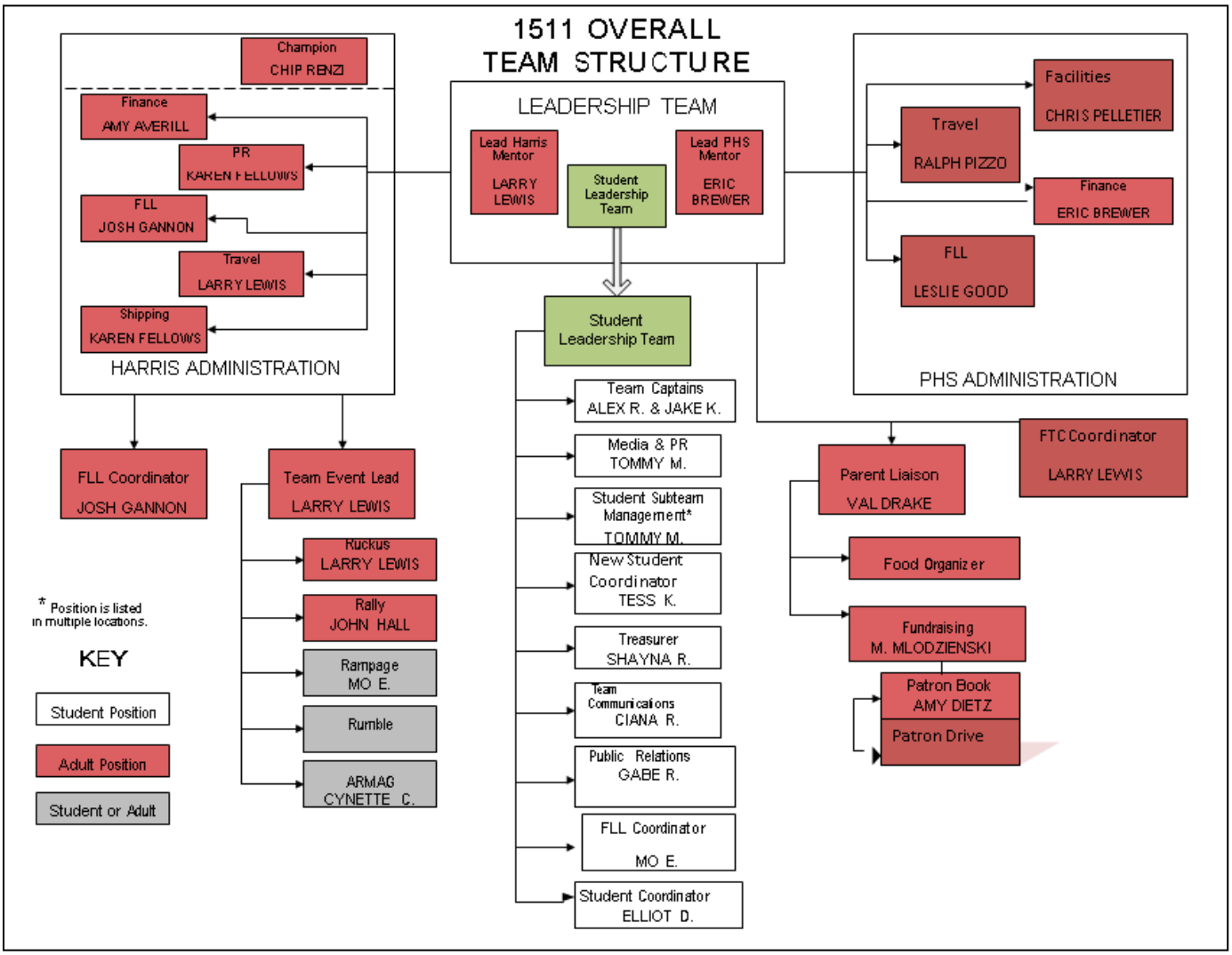
Rolling Thunder FIRST Team 1511 – Business Plan Details

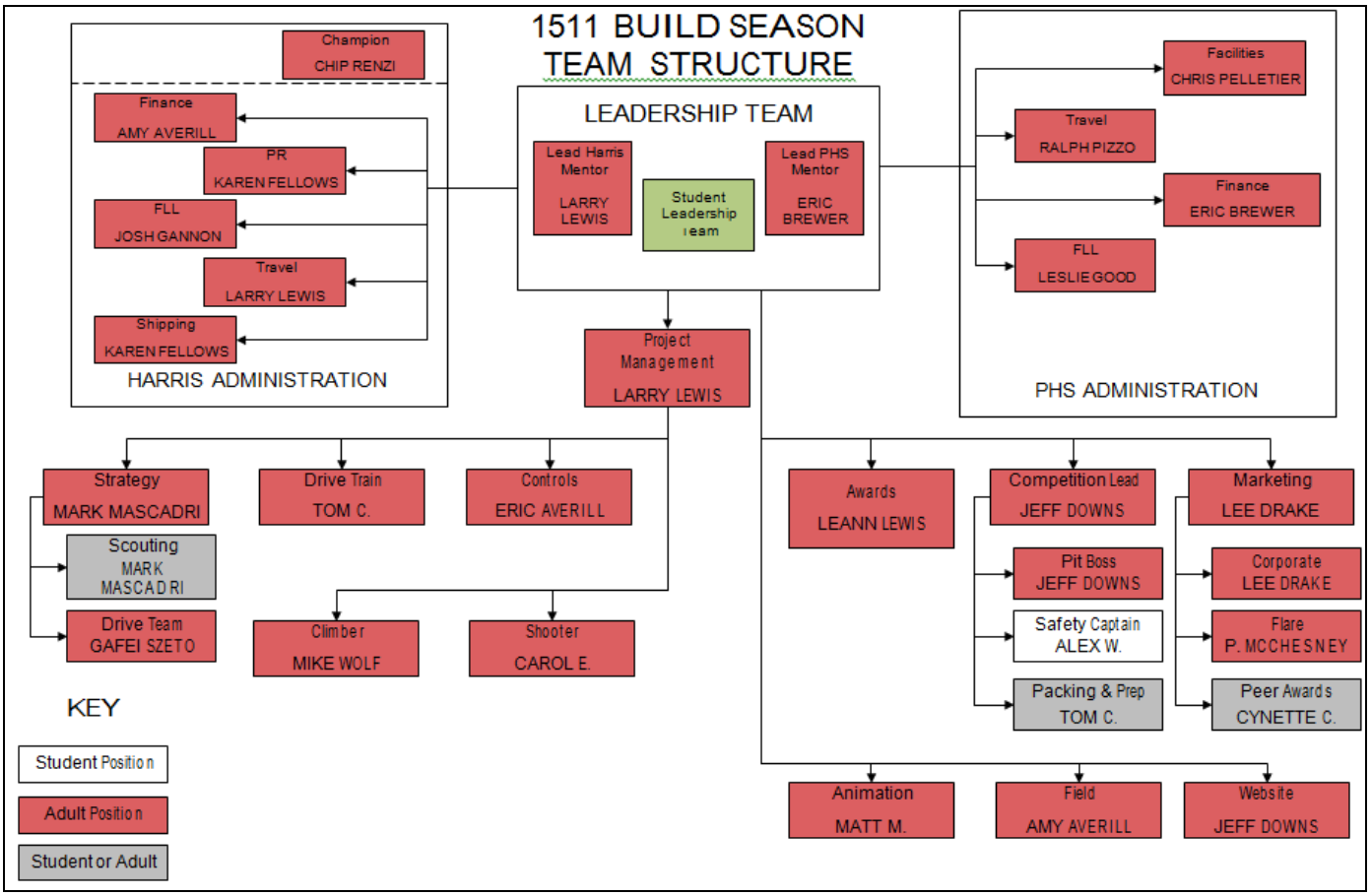
Mission Statement

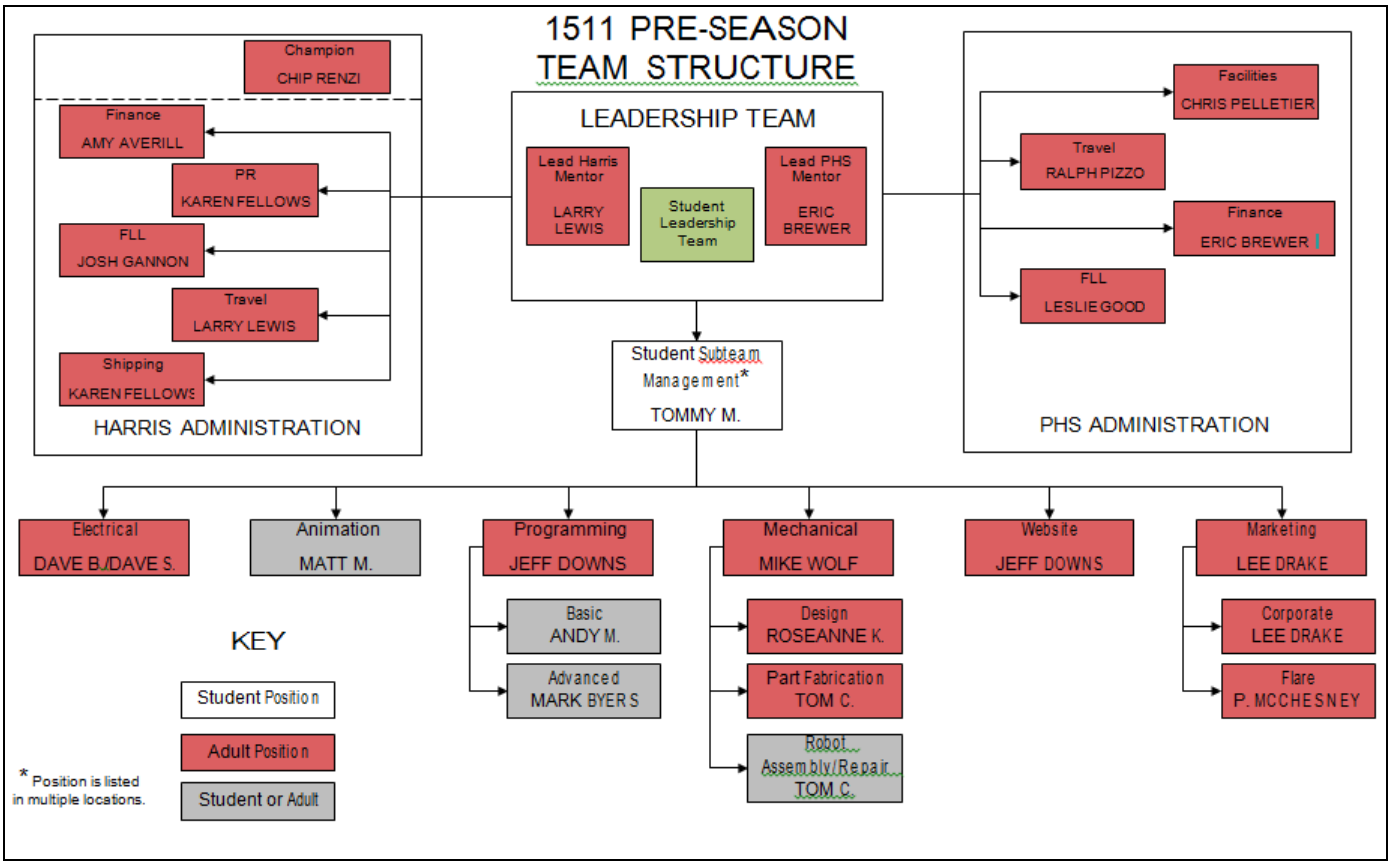
Inspiring students to become leaders through engineering and with the fun of FIRST Robotics.

About the Team

FIRST Team 1511 was formed in 2004 as a partnership between Penfield High School and Harris RF. Located in Penfield, NY, the team was founded by FIRST Alumni Kim Eckhardt, a former Harris Systems Engineer. After the development and execution of a transition plan, Kim passed the leadership of the team to Harris Test Engineer Larry Lewis when she moved out of the region in 2009. For the 2012-2013 school year, the team has 44 students (grades 9 to 12, all abilities accepted), 14 of which are new, 28 mentors including 2 new from Harris, 7 alumni, 3 teachers, and many supportive parents. Team 1511 has an organized team structure for specialized work. It changes throughout the year based a pre-season or a build season purpose.




1511 BUILD SEASON
TEAM STRUCTURE
Champion
CHIP RENZI
Finance
AMY AVERILL
PR
KAREN FELLOWS
FLL
JOSH GANNON
Travel
LARRY LEWIS
Shipping
KAREN FELLOWS
HARRIS ADMINISTRATION
LEADERSHIP TEAM
Lead Harris Mentor
LARRY LEWIS
Student Leadership Team
Lead PHS Mentor
ERIC BREWER
Project Management
LARRY LEWIS
Facilities
CHRIS PELLETIER
Travel
RALPH PIZZO
Finance
ERIC BREWER
FLL
LESLIE GOOD
PHS ADMINISTRATION
Strategy
MARK MASCADRI
Scouting
MARK MASCADRI
Drive Team
GAFEI SZETO
Drive Train
TOM C.
Controls
ERIC AVERILL
Climber
MIKE WOLF
Shooter
CAROL E.
Awards
LEANN LEWIS
Competition Lead
JEFF DOWNS
Pit Boss
JEFF DOWNS
Safety Captain
ALEX W.
Packing & Prep
TOM C.
Marketing
LEE DRAKE
Corporate
LEE DRAKE
Flare
P. MCCHESNEY
Peer Awards
CYNETTE C.
Animation
MATT M.
Field
AMY AVERILL
Website
JEFF DOWNS
KEY
Student Position
Adult Position
Student or Adult


1511 PRE-SEASON TEAM STRUCTURE
Champion
CHIP RENZI
Finance
AMY AVERILL
PR
KAREN FELLOWS
FLL
JOSH GANNON
Travel
LARRY LEWIS
Shipping
KAREN FELLOWS
HARRIS ADMINISTRATION
LEADERSHIP TEAM
Lead Harris Mentor
LARRY LEWIS
Student Leadership Team
Lead PHS Mentor
ERIC BREWER
Student Subteam Management*
TOMMY M.
Facilities
CHRIS PELLETIER
Travel
RALPH PIZZO
Finance
ERIC BREWER
FLL
LESLIE GOOD
PHS ADMINISTRATION
Electrical
DAVE B./DAVE S.
Animation
MATT M.
Programming
JEFF DOWNS
Basic
ANDY M.
Advanced
MARK BYERS
Mechanical
MIKE WOLF
Design
ROSEANNE K.
Part Fabrication
TOM C.
Robot Assembly/Repair
TOM C.
Website
JEFF DOWNS
Marketing
LEE DRAKE
Corporate
LEE DRAKE
Flare
P. MCCHESNEY
KEY
Student Position
Adult Position
Student or Adult
* Position is listed in multiple locations.

Sub-team Responsibilities

Sub-teams	Pre-Season	Build-Season
Mechanical	Repair old robots and keep in working condition for demonstrations and drive training. Tools and machine shop training including CAD!!	Break into robot function sub teams (i.e. mechanisms, drivetrain). Students design parts in CAD to be fabricated by sponsors (Harris, Chamtek) or in the machine shop by 1511 members. Build the main robot structure to FRC game competition specifications.
Marketing	Learn to improve professional writing techniques and to write press releases. Create and send newsletters to sponsors. Ongoing social media	Design buttons, create team shirt designs, order team gear, create sponsor newsletters and perform tasks such as writing press releases for upcoming events like Rally and FLR. And invitation letters to high standing people in our community.
Strategy	Researches other teams and recreates past FRC games to test our players' abilities. They also act out puzzles and challenges to build team unity and to recruit a drive team for competition season.	Searches other teams and their websites for information about any significant differences that they have. They train the drivers to perform at the best they can be.
Electrical	Learn how to use tools and how to create circuit links. They also clean the shop of unnecessary material/equipment. They learn about I/O mapping, how to interface with software and hardware, types of sensors and encoders, how to interface with controls, as well as basic skills like crimping, soldering, etc.	Electrical main creates the main robot wiring including I/O mapping, making sensors, wiring, and choosing sensors, wire the robot, all electrical responsibilities for robot building. Electrical controls creates the control box Designs and builds the control box that holds all the controls for the robot. They create the human interface, while also adding decorations to coordinate with our robot and team image.
Programming	Practice writing different programming software, where they learn or review the basic code languages of the computer system (C++/JavaScript).	Program the robot controls and autonomous modes. Does the quality assurance checks on the working systems. They are the reason the robot runs.
Leadership	Manage pre-season meetings. Each person on Leadership has a separate role, including Communications, FLL Coordination, treasury and managing other sub-teams and host a Leadership Boot Camp open to all students on 1511 and other local teams.	Assists in keeping students motivated and keeps everyone organized. They plan events, manage the robot build and award submissions, coordinate student schedules and run integration meetings, manage expenditures and robot budget,

2012-2013 Leadership sub-team

Larry is our adult Team Leader. He has been a part of the team since its inception 9 years ago and became Team Leader in 2009. He is involved in the strategy and drivetrain sub-teams. Larry is a main proponent of our main sponsor Harris' increasing involvement in Team 1511. He graduated from the Rochester Institute of Technology with a degree in Electrical Engineering Technology. Larry is a Lead Test Engineer at Harris RF.

Leann is our adult co-leader and has been affiliated with the team since its inception, becoming a mentor in 2008. She does a little bit of everything, from helping students with award submissions to helping manage the leadership team. She has a Bachelors Degree in Biology from Penn State and a Masters of Science in Genetic Counseling from Boston University.

Jake is a senior and Co-Captain of the team. This is his third year on the leadership team. He has been an integral part of the mechanical sub-team. Outside of robotics Jake plays the violin in the Penfield Symphony Orchestra and plays soccer. He regularly entertains other teams with his juggling.

Alex is a senior and Co-Captain of the team. This is his third year on the leadership sub-team. He has been a part of the electrical, mechanical and marketing sub-teams. Alex was the secondary robot driver in last year's competition. He is the team's juggler extraordinaire; juggling everything from 7 balls at once to dull (safety first!) knives to rubber chickens. Alex is a Boy Scout and Senior Patrol Leader in his troop. He is currently working on his Eagle Scout project.

Tommy is historian/media and sub team coordinator and has been on the team since his freshman year and this is his first year on leadership. He is currently a senior. Tommy is on the marketing sub-team. He enjoys juggling, dancing, and running.

Mo is our FLL coordinator is one of our team members who participated in FLL while in elementary and middle school. He loves being involved in robotics and has taken the responsibility of FLL Coordinator this year. Mo has worked hard to bring back 1511's old mentoring traditions. He has been on the team for three years. He joined the leadership team in 2011 to help make team 1511 grow. He was a Chairman's presenter in 2011 and reprised his role as one last year.

Ciana team communications and meeting and activities coordinator joined the team in her freshman year as one of the most involved members of the team. She joined the leadership team in 2011 so that she can help the team in more ways. Ciana has been on the electrical, mechanical and marketing sub-teams. She plays the cello in the Penfield Orchestra and volunteers at the Penfield Ambulance Base in her spare time.

Shayna is a junior and this is her third year on the team and second year as a student leader. She is involved in the electrical and field sub-teams and has taken on the role as Treasurer. She joined the leadership team to promote and continue all the fun and skills she has learned while being a part of the team. Outside of robotics, she competes in synchronized ice skating and water skiing.

Gabe heads PR is a junior and this is his third year on the team. This is his first year on leadership. He is on the mechanical sub-team and was on drive team as the auxiliary driver last year.

Elliot is student coordinator and joined the team last year as a freshman and this is his first year on leadership. He is on the mechanical sub-team. He is also on the swim team.

Tess is the new student representative is a freshman on the team and it is her first year on leadership. She is on the marketing sub-team. She is also on the lacrosse team.

Sponsors

Harris RF is our team's main sponsor, providing approximately 66% of all of our funds. They provide mentors for our team who assist robotics students and non-robotics students in Project Lead the Way classes at Penfield High School such as Engineering Design & Development, Digital Electronics, Principles of Engineering, and Computer Integrated Manufacturing.

The team runs a sponsor drive to obtain sustainable funding from individuals and community businesses and organizations. 2013 sponsors who donated over $200 through our annual patron drive are:

Drelick's Welding Service	STEM Robotics	Town and Country Travel
Windsor Technology	Canandaigua National Bank and Trust	OS-Cubed, Inc.
PHS Student Council	IC2S	The Stoeckl Family
Veramark Technologies	Easton Thompson Kasperek Shiffrin LLP	Hess Route 250 & 441 Penfield
Rhen Design Architecture LLC	Debbie Supply	Monroe County Fair
Valtech	The Dowd Family	S&W Technologies

Many companies have donated over $500 in previous years. Our ability to replace sponsors as they cease to donate for whatever reason is a key part of our sustainability effort:

AssurX	ECC Technologies	IC2S
PTC	Shuler-Hass Electric Corp	Comella Orthodontics, PLLC
Simcona Electronics	OCM Technical	Bausch & Lomb
Fourte Design	Thermo Fisher Scientific	OCM Technical Services, Inc.
Gitano's Frozen Yogurt & Custard	GRIPA	Lenel, a UTC Fire & Security Co
Robert C. Zingo		

School Support

Penfield High School provides 3 teachers, 3 administrators, custodial overtime support, storage for all 1511 robots, field parts, 2 build areas, labs, computer resources, network resources, trophy case, FIRST promo board, sponsorship, and transportation to local events. Faculty members show support by wearing our team gear on school spirit days. FIRST Team 1511 receives recognition and strong support from the school board.

Team 1511 has a dedicated workshop for the creation of the robots at school. The school district incorporated our recommendations to triple our work space, increase our storage space, and to give us tools when it was renovating the technology wing. We present to the Board of Education at the end of the year about our team's successes over the past year, including our outreach in the school and community, and we demonstrate our robot. The Board recognized us last year in the Penfield Prestige for being a well-run student organization.

The PHS IT staff provided us with software and equipment during game nights at the school. We showcased our robots at the school talent show. The school provides us with unprecedented building usage, allowing us to work overnight on the robot, store the field in the cafeteria and gym, and use the facilities to host many of our events. We bring our robots to elementary schools such as Indian Landing, Cobbles, Harris Whalen, city

schools for demonstrations. Through this we encourage the next generation of youth consider a fun future in the Sciences.

In 2012-2013, teacher advisors are:

- Mr. Ralph Pizzo, Technology Teacher
- Mr. Eric Brewer, Technology Department Chair
- Mr. Chris Pelletier, Art Teacher

School administrators:

- Dr. Thomas Putnam, PHS Principal
- Mr. Frank Bai-Rossi, PHS Assistant Principal
- Dr. Steven Grimm, Penfield Central School District Superintendent

From left: Dr. Thomas Putnam, Mr. Roods, Mr. Henick, Ms. MacLean, and Mrs. Brown

What We Do

Team 1511 trains high school to design and fabricate a robot meeting specific FIRST game requirements. This is a year-round program where engineers and business mentors work with students to accomplish the team's goals.

We hold weekly meetings during each stage to prepare for the robot challenge:

- Pre-season, September to December
- Build season, January to February
- Competition season, March through April
- Post-season, May through August

Pre-season runs from September to December, an ideal time to recruit new students. We advertise by announcing our team on the morning announcements at school, participating in the club and activity fair, recruiting during freshman orientation, putting up posters in strategic locations around our school, show videos of our competitions, post information in our school bulletin board located in the science/technology wing, host parent info sessions and send letters to the parents. We fundraise in a variety of ways including car washes, pizza and candy sales, and the sale of our team bracelets. For returning students, we start our patron drive by visiting local companies who have sponsored us in past years. During pre-season, each sub-team meets weekly to train students on programming, marketing, electrical, mechanical, leadership, and strategy.. Team-wide competitions and exercises are held. Many of our off-season events are run during pre-season, including Make a difference day, ruckus, Razzle Dazzle and other FLL events.

Build season lasts only 6 weeks, in January and February. On Kick-off day, sub-team schedules are planned. Our sub-teams are busy building the robot. Travel arrangements are made and the team is busy working hard. Award submissions are prepared, and our marketing and flare team goes to work on logos, buttons and other promotional items. During build season parents make dinner for the mentors and students at least 5 days a week.

During competition season from February through May the team participates in FIRST competition events, attending 2 regional events (the Finger Lakes Regional and an "away" regional), as well as holding the Rochester Rumble FLL event. We also participate in Penfield Town Cleanup day.

During the post-season, which runs from May through August, we discuss lessons learned and create plans to improve upon them. We also celebrate our alumni, sponsors and our team with fun activities like picnics and an awards ceremony. We plan the tasks we want to do. There is also a research portion for the student leadership team to look at previous games and to come up with new games to engage the students mentally and physically before pre-season. Student leadership plans the pre-season curriculum. We also plan Rochester Rampage at the Monroe County Fair, New York State Fair, and various other demonstrations and community service during the summer. Planning also commences for Rah Cha Cha Ruckus. We host FLL summer camps at various locations in Rochester to make the camps accessible to a variety of young students. We work hard to recruit new mentors.

Throughout the year, with the guidance of school officials and mentors, the student leadership team plans and organizes the overall effort, which includes demos, presentations, events, educational opportunities, community service, and fun activities.

At all times, we assist in the FLL and FRC engineering and non-engineering sustainability process throughout the year, including assisting with referee, coach, educational, beta and outside mentor opportunities.

Team Goals:

Develop student leadership

FLL focus & development

Community involvement

Design process focus

Organization & communication

Education (school curriculum & safety training)

Individual growth, team growth & team building

Fundraising

Have fun

Achieving Goals

1. Develop Student Leadership

All students are encouraged to apply for a leadership role during their time at high school and we provide many opportunities: elected to the Leadership sub-team, leading a sub-team, giving a presentation to sponsors or the Board of Education, being on drive team, giving the Chairman's presentation, or organizing an event, community service, robot demonstration, or fundraiser. The team's leadership group is comprised of students selected by lead mentors and elected by the team. Students interested in being on the Leadership sub-team must go through an extensive process, which mimics real world processes:

1. Submit a written application assessing the student's leadership ability, willingness to learn to lead, and passion for FIRST.
2. Lead Mentors review the applications and select students to move on to interviews
3. Lead Mentors interview potential candidates about their leadership abilities, their willingness to learn, and their passion for FIRST and the team. Mentors select students to move on to being an official nominee for Leadership.
4. Nominees give a speech to the entire team about why they should be voted into Leadership.
5. Team members vote for the candidates of their choice

A maximum of nine student leaders are elected of which at least one is elected from each grade.

The Leadership team selects the Team Captain(s) from the seniors on their sub-team. Within the leadership group, additional roles and responsibilities are assigned based on interest in specific roles. The main roles of leadership are: Intra-team Communications, FLL/Jr. FLL Coordinator, Public Relations, Media Specialist/Historian, Treasurer, Student Coordinator and Sub-team Coordinator.

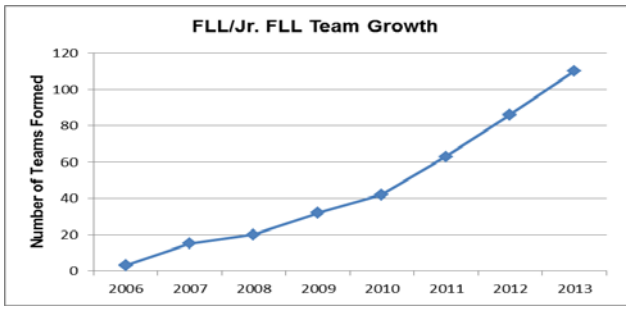
Student leaders attend a Leadership Boot Camp, a full day of training. This program helps both students and mentors improve their leadership skills and uses references from Harris' Leadership trainings as well as several popular leadership books such as Strengths-Based Leadership and 7 Habits of Highly Effective

People. There are many topics of discussion that include self-improvement, awareness of strengths, leadership styles, how to give a speech and presentation and their components, and motivation. There are also activities that allow the participants to apply the newly learned skills, including communication, compromising and negotiating, introspection, teamwork, and delegation. This has been valuable training for our student leaders. We open this training to all students on the team and other local teams.

Sub-team leadership opportunities: To manage the various sections of building a robot, our team divides into sub-teams by subject, as listed previously. To keep those sub-teams organized, a student is appointed leader of that sub-team with the responsibilities of keeping that sub-team's Wiki page up to date, taking attendance, keeping meeting notes, attending Integration Meetings during Build Season, and writing task notes among other responsibilities.

2. FLL Focus & Development in Rochester

We have a goal to introduce young students to technology. We do this through hands-on demonstrations and in the mentoring and sponsorship of FLL and Jr. FLL teams. Since our team was formed we have started 113 FLL teams. In 2012-2013 we started 24 teams. In all, Team 1511 has mentored 35 teams. We host multiple FLL coach training sessions each year. We have also financed and sent winning the University of Rochester FLL Champions to World Festival from 2010 to 2012 (our local championship event was not eligible to send their winners to World Festival for 2013). We host pre-season and post-season events, Razzle Dazzle and Rumble, respectively, and FLL Summer camps. We also added a FLL camp for the Big Brothers and Big Sisters team and invited them to work in our shop with us. We also incorporated LEGO NXT programming into our district's curriculum at the middle and elementary school level! We Demo for younger kids at their schools, scout troops and anywhere we can! Team members organize and participate in the multitude of demos, building our community ties and introducing technology to the future generation.



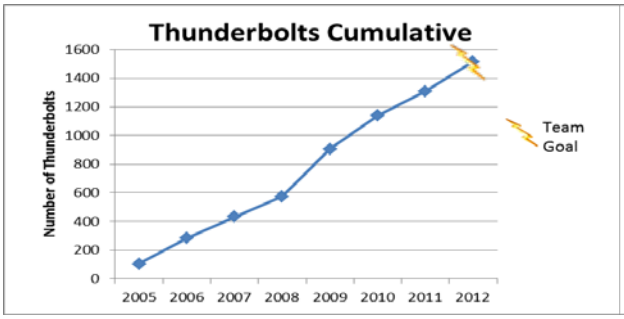
3. Community Involvement and Outreach

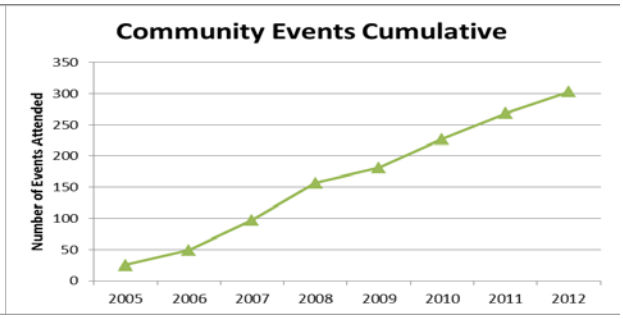
Students plan and organize community service throughout the year including Penfield Town Clean-up Day, Red Cross Blood Drives, sorting and packing food and supplies at Foodlink, Make A Difference Day, Great Strides Cystic Fibrosis Foundation Walk, Light the Night Walk for the Leukemia and Lymphoma Society, Toys For Tots and many more.

"Thunderbolts" are what we call the units of measurement for tracking the many ways we promote FIRST.. We had a goal of reaching 1511 cumulative Thunderbolts by our 10th year and we reached this goal in our 8th year! We continue to track our Thunderbolts so that we can graphically represent our impact in spreading FIRST.

Our community and business outreach includes students planned: robotics demonstrations at schools, clubs, Boy and Girl Scout troops, NYS Fair, Monroe County Fair, County and Town Legislature, the Penfield 4th of

July parade and other community events and many more. In 2013 the team participated in Greentopia, Eyes on the Future Event Economic Summit, TEDx Rochester, the Monroe County Fair, NYS Fair and others.





4. Design Process Focus

Our team uses the Engineering Design Process as it relates to the FIRST Build Season. Training is done during the pre-season in the fall, to prepare the students for the upcoming build season. Spaghetti bridges, bottle rockets, trebuchets, VEX and FLL challenges, and a water game challenge are some of the exercises that are done during our preseason academy.

In the pre-season, we meet weekly as a team incorporating team building exercises and technical training. In addition, multiple sub-teams train in the subcategories required to build the robot such as Mechanical, Electrical, Programming, and Strategy and other administrative categories such as Marketing and Leadership. To incorporate the new members, we start the pre-season with team building activities and then move on to more technical knowledge-based activities to prepare for the upcoming Build Season.

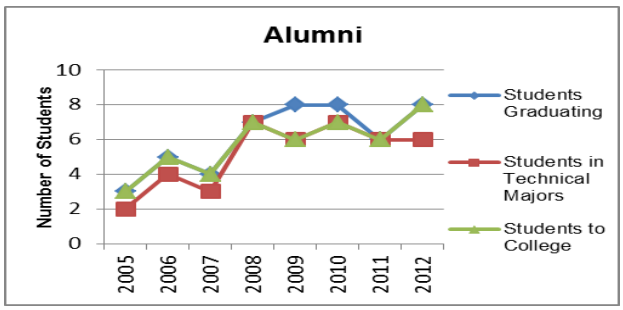
5. Organization & Communication

Our team communications keep us organized so that we can run our many events. The team is updated via weekly emails, forums, Wiki, Facebook and Twitter. 1511 also has an online engineering notebook to publicly share our progress in Build Season and help the sub-teams integrate their work with each other to create a cohesive robot.

The Marketing sub-team trains students how to write press releases for our robotics events. They have also created and performed sponsorship presentations and presented on Public Relations at Championships.

6. Education (School Curriculum & Safety Training)

We incorporate FIRST into Project Lead the Way classes where our mentors work with students on engineering design projects such as robot drivetrains. A 1511 student's independent project was a shop equipment safety program used by PHS technology classes. School comes FIRST. During build season, we encourage students to log homework hours. Students are required to pass tests on the FRC game manual, a tools test and a safety test. Students also have to do safety machine shop training with the teachers and fill out a safety form in order to participate in the machine shop.



7. Individual growth, Team Growth, and Team Building

Now that we are an established team, we ensure that we gain new students each year to replace the graduating students. Our solution is that we recruit like crazy! We meet incoming freshmen at the Club and Activity Fair and at Freshman Orientation. We make video announcements and hang posters, especially highlighting the scholarships that FIRST offers. We talk it up with our friends and classmates! We invite students to attend our off-season event, Rah Cha Cha Ruckus where they can see the game played and learn to drive the robot. To ensure that new and returning students understand and experience all aspects of the robot design and build process, pre-season activities include design exercises (i.e. spaghetti bridges), simulated build season, and several weeks of rotating sub-team training sessions. We do many activities to make our team stronger; since many of them are fun they are listed under the “Have Fun” goal

Girls in Technology! Our team wants girls to be confident in working with technology. We’ve organized demos for Girl Scout Troops and host our Girls Only nights!

8. Fundraising

Students on the team have participated in earning sponsorship support of local businesses. 1511 raises money for the team and at the same time advertises those businesses that have sponsored us. We have raised $5,500 from the patron drive this year. We currently have 67 sponsors. Harris RF Communications has been our main sponsor for 9 years.

Each year we have multiple fundraisers. This year we sold FIRST light bulbs and profited $1,425 on 1st generation light bulbs. So far we have raised $632 in the 2nd generation light bulb sales.

What helps team 1511 keep running is sponsorship and fundraising. This allows the team to pursue its goals and promote FIRST each year.

Harris RF in Rochester, NY is Team 1511’s main sponsor. The team plans several events at year end to acknowledge the contributions made by Harris.

Each year, Team 1511 produces an annual Patron Book that recognizes the financial contributions made by all key contributors. Students and mentors continue to set up fundraisers throughout the year and a sponsorship transition where we transition sponsors from exiting seniors to underclassmen.

The Patron Drive is our team's biggest fundraiser, bringing in $20,000 in the past 3 years. The students have a set of directions and hints, as well as a patron letter, a sponsorship form, and a Team 1511 pamphlet that they leave with each patron, available online at http://penfieldrobotics.com/team/fundraising.php

- Patron Book Fundraiser
- Patron Drive Presentation
- Patron Letter
- Patron Drive Hints
- Sample speech to give to businesses
- Patron Solicitation Form
- Patron Drive Receipt

Below is a list of other fundraising ideas that have worked successfully over the years and have generated good revenue. The team continues to find new ideas every year.

- Car wash - typically performed three times a year in the spring summer and fall
- Donation Jars at Demonstrations & around town
- BBQ Chicken Sales
- Garage Sales/Tag Sales
- Bottle and Can Drive
- Sell concessions at local Rochester semi-pro games
- Sell Rolling Thunder Paraphernalia (bracelets, license plate frames, magnetic bumper stickers, shirts)
- Pizza/Candy Sales after school
- Uno's Night
- Video Game tournament
- Greentopia (FIRST Green E-Watt LED light bulb sales)

9. Have fun!

We host holiday parties, family style meals and recreational activities, which have included ice skating, a corn maze, Girls Night, movie nights, and video game parties. These social gatherings help knit the team together into a family!

Run Events

We do these events to encourage support, enhance the experience of other FIRST teams, and introduce FIRST to a variety of audiences.

- Rochester Rally- An annual full field FRC pre-ship scrimmage held at Penfield High School, Includes Technology Speakers. (2005-2013).
- Rochester Rumble- A FLL off-season competition with Judges and awards held at Penfield High School (2006-2007, 2009-2012).
- Rah Cha Cha Ruckus- An annual FRC off-season competition organized by FIRST community members, led by 1511 (2005-2012). 2012 had 35 teams, 70 plus volunteers.
- FLL Regional competitions- We provide referees, volunteers, judges and mentors for local Regional FLL competitions (2006-2012).
- Rochester Rampage- A summer off-season event that is 5-days long with multi-robot demonstrations at the Monroe County Fair (2009-2012). This demo has included a full field and robot teams from all over the region participating.
- All Rookie Meet and Greet- An annual event, at Championships, that started our Rookie year to welcome All-Star rookie teams to Championships (2005-2012).
- Rookie Quick Build Session- We organize and run the event to assist regional rookie teams with getting a kit drive train built and computer interface up and running on kickoff day (2011, 2012).

Support of FIRST Programs

We help FRC, FTC, FLL and Jr. FLL teams through mentoring, volunteering, beta testing and refereeing at events. In addition, we promote FIRST outreach to the Rochester community through our website, social media and public relations programs.

At competitions, other teams come to Team 1511's pit for information, parts and mentor and student assistance in getting their robot in working order. Because of this teams have coined our pit, ThunderMart.

Beta testing is a very important process. Certain teams are given hardware that is not yet available until Kickoff so that they can test it for errors and give FIRST feedback. Our team has participated in beta testing for the following years:

- 2009 w/ team 340
- 2010 C++
- 2011 C++
- 2012 C++

We plan on continuing our FLL/Jr. FLL efforts of starting more teams, hosting camps, coach sessions, and events

The rookie quick build is done after game kick-off in January when First let us know what the game of the year will be. We help rookie teams build their chasses to give them a head start in build season. We helped eight teams in the previous two years.

Rookie Team Support: Each year we have a great time working with nearby rookie teams to introduce them to FIRST. And while we worked we became friends. FIRST grows as we grow, what a deal!

Celebrate Success

We have won 33 FIRST Robotics awards in our history!

- 2005 - Triple Play
  Championship Rookie All-Star Award
  Regional Champions - Greater Toronto Regional
  Rookie Inspiration - Greater Toronto Regional
  Team Spirit - Greater Toronto Regional
  Highest Seeded Rookie Team - Buckeye Regional
  Rookie All-Star - Finger Lakes Regional

- 2006 - Aim High
  Engineering Inspiration - Finger Lakes Regional
  Imagery - Boston Regional

- 2007 - Rack N' Roll
  Chairman's Award - Finger Lakes Regional
  Website - Boston Regional
  Team Spirit - Boston Regional

- 2008 - FIRST Overdrive
  Engineering Inspiration - Finger Lakes Regional
  Imagery - Philadelphia Regional
  Industrial Safety Award - Philadelphia Regional

- 2009 - Lunacy
  Championships International Judges' Award for Integrated Performance
  Chairman's Award - Chesapeake Regional
  Website - Chesapeake Regional
  Imagery - Chesapeake Regional
  Entrepreneurship Award - Finger Lakes Regional
  Regional Finalist - Finger Lakes Regional

- 2010 - Breakaway
  Championships Quarter Finalist, Curie Division
  Coopertition - Boston Regional
  Regional Finalist - Boston Regional
  FIRST Dean's List Finalist - Boston Regional - Crystal Vognaphone
  Chairman's Award - Boston Regional
  Engineering Inspiration - Finger Lakes Regional

- 2011 - Logo Motion
  Chairman's Award - Washington DC Regional
  FIRST Dean's List Finalist - Finger Lakes Regional - Jason Kuberka
  Gracious Professionalism - Finger Lakes Regional

- 2012 - Rebound Rumble
  Engineering Inspiration Award - Connecticut Regional
  Woodie Flowers Finalist Award - Finger Lakes Regional - Jeff Downs
  FIRST Dean's List Finalist - Finger Lakes Regional - Justin Byers
  Volunteer of the Year - Finger Lakes Regional - Larry Lewis
  Innovation in Control Award - Finger Lakes Regional

- 2013- Ultimate Ascent

Community Awards

- Monroe County Legislature
- Penfield Town Board
- NYS Senate
- Monroe County Youth Bureau
- National Make a Difference Day $10k Award (2013)

2012-2013 Specific Plans and Goals

Team Focus, Individual Growth, Team Growth and Team Building

- Leadership: Start selection process for student leaders, provide leadership training, review lessons learned
- Celebrate: Fourteen graduating seniors at the end of the year team picnic for the team and families
- Alumni: Host alumni reunion in summer of 2013, continue to develop Alumni Network
- Recruitment: Begin recruitment of incoming freshmen at spring activity fairs, continue through fall
- Training: Academy-style technical training, boosting skills for the next competition season
- Team Building: Various fun activities, and participation in local fairs, festivals, parades and events
- Team Administration: Continue to define roles and tasks for student and adult team leadership

Sponsorship and Fundraising

- Thank Harris for sponsorship at Harris year-end celebration and other events
- Produce 2012-2013 Patron Book
- Plan 2013-2014 Patron Drive
- Student fundraisers throughout the year and at Greentopia (FIRST Green E-Watt LED Light bulb Sales)
- Sponsorship transition - transitioning sponsors from exiting seniors to underclassmen

Community Outreach

- Student planned community service throughout the year including Penfield Town Clean-Up Day, Red Cross Blood Drives, sorting and packing food and supplies at Foodlink (food bank), Make a Difference Day, Cystic Fibrosis Foundation, Leukemia and Lymphoma Society, Toys For Tots and many more
- Student-planned demonstrations at schools, clubs, boy and girl scout troops, NYS Fair, Monroe County Fair, County and Town Legislature, Eyes on the Future Economic Summit, Penfield 4th of July parade, ImagineRIT at RIT and other community events,
- FLL Outreach: coach seminars, help sessions, and at least 4 FLL summer camp programs
- Promote FIRST at business events and to potential sponsors throughout Rochester as opportunities arise

FIRST Support

- Continue to promote the development of FRC team at Monroe #1BOCES for 2013-2014 season
- Apply for 2013 Beta Test Program
- Start and mentor new FLL/JrFLL teams
- Thundermart – Share team resources, parts and equipment
- Open Source Team – Continue to share our team designs and structure on our website through webcasts, wiki, and reference documents

Team Photo

Key Resources

www.penfieldrobotics.com - main website

http://www.media.penfieldrobotics.com -media page

info@penfieldrobotics.com - email contact