Penfield Patron Book

Penfield–Harris

FIRST Robotics Team

2004-2005

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info@usfirst.org

FIRST

For **I**nspiration and **R**ecognition of
Science and **T**echnology

The Competition

What is it?

The FIRST Foundation Vision - *"At FIRST, we see a world where science and technology are celebrated, where kids think science is cool and dream of becoming science and technology heroes."*

The FIRST Competition - is a vehicle for achieving the FIRST Foundation Vision.

The mission of the FIRST Robotics Competition is to inspire curiosity and create interest in science and mathematics among today's youth by immersing them in the world of engineering and showing the important connection between classroom lesions and real-world applications. To date FIRST is best known for its annual robotic competition in which corporations and universities team up with high schools in a high tech sporting event which pits gladiator robots against each other. They are designed in just six weeks by teams of students, corporate engineers and other corporate professionals. The responsibility of the corporations in the competition is not to teach science and technology, but rather to inspire kids to pursue careers in these fields. AND ITS FUN!!!

What are the Goals of the Program?

To expose middle and high school students to engineers and the engineering profession.

Most students this age have major misconceptions about what engineers are like and what engineers do on a daily basis. Our goal is to introduce the students to engineers and show them that what they do is not only vital to our country, but can also be fun.

To create an environment that makes "heroes" out of engineers and scientists.

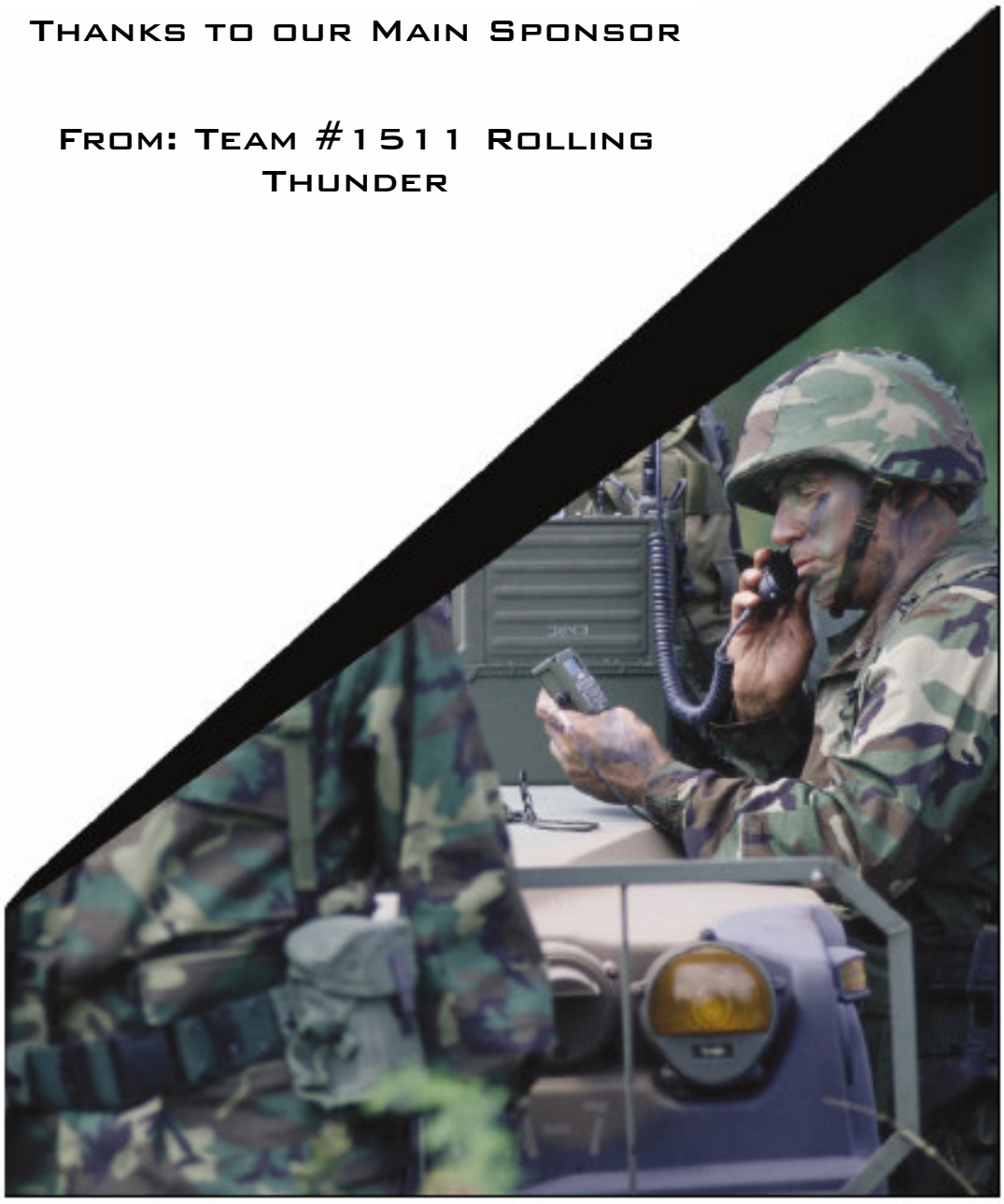
Most students look to professional sports heroes as role models. These people have little to do with our standard of living. The real value add in our society comes from scientist and engineers. The environment this program creates incorporates many of the same appealing aspects of the world of sports, such as: finite winners/losers, referees, practice, and the game itself. The result is excitement for the field of engineering.

To demonstrate a company's engineering capability, resources and commitment.

FIRST provides a forum for a participating company to "give back" to the community, to highlight the creativity and energy of its employees and to showcase its technological prowess in a very visible form.

Thanks to our Main Sponsor

From: Team #1511 Rolling Thunder



Team 1511
Rolling Thunder

Harris Corporation
Penfield High School

Team 1511
Rolling Thunder
Team Members

Students

Jim Bossert
Graeme Buckley
Adam Burns
Tom Cavaliere
Andy Choi
Richard Doell
Mike Harlan
Steven Hartman
Tyler Hawley
Keith Kearns
Mir Khabursky
Sarah Lapham
Lorien Lee
Steve Manzoni
Mark Mascadri
Alex Peach
Ricky Peach
Rajeev Sharma
Mirza Strujo
Steven Wolf
Ricky Wood
Ryan Zenkel
Randy Zingo

Harris Mentors

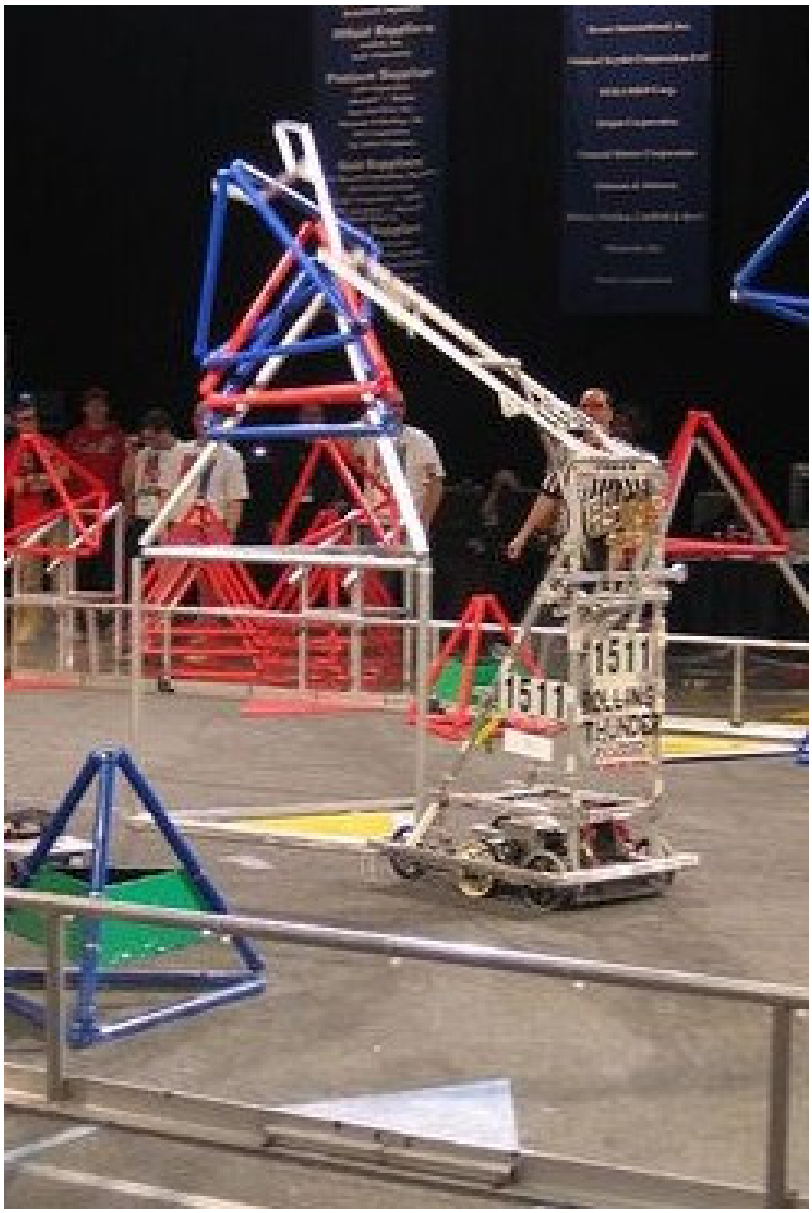
Eric Averill
Dana Colbert
Karen Fellows
Doug Hitchcock
Larry Lewis Jr.
Mike O'Brien
Kimberly O'Toole
Eric Peach
Josh Schmiedlin
David Schoepe
Amy Smith
Johanna Demosthenes
Omer Farooq
Matt Foos
Rosabeth Kriegler
Les Miller

Teacher & Community

Linda Martina
Steve Corona
Bill Parker
Mike Wolf
Mark Manzoni
Jeff Downs
Eric Eckhardt
Pat Via

Team 1511's Robot

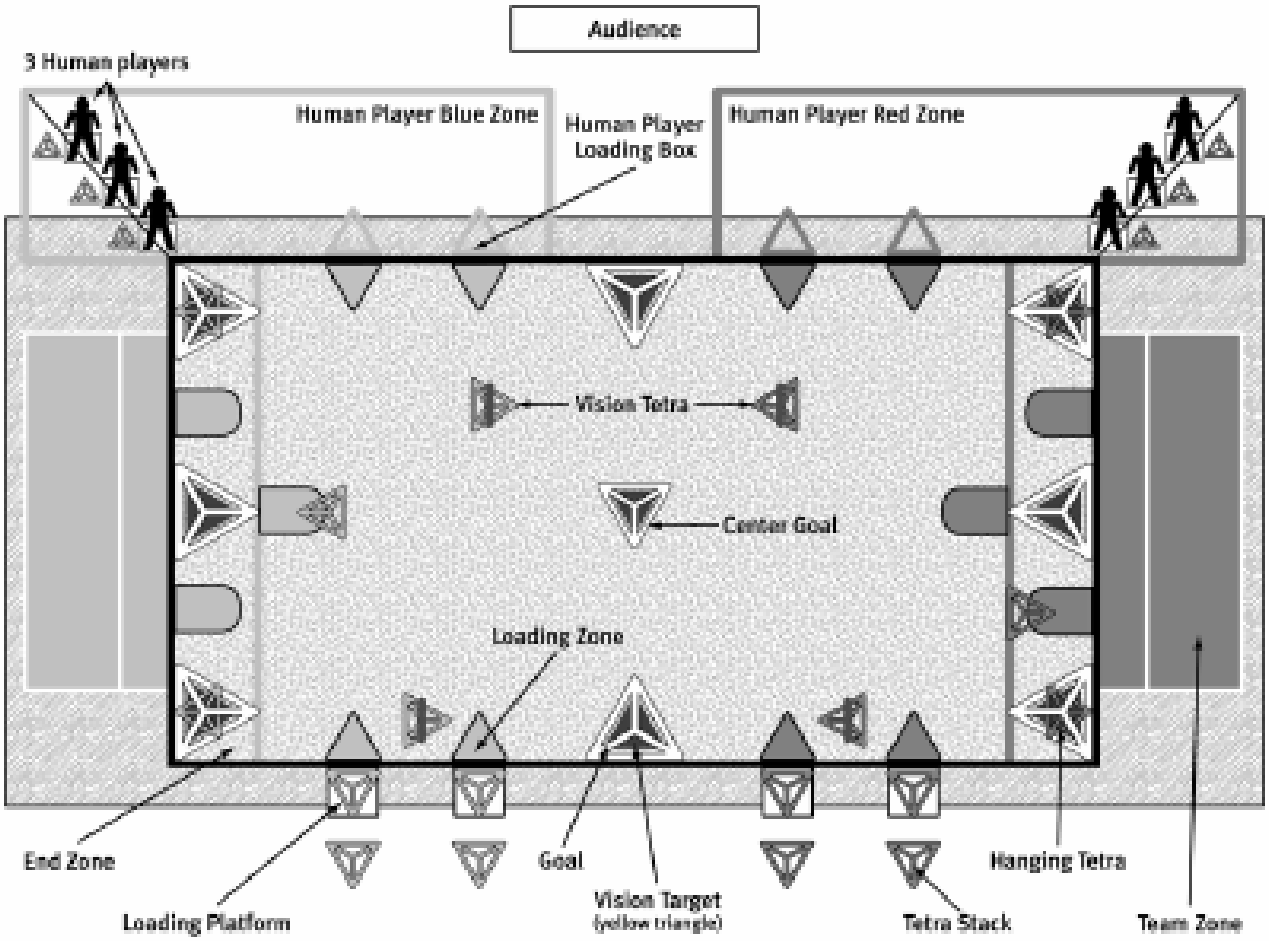
RhinoBot



FIRST ROBOTICS COMPETITION 2005

THE GAME

Description and Scoring



The game for the 2005 season will present teams with several new challenges:

- 3 vs. 3 competition
- New game objects and goals, a Tetrahedron (Tetra)
- Vision camera and associated electronics

Played on a 27' wide by 52' long playing field with the 9 goals configured in 3 x 3 matrix, similar to tic-tac-toe, the robots will attempt to place the red and blue game tetras in or on one or more of the nine goals to score points and "claim ownership" of the goals.

Each 2 minute and 15 second match will feature a three-team alliance at opposite ends of the playing field with their robots in designated starting positions in front of them. The first 15 seconds of each match will be autonomous (no driver control) where the robots can knock down hanging tetras, use their starting tetras or locate "vision" tetras (specially marked tetras that can be seen by the "vision" system) to score points and "claim" goals.

Once the 'autonomous period' is over the robots will be under driver control for the remaining 2 minutes of the match. Drivers from each alliance will be able to acquire additional game pieces from four locations, two will be attended and two that will be unattended, to continue to score points and 'claim' goals. Before the end of the match, all alliance robots will speed back to their end zones to increase their final scores.

SCORING

GOALS– *Goal ownership is declared by:*

- the physically higher tetra color on top of a goal. If no tetras are on top, THEN
- the physically higher tetra color in the base stack. If there are no stacks, THEN
- the alliance with more tetras in base.

A diagonal OR row of 'claimed' goals = 10 points.

TETRAS– In a goal = 1 point
On a goal = 3 points

ROBOTS– All alliance robots back in end zone at conclusion of match = 10 points.

Chairmans Award Submission

Impacts on Team:

FIRST has impacted us in two ways. In this brief time together, we have become a well-oiled machine, working together on one common goal. Without FIRST, we could not have had a clear vision of the finish line. We have been impacted by FIRST in self-awareness of the diversity in our own student team plus the diversity in our adult mentors. From early brainstorming to final design & build, without the guidance of FIRST (and a tight schedule), we would not have reached consensus on our project.

Impact on Community:

Our community is joining in the effort to help raise this next generation of leaders, through sponsorships and other assistance. The FRC kickoff impacted us from that day until now to be incredibly motivated and driven to get the project completed and do everything necessary to succeed in competition. Our mentors are reaping the benefits of our inspiration. They are seeing us so motivated and excited brings our mentors back time and again, no matter how tough the schedule.

Role Models:

We are very proud of the fact that, even as a rookie team, we are hosting a regional rally for all the neighboring teams. Our student leadership group (one from each grade) are present at all meetings and active, and prove as role models to the rest of us. Our teacher and Harris staff are the role model "glue" that keeps us together. Their guidance has inspired us today, and also into our futures in high school and college.

Spreading the word:

Our team's innovative methods to spread the FIRST message included several video announcement in the school, a car wash, and a major patron drive for support from the community. We also hosted a multi-team rally, which was covered by the local TV news, raising lots of awareness for our team, for the regional competition, and for FIRST. Even though there are more-experienced teams in our area, this was truly innovative for a rookie team.

Both the students and the mentors favor online tools. We setup a web site and forum for open dialog. We have email distribution lists for announcements and telephone trees but have not had to use that system much. Each class elected a leader, and the functional teams all have leaders. So, contacting each other is an easy process to follow. Although the web site took a while for us to get used to, now the mentors and students visit the forum 24/7 for brainstorming and passing ideas.

Our strong partnership:

Harris Corp. has offered funding to support our travel, machining needs and, most importantly, the mentors to help out our team. The school is providing facilities, time and organization for the team. The parents are involved and bring us dinners, even the janitors are involved and love us. Just about everyone is curious about our project. Our mentors have come to know us well through the preseason activities, and are now on open lines of communication for anything that the team needs.

The Bottom Line:

One item that we believe the judges would like to hear about us is that our "RollingThunder" team took the lead in Rochester and hosted a Rochester FIRST Rally for all the teams in our area. We felt that it was important to get everyone together in the spirit of FIRST without being in the stressful environment of competition at the regional. Over 200 students, mentors, press, and local politicians showed up; and it was the day before robots shipped.

Rolling Thunder

Penfield High School

Harris Corp., RF Communications Div.

2005 Chairman's Award Essay

Every story has at least two sides. The tale of the RollingThunder team has four sides. When we started this year's First Robotics Competition as a rookie team, the tasks seemed to be as big as the whole world. The world globe....a shape with an infinite number of facets. While a simple cube has six sides; a Dodecahedron has twelve sides, it is the Tetrahedron that makes the simplest, yet strongest three-dimensional object. The tetra, with its four equal facets is where we begin this story of our team. Our team, "Rolling Thunder" from Penfield High School has members from all four school-year classes, with a lot of representation from the freshman class. We realized very early on that we needed to have a leader for each class in addition to actual sub-team leaders for the task of building the robot. No one team member and no single mentor can really tell our whole story. So, we have chosen to have four voices from our team represent those four equal faces of the tetra. Each corner of the tetra represents a piece of our team. If any one component fails, the structure falls down. So, here's the story of four facets.

First, comes the words from Mirza Strujo, the senior class leader:

When we were introduced to the robotics team from Harris, our corporate partner, we all thought that we had an understanding of what FIRST means. At first, our team was very diverse, with all different grade levels. Having more than half of the student team from the freshman class made it even more interesting. The Rolling Thunder team started in November with team-building activities and meetings. I saw these times as the best times of the whole experience. The students had a chance to work with real engineers and it was a great opportunity for me being a senior to see the profession being displayed firsthand. I knew I wanted to be an engineer, so I enjoyed learning from my mentors. Our team had over two dozen pre-season meetings making sure that everyone on the team had a good feeling of everyone's strengths and abilities before build season started. It was a great time because we got to interact with engineers and students from all different grade levels. We did various team-building activities from pasta bridge building to mouse trap rally cars. We enjoyed learning how to organize our thoughts into a task and it helped us prepare for build season. We knew that we were not going to have a lot of time once the build season started, so we knew we had to focus on schedule. We practiced many timed activities to help us understand how to complete a task in a specific time period. The Rolling Thunder team felt like we were done with robotics competition before it even started. Once we had the game introduced to us, the kickoff event at the Rochester Science & Museum Center, it was just the beginning of our own "rolling thunder". We came back to school and got to work. We knew we would have to establish the game field, so what we did first was to go to Home Depot to purchase all of the necessary PVC equipment to build it. The first couple days were fast-paced and we knew if we started in the right track that we would get the job done in time. Once we developed all of the tetras and most of the field, we got started on the drive train and chassis. We continued to have short meetings to get all our ideas across and to make sure that everyone's input was involved. We decided that we would go with the six-wheel drive to maximize speed and traction and to be a little different from the rest. We used the chassis that was provided and we went on from there. Our team has a lot of strengths and talents and it was awesome seeing all of them come together. We are very proud of our custom wheels for the drive train. We wanted to maximize the tread with the wheels that were given us, so we came up with the perfect plan. Our wheels are made of ABS plastic and it was designed by Steve Manzoni, one of our sophomores on the team. We sure had something different and original on our robot. We hope that this will set us apart from some of the teams in the competition. Rolling Thunder needed to have a great arm if we wanted to be successful in the competition. We decided to go with a leadscrew idea. We knew that we could lift a lot of weight with the leadscrew and it would be cool to have the biggest leadscrew ever. We have done so much to have RollingThunder be a success that it really shows throughout our team. Everyone has put a lot of time and input into the robot. We learned a great deal from this experience. We were provided with a chance to work with engineers for a common goal and it really paid off. I learned more about the profession I want to get involved in and I feel this experience will last with me forever. It proved to me that working together we could make something amazing using everyone's ideas. I hope that RollingThunder impresses the judges and, most of all, makes a stand among other robots in this competition. I know that it has done so already in our minds.

2005 Chairman's Award Essay (cont.)

Another facet of the RollingThunder story comes from Mark Mascadri, a sophomore:

As a team, we have come so far in such a short span of time. When we started last fall, we were disjointed and unworthy of the chairman's award. We were clueless of what sacrifice, dedication, and teamwork was required to be considered a competitor. Through many teambuilding activities, we have greatly improved our performance. Now each member has a sense of purpose and the desire to compete together as a team. We have transformed ourselves into a team now worthy of the chairman's award; well, actually we're competing this year for the Rookie All-Star award. As a rookie team, we did a lot of research and got a lot of ideas from the more-advanced teams that we look up to and admire. We have progressed so quickly that we have now become a team that is a great example to others and worthy of other team's admiration. You may be asking yourself how such a radical change for the better is possible. The answer is "leadership". Our group of four student leaders has become a motivational driving force and a source of great enthusiasm and encouragement within the team. The ability to step forward and lead others is a quality that FIRST has brought out in us, and a quality that we didn't know we had. Why wouldn't the student leaders be awesome when they had such great role models? The engineers from Harris generously donated hundreds of hours to the team. We learned from them every day, soaking-up as much knowledge and professionalism as we could.

A third facet of the story of RollingThunder comes from Richard Doell, a freshman:

During my time here at the Penfield Robotics Team 1511 Rolling Thunder, I have gained new experiences and acquired fresh insights into the world of robotics. I have made new acquaintances and learned new things about the exciting worlds of CAD and gears. I believe that I have contributed to the team by giving my best efforts to the modeling and construction of the arm and robot.

And, lastly, the fourth and final facet of the RollingThunder story comes from Kim O'Toole, the team leader from Harris Corporation's RF Communication division:

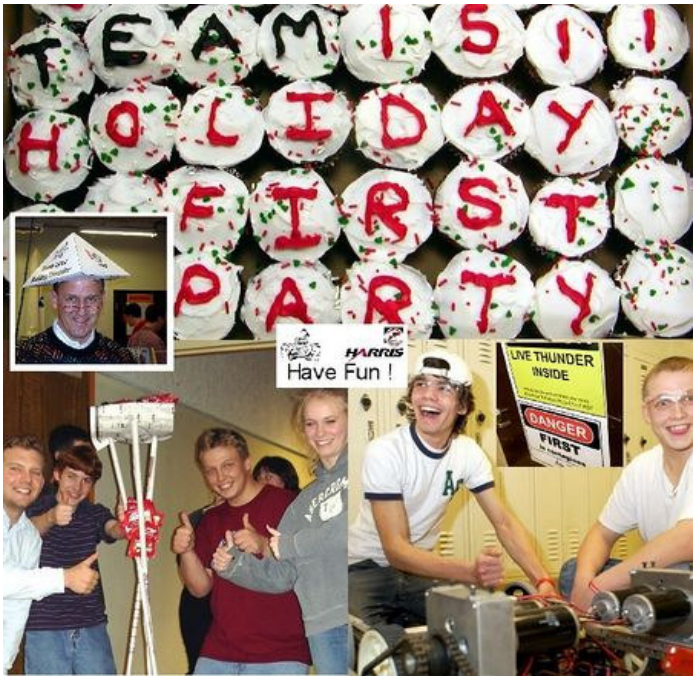
This team has become the culmination of my entire FIRST experience. I originally got involved in FIRST in 1996 as a high school sophomore. At the time, I was debating between becoming an art teacher and a glaciologist. FIRST opened my eyes to the world of engineering, and I had some amazing mentors. Upon my graduation in 1998, I decided that I was not ready to leave the program behind. I was determined to pick a college where I could continue the FIRST experience. I applied to several colleges that had FIRST programs. However, I chose Clarkson University because it would allow me to expand the FIRST program into the great white north of New York, where they knew nothing of the program. I founded the Clarkson/Massena team for the 1999 season, and continued on with the program, helping design the scholarships and recruit new high schoolers. My entire goal was to affect just one student the way I had affected, but I found quickly, in the 1999 season, that I had the chance to affect so many more! I gradated again in 2002, once again leaving FIRST behind, but still volunteered for the regional events. This past summer I was approached by parents of students at Penfield High school, who wanted to help found a team for their daughters. They had received my information from the Clarkson team. So we met with the school, I procured money from Harris, and we went off and running. New seminars and teambuilding exercises every week, preparation for the competition, and finally building the robot. This year has been amazing. Our students are so much fun to work with, and so hungry for hands on experience. It is a world of difference from where I started in the program. FIRST has essentially watched and helped me grow. It taught me not only engineering, but leadership, and how to motivate people, and how to get to know students and successfully become a mentor that can have an effect in their lives. It's been wonderful to see all of the students have a chance to grow the way I did.

So, there you have four facets. Four different perspectives on the tale of a great venture. Our team is not sure how far this particular leg of the journey will take us; hopefully the Nationals in Atlanta. However, what each of us already does know is that a true well-oiled machine relies on each part, and that each individual part in the machine relies on another component. The four facets of the tetrahedron all rely upon each other very equally. In this simplistic three-dimensional structure we have learned so much more than the physical tasks of building and running a robot.


HARRIS
Teamwork


CAR WASH
Car Wash
HARRIS
Community


HARRIS
Mentorship


TEAM 1511
HOLIDAY
FIRST
PARTY
HARRIS
Have Fun !
LIVE THUNDER INSIDE
DANGER

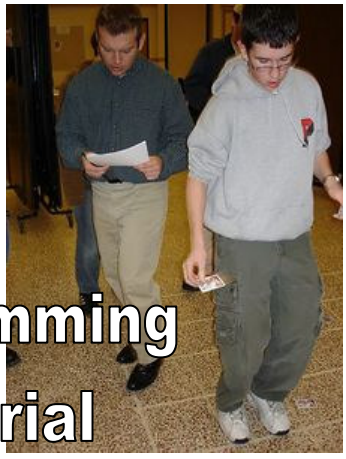
Team 1511

Recruiting Demonstrations

Lego Directions

Newspaper Towers

Mechanical Seminar



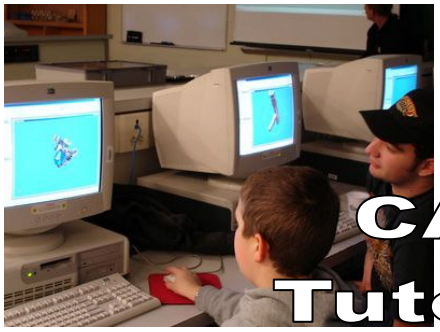
Programming Tutorial

Car Wash

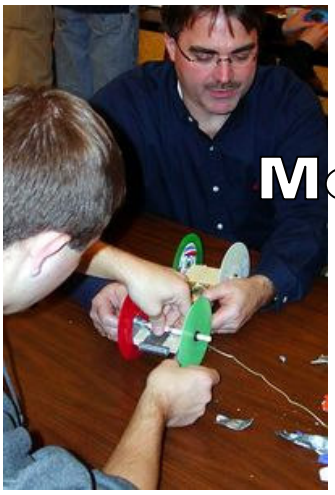
Preseason Activities

Human Robots

Paper Bridges



CAD Tutorial



Moustrap Cars

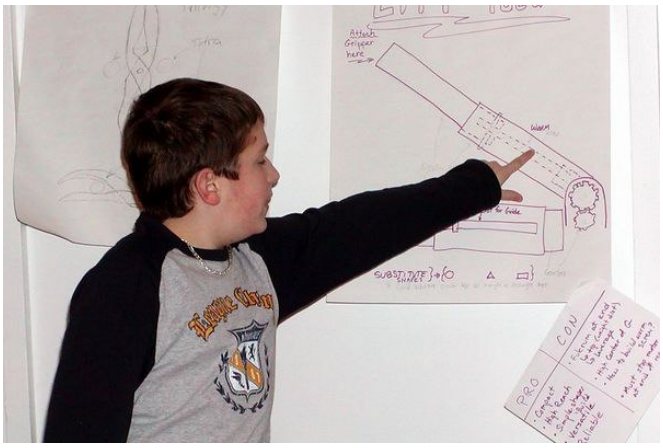
Spaghetti Bridge

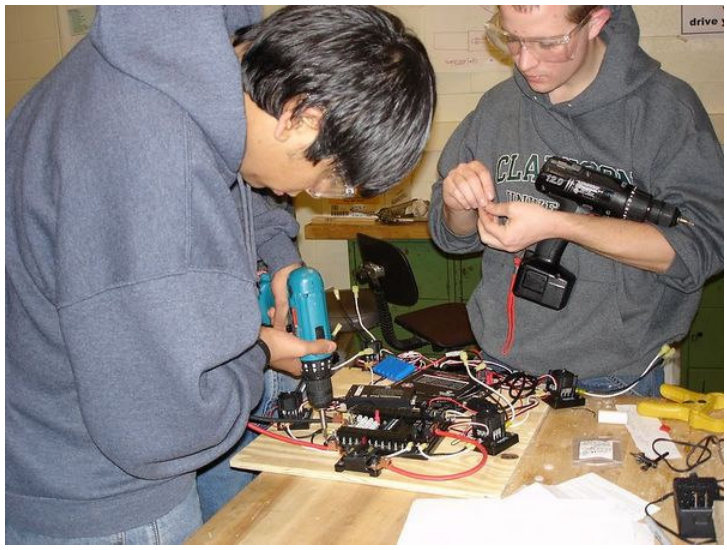
Electrical Training

Holiday Party

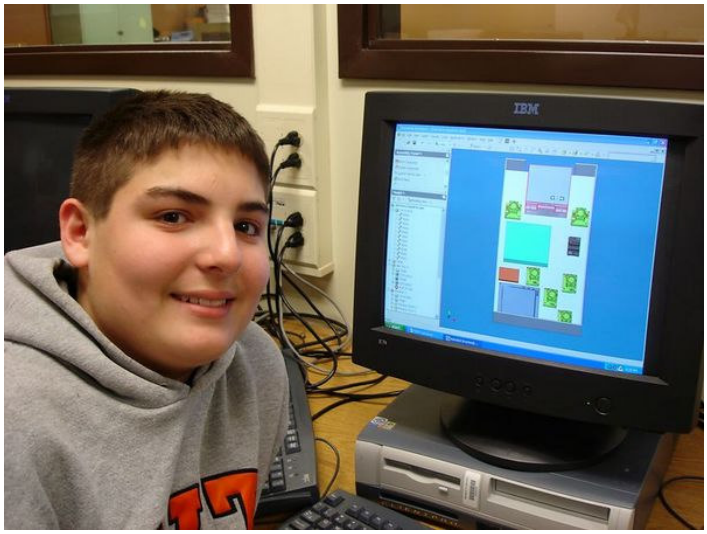
Drivetrain Seminar

Build Season Pages

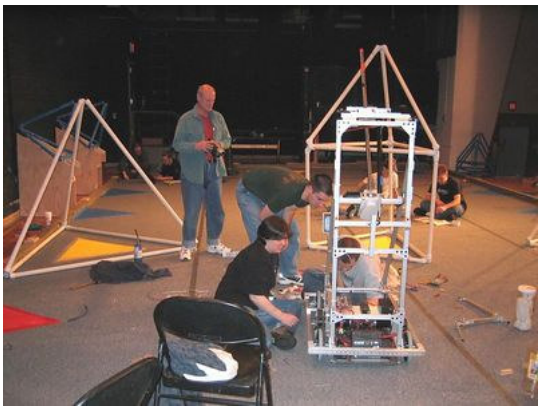




Build Season Pages

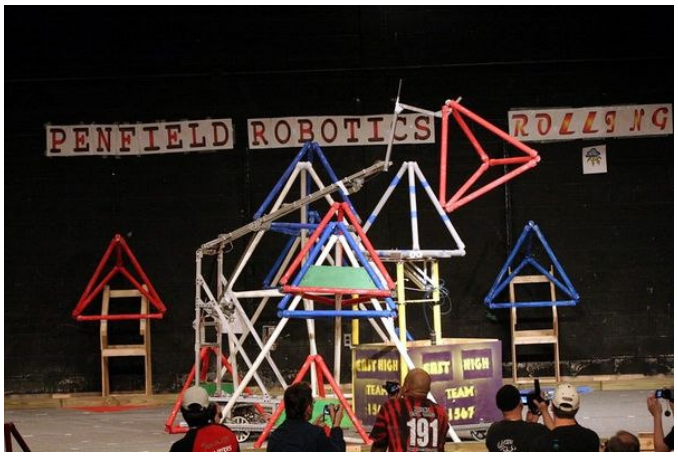



Team 1511
Rolling Thunder
FIRST



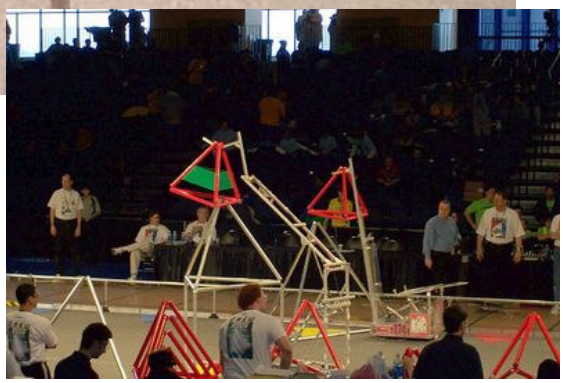
Rochester Rally

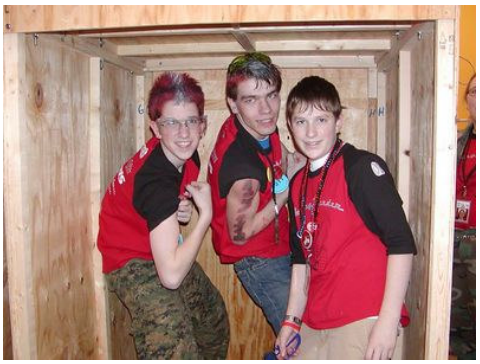
Penfield, NY



Finger Lakes Regional

Rochester, NY





2005 Regional Quarter Finalists

2005 FLRC Rookie All Stars

Buckeye Regional

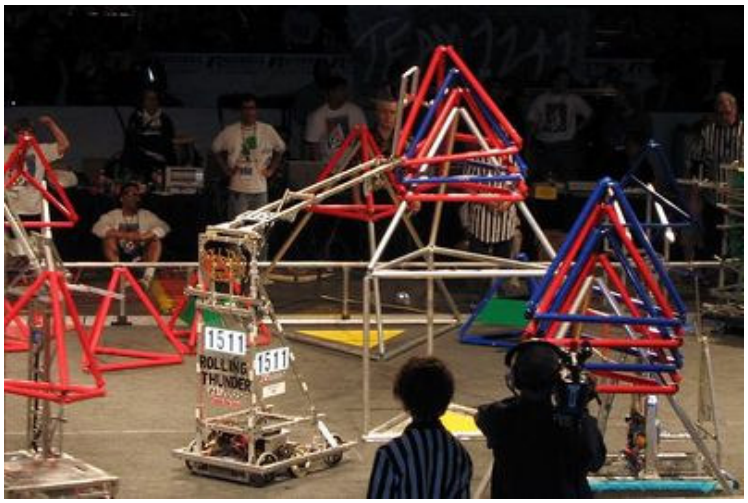
Cleveland, OH

2005 Regional Semi Finalists

2005 Highest Rookie Seed

Toronto Regional

Mississauga, ON



2005 Regional Champions

2005 Rookie Inspiration

2005 Daimler Chrysler Team Spirit

Championship Competition

Atlanta, GA

2005 International Rookie All Stars

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Seagull ($50) cont.

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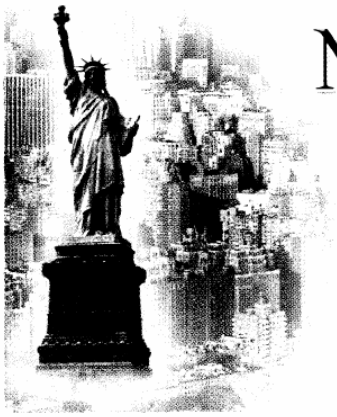
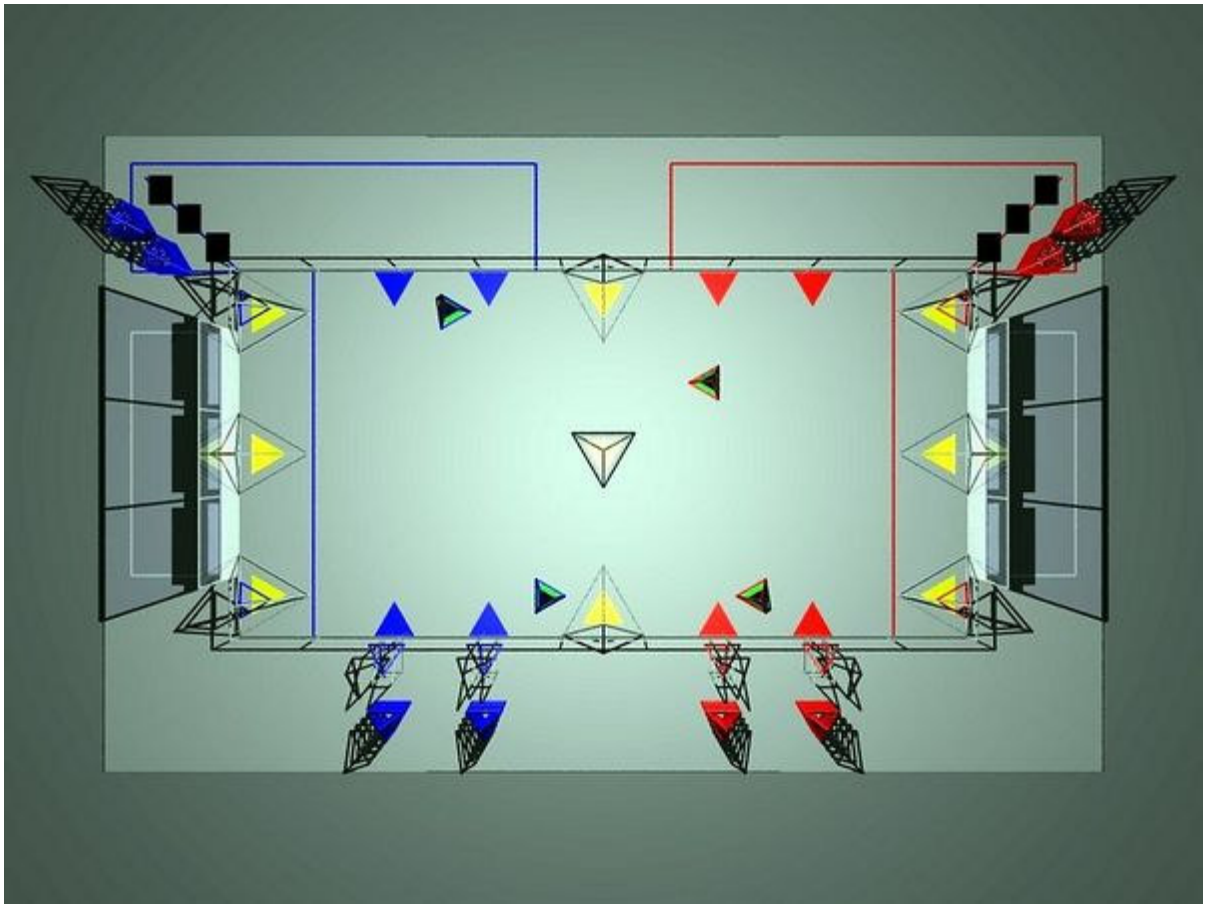


Congratulations
Team 1511

From the
Belush Family



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From all of us at Don's Original

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Team 1511
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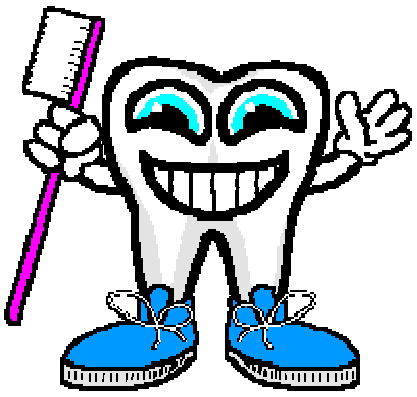

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For their Generous Donations!

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and

The Penfield High School Student Council

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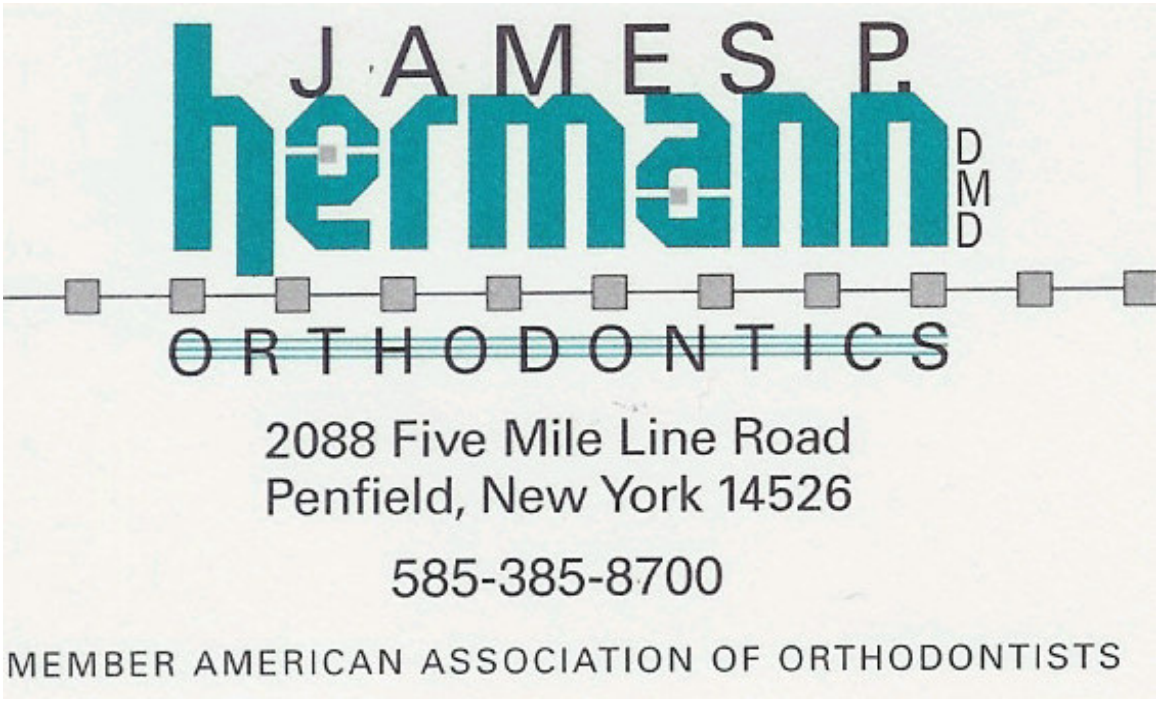
Rolling Thunder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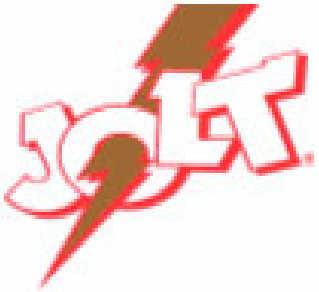
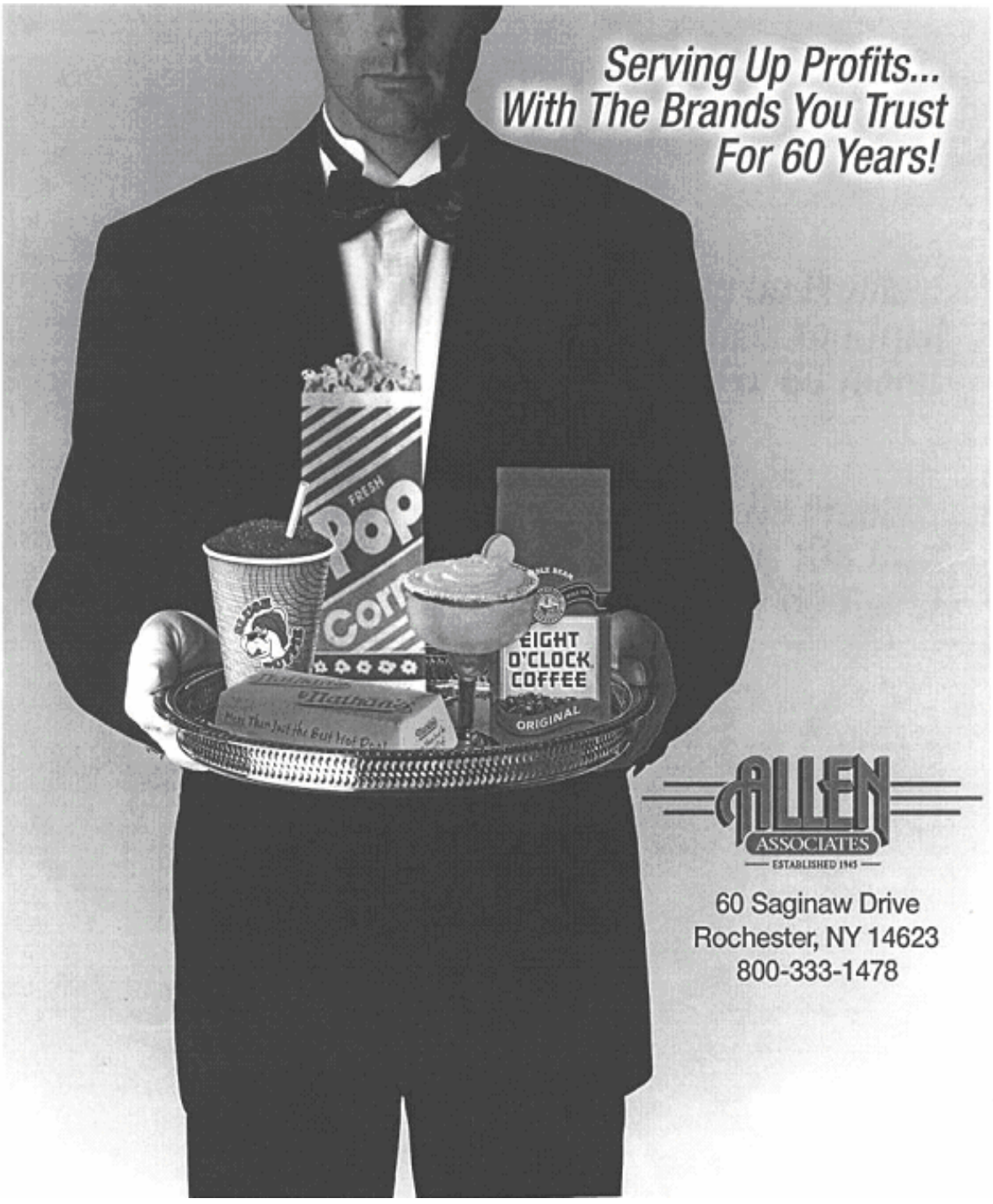


GOOD LUCK TO THE PENFIELD ROBOTICS TEAM

Great success to all of you in your competition.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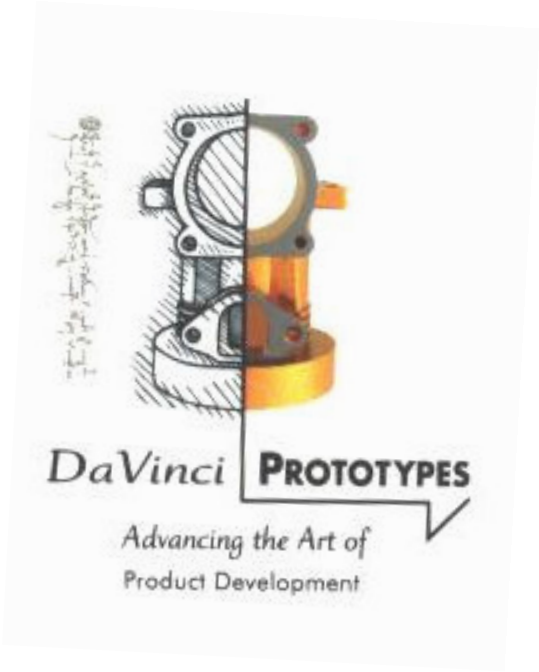

Thank You for all that you've helped us with.

From,

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Watch for Us Next Year!!

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