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FIRST ROBOTICS TEAM #2834

Volume 3, Issue 4

Build Season 2011

Coach's Corner

Every year, FIRST sends out a few game hints about what the upcoming game will be a few weeks before the kickoff. It builds up the excitement by letting people speculate about the game. For us, we started speculating about this year's game last summer. We noticed the games from the last two years did not require an arm mechanism, so we thought we should gain some experience in that area. We studied past games that require arms, one of

BIONIC BARONS

which was the 2007 Rack and Roll game. We built a prototype arm and learned a lot from it. When the game hint came out this year, we had a strong feeling that there would be game pieces of three different shapes - triangles, circles and squares - that would require an arm mechanism to pick them up. As it turned out, this year's game is very similar to the 2007 game, so all the time we spent on research was well spent.

In my opinion, this year's game is, in

some ways, unfair to rookie teams and teams that were formed after 2007 like ours. Many teams dusted off their 2007 robots and had a prototype ready in the first week. Despite this minor injustice, we are still on schedule and will have a robot ready before ship date. We look forward to the competitions and hope all of you can come to watch us compete at our upcoming events.

-Dr. Law

2011 District Events

It's a new year, and we all know what that means... the release of the new FIRST Robotics game design. Being one of the most exciting times of the year, the release of the new game means teams can start designing and building their robots.

Two months worth of dedicated designing and building all pays off, when the competition arrives. Our first competition, held on March 4th at the Kettering two day event, is the first Logomotion competition

worldwide and we could not be any more excited about it.

At this competition, major teams will display their robots for the first time, and reveal the new and improved features.

In addition to the Kettering competition, the team is very excited for additional competitions taking place in Waterford (March 11th) and Michigan State (April 7th).

As of right now, the team is in the

midst of the design and build season that will be taking place over the next 5 weeks.

We are hoping to start building within the next week. Everyone on the team is ecstatic about the weeks to come! Check in on our accomplishments in the next monthly newsletter!

-Travis Cook

Bionic Barons Open House postponed

The Bionic Barons would like to cordially invite you to our annual open house. The event was originally planned for the last weekend in February after the build deadline and before our first competition. Unfortunately it has to be postponed because of school break. This event is held each year by the team to educate the public about what we do, and what the FIRST

Robotics program is about.

The team will show a little bit of everything concerning our robot, we will talk about things we've done to help our community and we will give a demonstration of the robot. We will inform you once we have a new date for the open house.

-Josh Manela

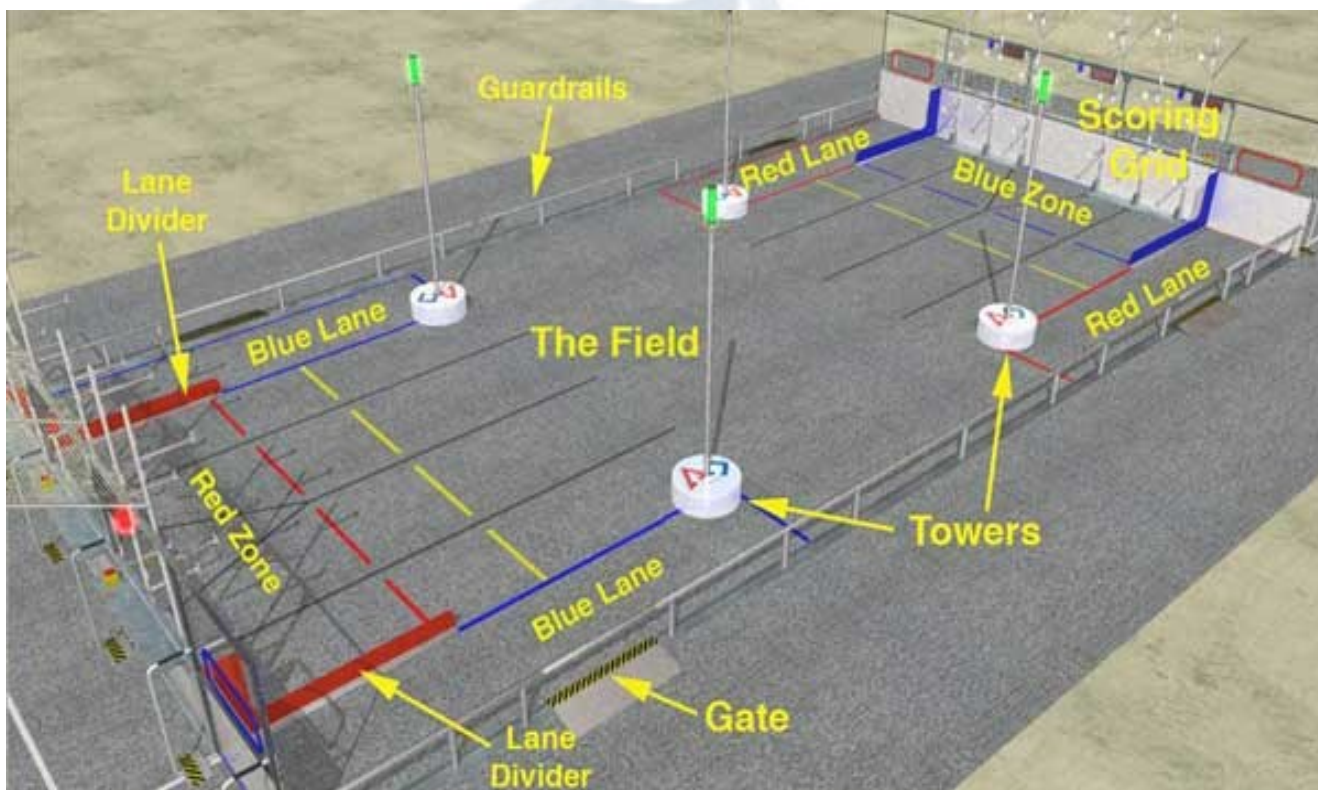
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Summary:

LogoMotion is played by two competing alliances on a flat 27' x 54' foot field. Each alliance consists of three robots each. They race to hang as many inflated plastic shapes (squares, circles, and triangles) on their grids as they can during a 2 minute and 15 second match. The higher the teams hang their game pieces on their scoring grid, the more points their alliance receives.



The match starts with one 15-second Autonomous Period during which robots try to hang Ubertubes (yellow inflatables) to score extra points. During the Teleoperated Period, drivers control robots and try to maximize their alliance score by hanging as many logo pieces as possible. Any logo piece hung on the same peg as an Ubertube receives double points. If teams assemble the logo pieces on their scoring grids to form the FIRST logo (triangle, circle, square, in a horizontal row in that order), the points for the entire row are doubled. The match ends with robots deploying minibots, small electro-mechanical assemblies that are independent of the host robot, onto vertical poles. This period is called the End Game. The minibots race to the top to trigger a sensor and earn additional bonus points.

Play:

<u>Section of Game</u>	<u>Time</u>	<u>Purpose</u>
Autonomous	15 Seconds	Place Ubertube
Teleoperated	2 Minutes	Place Logo Pieces
End Game	Last 10 Seconds	Race Mini-bot to top of tower

Scoring information continued on next page...

Continued from previous page...

Scoring:

During Autonomous Mode (Placing Ubertubes on Grid):

Bottom Row	2 Points
Middle Row	4 Points
Top Row	6 Points

During Teleoperated Mode (Placing logo pieces on Grid):

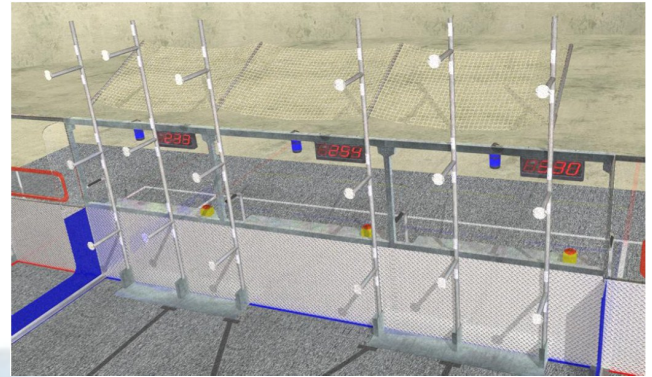
Placement	Alone	Over Ubertube
Hanging on Bottom Row	1 Point	2 Points
Hanging on Middle Row	2 Points	4 Points
Hanging on Top Row	3 Points	6 Points

Any row that is depicting the FIRST logo is worth double.

End Game (Racing Mini-Bot to top of tower):

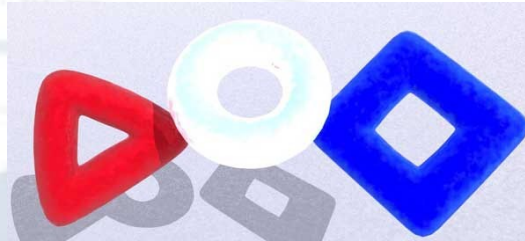
Reach the top FIRST	30 Points
Reach the top SECOND	20 Points
Reach the top THIRD	15 Points
Reach the top LAST	10 Points

- Game and Scoring Summary by Rohan Sinha

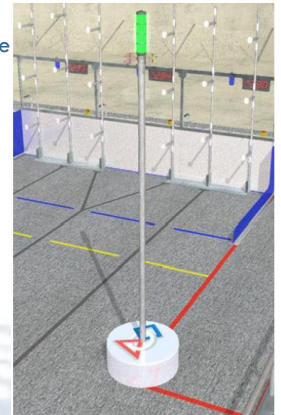


Throughout the game, robots try to hang ubertubes and logo pieces on the Scoring Grid (above).

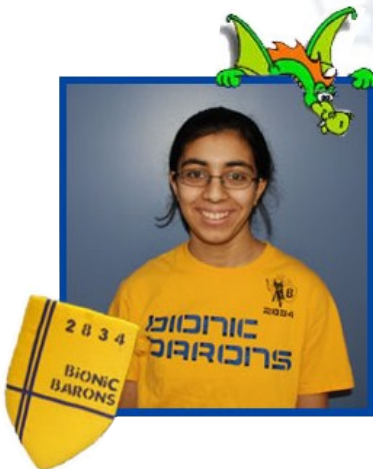
Mini-Bots race up towers like these in the last 10 seconds of the game (left).



Above are the logo pieces used in the game during teleoperated mode. During autonomous mode, there are only yellow circles called ubertubes on the field.



My First Impression of LogoMotion



When Logomotion, this year's FIRST Robotics competition, was first unveiled I was surprised at what FIRST pulled together to form the game; many of the ideas were new and very enticing.

This year's game involves more cooperation than usual: robot parts and mini robots that require consulting with other FIRST teams and leagues will be put in use. This is what makes this game unique when compared to other games that

have been used in the past.

In the past, games have strongly resembled modern day sports; but this year that has changed. This year's game is a completely new concept, teams work together to place inflatable game pieces on racks on the other side of the court. I think that this once again emphasizes FIRST and the joining of all three of the elements of FIRST – FRC, FTC, and FLL.

-Shobhita Khramadati

Opinion of This Year's Game

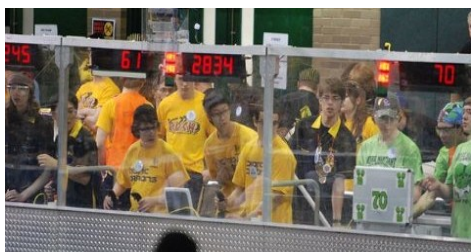
The 2011 game offers a complex problem which can be broken into exciting smaller problems. Elements such as "hanging logo pieces over ubertubes" or "forming a logo" to earn extra points provides more options for challenges for the teams. New this year, is the Minibot End Game. Since the minibot is made of only FTC parts and the NXT controller, it promotes interaction between FTC and FRC. Rules

permit for exchange of minibots across teams which allows a new level of cooperation between teams. A wonderful addition to this year's game, not found in previous years, is the "no pinning" rule. This offers teams the more opportunities to showcase the full range of capabilities of the robot and drivers' true skills. We are looking forward to an exciting game season!

-Tim Sterbenz



The Competition Structure



Our team playing with our alliance partners during one match of the 2010 competition season.

As we begin to enter the build season, the team is again greeted with the structure and details of the FIRST Robotics Competitions. For new members, it can seem a bit overwhelming, but veteran members quickly help them understand it. For those who do not know, I will explain how the competitions work.

The team attends two district events this year, one at Kettering University and one at Waterford Mott High School. Based on performance at those two events, the team may be eligible to attend the Michigan State Championship at Eastern Michigan University. Depending on the performance at the State Championship, the team may be eligible for the World Championship, held in St. Louis this year.

Each district competition is a two-day event, beginning on a Friday. The competition is broken up into two major rounds, qualification and elimination. The game is played with two alliances of three teams each playing each other, so there are six robots on the field for each match. The alliance pairings are randomized, so our team may have a certain team on our alliance in one match, and in the next be playing against them. During these qualification rounds, teams are given ranking points. Teams are given 2 points for winning, 1 point for a tie, and 0 points for a loss. This places the teams into tiers, with the highest number of qualification score points being first. If two

teams have the same qualification score points (which means that they are in the same tier), their ranking in that tier is then determined by the sum of the points of their opponent's alliance during all of their qualification matches. This encourages high match scores, as well as winning.

After the qualification rounds are complete, the top eight seeded teams pick two other teams to be on their alliance permanently throughout the elimination rounds. Using a "serpentine draft system," teams ranked 1 through 8 choose 1 team each, then teams 8 through 1 choose another team. Alliances play each other in a bracket system with quarter finals, semi-finals, and finals. Each bracket is a best out of three.

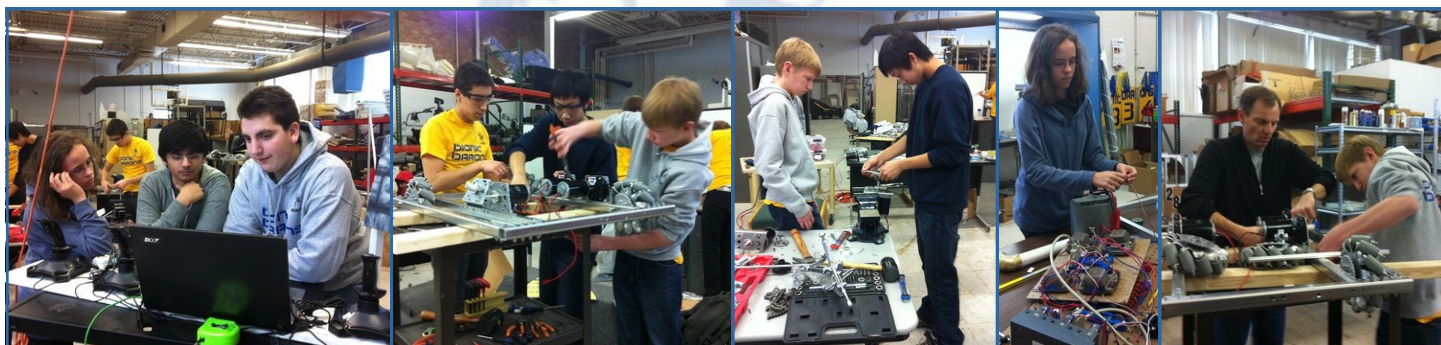
As you can see, the competition structure is fairly involved, which makes it very interesting and exciting. We hope to see you at the competitions!

-Justin Lopas



Our team posing with alliance partners during an off-season competition last summer.

Build Season Pictures





FIRST ROBOTICS TEAM #2834

Volume 3, Issue 3

December 2010



Coach's Corner

I cannot believe it is already December. While many students look forward to the holiday, FIRST Robotics students are looking forward to going back to school in order to find out the game challenge is this year at the kickoff event on January 8th, 2011.

For the last two years, this newsletter was written mainly to keep our sponsors, community leaders and school officials informed of what we do. What I did not realize was that we have been overlooking a very important group of readers.

A student pointed out to me that we should send the newsletter to parents and students too. With that in mind, starting next month, we will create more articles that are of in-

terest to the students and their families. We strive to create a newsletter that students will send to their relatives in order to keep them up to date on what they have been doing and what FIRST Robotics is all about.

At this time a year ago, I was quite nervous. I was not sure how the team would do at the competitions, and was concerned about the higher expectations after a successful rookie year.

As it turns out we did okay; this year, I don't feel nervous at all. I have more confidence this year due to the group of students we have. The new members this year are very enthusiastic, and the few students who had been with me since the beginning are ready to take on more responsibility

and more challenges.

Furthermore, more parents on the team are getting involved with different aspects of the team. Out of the nine FIRST Lego League teams this year that we helped form in our school district, three of them were coached by parents on our team. That is an incredible statistic and not many FIRST Robotics teams can say that.

As our team grew in numbers and maturity, I feel more confident that we are ready to take on any challenge that comes our way.

I wish all of you Happy Holidays and a prosperous New Year.

-Dr. Law

Kickoff

The Bionic Barons' build season is right around the corner. Every year, FIRST releases a new, exciting game that will require the robots to perform numerous actions (ex. kick a soccer ball, play a game of basketball, race around a track). This year, the anticipated date is January 8th. Hundreds of teams will go to a "kickoff" event, where numerous teams gather in a designated area and

watch the live webcast together, featuring Dean Kamen, renowned inventor and FIRST Robotics founder, and Woodie Flowers, MIT Professor and FIRST Senior Advisor. Following that, the new game for the year is unveiled and teams scramble to start their build season.

The kickoff itself is broadcasted from Manchester, New Hampshire. For the

Andover and Lahser Robotics team, we will be meeting with many other teams at Novi High School to watch the webcast, which will start at 9:00 AM. The Bionic Barons are extremely excited to find out what the new game is and we hope that you will follow us as we fight to win at the competitions.

-Josh Manela and Jason Law

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Bionic Barons Students Mentoring FLL Teams

Justin Lopas, FLL Team #4463: NXT Lightning



Recently, I have been working with Team 4366, the NXT Lightning. The Lightning is a team made up of 6th graders from Bloomfield Hills Middle School. On November 13th, the team and I attended the ThunderQuest qualifying tournament in

Sterling Heights.

Despite having robot problems throughout the day, the team placed 1st overall, while winning the mechanical design award.

This was truly amazing due to the large size of the ThunderQuest tournament comprising of 45 teams.

The team is now headed to the State Championship in White Lake, on December 4th.

We wish the team good luck at the State Championship!



Jake Eagle, FLL Team #5540: Cyborg Cobras



FLL team #5540, the Cyborg Cobras is headed to states! Jake Eagle, student mentor of FLL team #5540 tells us his experience at the competition.

We honestly had no idea we would make it, it was such a sur-

prise. We won 2nd place for innovation and strategy. The kids did a great job programming and planning out their game.

The judges were impressed by the fluidity that the robot possessed while completing individual missions. They were stunned by the kids' design for the robot. The robot has a ball on its back and an elevating arm for a specific mission, both of which turned out to be very successful.

At the end of the tournament, the announcer read off the 16 teams that would advance to the state

competition. As he progressed further and further down the list, our chances of advancing became slimmer and slimmer, but when he read off the last team, we jolted up in our seats. Half of us were excited to be moving on and the other half were shocked trying to figure out how we placed. It was a great experience.



FLL Team Memories Thus Far



Robot Demonstration at Bloomfield Township Public Library



On Saturday, November 13th, the Bionic Barons conducted a demonstration of our robot at the Bloomfield Township Public Library.

Our coach Dr. Law, and several members were present at the demonstration. The presentation was geared towards the children

and their parents present at the library. The objective of the event was to kindle an interest for science, technology and engineering in the children and to show the parents the opportunities available for their children.

The children and their parents were shown videos of the competitions in which the Bionic Barons had participated in order for them to understand the game. In addition, they would see firsthand the atmosphere in the FIRST Robotics Competitions. With the help of the team members, the children were allowed to experiment with the robot around an area that we were given.

The children responded well to the event, they showed interest in the robot and how it works and some children were also encouraged to join a robotics team later in their life. The visit proved successful!

-Shobhita Kramadhati



Volunteering at the Yad Ezra Food Bank



As you may have known, FIRST Robotics is not only about building robots; it is also about community outreach, inspiring young people to become innovators and leaders,

and community service. The Andover and Lahser High School Robotics team fully supports these missions, and excels in each of these categories.

This year, we have done numerous community service events. We will be returning to Yad Ezra Food Bank this season. Yad Ezra, located in Berkley, is a kosher food bank that provides food and household supplies to those in need who reside in southeast Michigan.

The robotics team has gone there on multiple occasions in the last two years, helping to sort and distribute food and other items. This event allows us to incorporate giving back to our community into our team structure and resume. In addition, it reminds us just how fortunate we actually are.

The team really enjoys having the opportunity to work at the food bank and we look forward to going back this year.

-Justin Lopas

PTO Donation

The Bionic Barons have recently acquired a trophy case and a messenger board thanks to the help of the Andover PTO. The case currently features the team's awards from the 2009 and 2010 season. Awards include: Rookie All Star, Engineering Inspiration, Mich-

igan State Championship and many more. We will be using the messenger/bulletin board to post information about the team including our upcoming competitions and team events. Thanks again to the Andover PTO for supporting the robotics team.

-Matt Rein



Design Editor: Hiba Chaabi
News Editor: Noah Newman
Managing Editor: Jason Law



FIRST ROBOTICS TEAM #2834

Volume 3, Issue 2

November 2010

BIONIC BARONS

Coach's Corner

Even though the six-week design and build season is still 2 months away, our team has already shifted into high gear with a great deal of community service and outreach events. Taking time out of our busy schedule, the team planned a bowling party to have some fun together and become closer as a team. It allowed the students, and also the parents, to get to know each other better before kickoff in January.

There are a number of important announcements this month. I am honored to announce that BAE Systems has chosen to sponsor us, after they received recommendations from other veteran FRC teams in our area that they sponsor. I was told that our team's reputation and performance in both robot and culture changing awards were the primary reason we were chosen.

I am also excited to announce that we will build

a practice field at Massie Architecture, a 12,000 square foot studio within 4 miles from our shop. This will give our drive team more opportunity to practice, and our programming team will now have more time to test their autonomous program.

I hope you enjoy this issue of our newsletter. It was put together by a new team of students who wrote, edit and design every part of it.

-Dr. Law

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

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Competition Schedule

We are excited to announce that we will participate in two Michigan district competitions in the 2011 FIRST Robotics Competition season. They are:

- March 4-5, 2011 Kettering University FIRST Robotics District Competition in Flint, MI
- March 18-19, 2011 Detroit FIRST Robotics District Competition at Wayne State University

The team welcomes and appreciates anyone who wishes to join us at the competitions to watch the matches, support the team, and share the competition experience with us. These competitions are the culmination of 6 weeks of build season, and we look forward to having a great time.

Bionic Barons Give Back to the Community



As winter approaches, many families in Michigan will have to make the horrible decision of whether to pay for heat for their home or be able to feed their children adequately. Statistics suggest that one in eight families this year will need emergency or relief funds to feed their children.

Deeming this unacceptable, the Bionic Barons decided to take a stand. The Barons helped these families by visiting Gleaners Food Bank in Pontiac and helping the staff there by creating “backpacks” for these children. These backpacks would be filled with food, and given to the kids on Fridays at school. The children would then be able to take them home on the weekend in order to have sufficient food to eat. These backpacks are critical to these families and the Barons thought it would be a good idea to help these needy children.

Soon after arriving, at Gleaners this past November 2nd, Sarah Blight, an employee of the food bank, introduced the Barons to how some of these families must live their daily lives. She referred to how these families need help

and appreciated everything that the Barons were doing to help.

Once inside the warehouse, the Barons worked quickly and efficiently. They were required to fill the backpacks with two proteins, one vegetable, one fruit, one cereal, and two cartons of milk. The Barons had to work as a team to create backpacks quickly. “Apart from being for a good cause,” remarked freshman Josh Inwald, “it was an amazing team building activity,”

At the end of the day, the team had made 380 backpacks and prepared over 2,660 pounds of food. Blight and the rest of the employees at Gleaners were extremely impressed with the maturity and character of the team. “It felt good giving back to the community,” said co-team captain Josh Manela. The Barons all felt as if their hard work had paid off and they were all proud of their accomplishment. “We touched 380 families today!” Freshman Kerry Hu proclaimed.

Many team members were wondering what more they could do to help these kids. It was decided

that the team would collect Halloween candy and other little treats, to place in the backpacks in order to make the process more enjoyable for the children. Collection has already started and the team is excited. The Barons left Gleaners with smiles on their faces, knowing in their hearts that they had done something that they should be proud of.

Simply put, this experience was one to remember for the Barons.

Team members are looking forward to their next community outreach project, a day of volunteering at

Yad Ezra Food Bank. The team is beginning to understand that everything they do in the community goes a long way in helping people around the world.

-Rohan Sinha

**2,660 POUNDS
OF FOOD.
380 BACKPACKS.
SIMPLY PUT,
THIS EXPERIENCE
WAS ONE TO
REMEMBER.**



Team members pack bags of food for hungry children to take home over the weekend.

Team News

New Sponsorship from BAE Systems

The Bionic Barons are proud to announce their new partnership with BAE Systems, which has graciously offered their time and money this year. BAE Systems will be sponsoring the Bionic Barons with a grant of \$5,000 which will be used towards the registration fee for the FIRST Robotics Competition.

BAE Systems is a global defense, security, and aerospace company with 107,000 employees worldwide. They offer a full range of products and ser-

vices for air, land, and naval forces. Popular products of BAE Systems include armored security vehicles and aircraft armor.

Along with these fascinating products, they provide advanced electronics, security, information technology solutions, and support services for their valued clients. They have customers in over 100 countries, and are well known for their work. Based on revenue, they were ranked the second

largest defense company in the world in 2009. In addition, in 2009, their sales were reported to be over \$36.2 billion.

The Barons are excited about the upcoming season. Furthermore, we are sure that with the support from BAE Systems, we can continue to grow and provide a positive impact in the community.

-Rohan Sinha

High School Preview Nights



Andover and Lahser held preview nights this past November 1st and 3rd. The preview nights are an opportunity for incoming freshman and out-of-district families to see the schools and what they have to offer. The Robotics

team held a demonstration at each of the preview nights, and acquainted the incoming freshman with what robotics is all about.

The robotics team fully supports events like these, which attract new families to the district every year. By attending the two preview nights, interest in the team was elevated, and possible new students were inspired to join the team.

At the event, we showed how our robot from the 2009-2010 season worked and was built. The robot kicked soccer balls as the representatives from the team talked to students

and parents. Many prospective parents and students attended these nights, and many showed interest in the team. The team plans on supporting the event next year.

-Justin Lopas



PTC Hands-On Workshop



On Friday, November 5th and Saturday, November 6th, the combined

Andover/Lahser robotics team hosted a hands-on workshop with our sponsor PTC. This workshop was open to every FIRST team in the state of Michigan.

There were over 50 people representing several teams from southeast Michigan at the workshop. Andover students along with an engineer from PTC taught Creo Elements/Pro (PTC's CAD software) to the students, parents and mentors. New members of

the Andover/Lahser team also attended, and became experienced in using the software as well.

At the workshop, teams saw how using Creo Elements/Pro can greatly reduce their build time, reduce the number of design changes, and help them to conserve build materials. The Hands-On Workshop was a great success, and we hope we can do the same again next year.

-Justin Lopas

Make a Difference Day 2010

Make a Difference Day, the largest national day of community service, took place Saturday October 23, 2010. The combined Andover/Lahser Robotics team volunteered to serve and strengthen our community and promote civic engagement in order to make a difference in the lives of the less fortunate.



This year, our school district, Bloomfield Hills School District, worked with Sweet Dreamzzz, a nonprofit organization committed to

improving the health, well-being, and academic performance of at-risk school-age children by providing sleep education and bedtime essen-

tials, also known as sleep kits. The sleep kits are presented to students during sleep programs at local schools with at-risk student bodies where at least 75% of the student population receives free or reduced price lunches. On the 23rd, members of our team gathered with over 160 other volunteers from our school district at Bloomfield Hills Middle School, to assemble the sleep kits. Students in our district had been collecting the supplies for the kits for the three weeks leading up to the event.

Volunteers assisted in areas such as sorting and inspecting donated books, rolling t-shirts, and packing sleep kits with the items necessary. Sleep kits often contain dental materials, activity books, crayons, Beanie Babies, socks, and a book to read. The volunteers would then prepare the sleep kits for delivery to the schools in need. The goal was to provide enough sleep kits to be donated to two schools in the Metro Detroit area; and their goal



was reached with flying colors.

"We couldn't have done this without you," Jenny Houston, Community Relations for Sweet Dreamzzz says "You have saved us and because of your efforts, we now have enough to do a third school!"

Nancy Maxwell, the Executive Director, was so pleased and grateful to all those who worked so hard to make a difference!

-Ryan Hoyt

Photo Gallery



Preview Nights



PTC Hands-On Workshop



Gleaner's Community Food Bank



Make a Difference Day 2010



Design Editor: Hiba Chaabi
News Editor: Noah Newman
Managing Editor: Jason Law



Andover High School / Lahser High School

FIRST Robotics Team #2834

Volume 3, Issue 1

October 2010

BIONIC BARONS

A newsletter for our sponsors, supporters and community members

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Coach's Corner

The beginning of the school year is an exciting time for us. It is a time for us to welcome new members. This year the student membership increased again from 21 to 29.

We had a busy summer with two off-season competitions in June, a community outreach event in July and FLL Summer robotics camps in August. The team also met weekly throughout the summer on Friday evenings. We spent a lot of time cleaning and reorganizing the shop area which will help us work more efficiently during the upcoming build season.

Financially the picture is not great. We lost \$5000 of sponsorship from Chrysler Foundation due to the bankruptcy, and lost \$2500 of sponsorship from IICC. On the bright side, we have a new sponsor ASI. Our trusted sponsor PTC will continue to sponsor us at the same level as last year. HBL and its strategic partners will sponsor us to make up some of the lost grounds. We are still working on getting other new sponsors and I will communicate that in future newsletters as details are finalized.

Looking back to the last two years, it was an incredible journey. The first year was a year of discovery, to learn what FIRST Robotics is about. The second year was a year of transition; as I put it a year ago, a gradual transition of leadership to students and from a small team to a medium size team. This year is going to be a year of outreach. As a third year team, we need to stop thinking about ourselves only and be more active in community outreach.

Thank you for supporting our team and I look forward to another great year!

Sincerely,
Dr. Ed Law
Andover / Lahser Robotics Team Coach
Email: team2834@gmail.com

Andover and Lahser High School Preview Nights

The Preview Nights is an opportunity for district families who may or may not be attending Bloomfield Hills Schools to find out what is being offered.

Once again, the Robotics Team will be fully supporting the school district's effort to attract new families and retain current families in our schools. At the Preview Night of both high schools, we will bring our State Champion robot and talk to prospective parents about the wonderful opportunity our schools provide to the students by aiding in establishing and supporting these clubs and activities. If you are available and would like to come see our robot and talk to us, please stop by the schools on the following days.

Lahser High School, Monday, November 1st 7-9pm

Andover High School, Wednesday, November 3rd 7-9pm

PTC Hands-On Workshop

We will be co-hosting this event again with our sponsor PTC. It is open to all Michigan FIRST Robotics Teams. Last year 45 people representing 13 teams came to the workshop. PTC software Pro/Engineer, Project Link and MathCAD will be used to show how it can help FIRST Robotics Team design their robot more efficiently. This is one way we give back to the FIRST community by helping other teams.

Maker Faire

Our team was a part of about 10 local FIRST Robotics Team who were exhibitors at the Maker Faire of Detroit 2010. It was at the Henry Ford on July 31st and August 1st. We put up a 2/3 size field and ran some demonstration matches. The purpose of this is to help promote FIRST Robotics among Detroit area residents and to promote science and technology. We attracted a large crowd on both days.



Sponsorship from HBL

HBL who was one of our sponsors came to our rescue last year after our first competition when we experienced chain problems. They fabricated parts out of steel with a very fast turnaround time to replace the weak aluminum parts that contributed to our chain issues.

This year, HBL together with a few strategic partners Robert-James Sales, The Macomb Group, R.S. Dale Co., Ferguson and J.O. Galloup Company donated over \$4500.

A leader in modular build systems, HBL specializes in all types of mechanical piping systems with an emphasis on innovation, outstanding customer service and value. Their 83,000 square foot fabrication facility enables them to perform the highest quality work in a safe and controlled environment, while efficiently containing costs. They are committed to pursue new ideas and expand their goals and achievements with cutting edge design and fabrication, and creative leadership. For more information, visit their website at www.hblpipe.com.

Grant from our new sponsor ASI

We are happy to announce a new sponsor of our team. The American Supplier Institute (ASI) is a nonprofit, employee-owned company with the mission of helping organizations meet the needs of clients through research, training, implementation and publications on quality improvement techniques. ASI gave us a generous grant of \$3000. They will also be running workshops to teach our team on quality and robust design processes.

FIRST LEGO League Teams

FIRST LEGO League (FLL) is a robotics program for 9 to 16 year olds (9 to 14 in the US and Canada), which is designed to get children excited about science and technology -- and teach them valuable employment and life skills. Similar to the High School Robotics program, FLL students have to build and program Lego Robots to do certain tasks every year. This year, we have a total of 9 FLL teams from all 3 middle schools in the BHSD. Last summer we conducted a number of robotics camp to teach these students how to build and program the LEGO Mindstorm robots. A few of our students are mentoring some of these teams and help them in programming of the different robot missions.



Maker Faire



Summer FLL Robotics Camp

Recognition of Donors

Thank you to the following bronze level supporters who donated \$250 or over.

The Brown family
The Finnorn family
The Abell family
The Fine family
The Rege family
The Juncker family
The Imboden family
The Cook family
The Keranan family
The McFarland family
The McKendrick family
The Miura family
The Piper family
The Sabin family
The Yoder family

Thank you to the following supporters who donated up to \$225.

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