

The Scroll

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COACH'S CORNER

It has always been in my grand plan to gradually shift responsibility to the students when they show that they are ready. The freshmen that were on the team when we first started are now seniors. These three seniors and one of the juniors showed great leadership when we ran the FLL Practice Tournament last November. Two of them were already team captains and I decided to promote the other two, Justin Lopas and Ryan Hoyt, to the position of team captain as well. Together I expect the team captains to provide good leadership for the team.

The team attended the kickoff on January 7th when *FIRST* revealed this year's game challenge. This year's game is playing basketball with a twist. The game is really fun. You can see a short description of the game plus other information at <http://www.usfirst.org/roboticsprograms/frc/2012-rebound-rumble>.

Our competition schedule is included in this newsletter. We will be at Waterford Mott High School and Niles High School for our two district events. I hope you can find some time to come cheer for us. The qualifying matches start Friday morning

and end around noon on Saturday. If we do well we will be playing in the elimination round on Saturday afternoon. Last year we were finalists at the Waterford district competition and we hope we will do well again.

Our design editor, Hiba Chaabi, worked hard to come up with a new look for our newsletter that follows the same theme as our award winning website. I hope you enjoy it.

- Dr. Ed Law



CAPTAIN'S COMMENTS

We are excited to inform everyone that the 2012 FRC game Rebound Rumble has been released. Our team is in full swing and we are currently on pace for our goal of completing the robot in 28 days. All of the members

on the team are excited to participate in this year's game which closely resembles basketball. In addition, we are almost finished with the CAD model of what the finished robot will look like. We have also found a space

for a practice field and have finished building it. We think this year's game is very exciting and we look forward to seeing how teams compete. Go Bionic Barons!

-Matt Rein

BIONIC BARONS



STUDENT-MENTORING FLL TEAM NXT LIGHTNING



FLL Team NXT Lightning celebrate their victory at the Bloomfield Bash.

Team 2834 students have been hard at work mentoring *FIRST* LEGO League Teams throughout the Bloomfield Hills School District. *FIRST* LEGO League is a smaller-scale robotics competition among middle-school students which focuses on a central theme each year,

incorporating a robot challenge, research project, and "core values" presentation. The Bionic Barons mentor these middle school teams in order to prepare them for the high school robotics program, and get them interested in Science, Technology, Engineering, and Math. Before going off to competitions, Bionic Barons students teach middle school students aspects of programming, project management, building, and design.

Personally, I worked with NXT Lightning, a team of seventh graders from Bloomfield Hills Middle School. The team, in their third year, included 10 students, the maximum

number allowed on an FLL team. After winning the Bloomfield Bash, a practice tournament held by Team 2834, NXT Lightning went on to win the Champion's Award at the Novi tournament and also won the Champion's Award at the White Lake State Championship.

Mentoring NXT Lightning was an extremely rewarding experience. As I have seen how the students have progressed throughout the team's three year existence. I have learned how to better teach and interact with them, and enjoyed every minute of it.

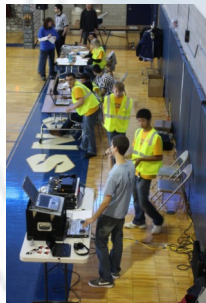
-Justin Lopas

FLL PRACTICE TOURNAMENT

On Nov. 5th, the Bionic Barons held their first annual practice FLL tournament for 14 Michigan FLL teams. Our hope was to allow teams to be able to practice in a real competition setting before going to an official competition.

All 14 teams were excited to be a part of this tournament and had a great time, playing 5 matches each and giving one of their presentations to a group of highly acclaimed judges. The volunteers also had an amazing time watching the students work vigorously to make their robot score as many points as possible. Overall, the tournament was a great success, and we hope to continue this tournament in years to come.

-Jason Law



The Barons coordinate the FLL Practice Tournament



An FLL Robot



FLL Teams at the Practice Tournament

PTC HANDS-ON WORKSHOP

On November 12th 2011, the Andover/Lahser Robotics Team hosted the PTC Hands-On Workshop, where teams from all over the metropolitan area were invited to come and learn about the work of PTC. We were grateful that our sponsor, PTC, sent Jordan Cox to run the workshop.

The workshop gave teams the opportunity to collaborate and learn about the new software that PTC has released. This also was a time where we were able to experiment and learn where one may find their passion in the design process. As a new member of the robotics team, I found this experience very helpful.

Throughout the workshop the main focuses were brainstorming and design. Once we learned how to brainstorm, we took designs and put them in a 3-D model, using Creo Elements/ProEngineer, PTC's computer aided design (CAD) Software. PTC representatives as well as experienced members of the Bionic Barons helped attendees learn how to use the program. At the workshop, teams saw the advantages of using the software PTC provides. The workshop was a hit and everyone walked out having learned something new.

-Francesca Ferrara

SPOTLIGHT: FRC & FLL MENTOR LAUREN SCHAFFER



I've been mentoring *FIRST* teams for four years now, both *FIRST* Robotics Competition (FRC) and *FIRST* LEGO League (FLL) teams. Ever since I joined a high school FRC team, I knew the *FIRST* program was special, and I wasn't going to let something like graduation stand between me and all the challenges, rewards, and fun it offered. I started mentoring in my 3rd year in college, helping a rookie high school team. The next year I was asked to help an FLL team during the off-season. I wasn't sure about joining an FLL team because I wasn't part of FLL when I was in elementary or middle school so I didn't know what the program was really about, but I decided to do it anyway and never looked back.

For me, there are a lot of similarities between mentoring an FLL team and an FRC team. Every year, without fail, I am mistaken for a high school student or, at best, a college freshman. I am also inevitably asked

if I get paid to help the team, and am often met with surprise from students and parents when they learn that I'm a volunteer. Of course, each year there is a glowing sense of pride when I see my team at competitions — whether it's demonstrating an understanding of a difficult concept we've been working on, playing a fantastic robot match, or previously unruly students modeling gracious professionalism when interacting with other teams. It doesn't matter if they come home with trophies or just participation medals — I know how hard they worked, and in the *FIRST* community, "winning" isn't defined solely by the awards.

There are a few differences between mentoring the two programs though, besides the fact that FRC is a high school program while FLL is a middle school program. In some ways mentoring a FLL team is more challenging. I get fewer hours to work with kids with shorter attention spans. It's a challenge to make sure everyone gets to work on the robot because while everyone

wants to play with the Legos, not everyone can work on an 8" robot at the same time. While the kids and I want the robot to cruise through its missions and get a good score, I have to acknowledge that they need to focus on the other aspects of the competition.

It's not just a challenge though — it's often more rewarding and fun. Since these kids are still fairly young, I feel like I can teach them more, and sometimes I'm simply amazed at the ideas and solutions they come up with for their robot missions and their project.

-Lauren Schaffer



Mentor Lauren Schaffer (far right) with her FLL team, the MegaBites. Two members of the MegaBites, Sarah Gerendasy and Andie M., have joined the Bionic Barons for the FRC season (see page 4).

BUSINESS UPDATE

An important aspect of having a successful robotics team is to have adequate funding. This year, we managed to retain most of our previous sponsors while acquiring new sponsorships. We received platinum sponsorship from The Chrysler Foundation, Hoyt, Brumm & Link (HBL), and PTC, as well as gold sponsorship from BAE Systems and MetroPCS. We are also grateful for our silver sponsors: IBM, American

Supplier Institute (ASI), Dow Chemical, Acme Ladder & Supply Co, Ferguson Enterprises, Guy, Hurley, Blaser, & Heuer LLC, Mobis North America, Robert James Sales, Inc and RS Dale Co, Inc. These companies have provided us with their support and we are extremely grateful.

We have also managed to raise a substantial amount of money through our Entertainment Book

Fundraisers. Throughout the fall, Bionic Barons team members sold books at many locations throughout the community, including Plum Market, Kroger, Bloomfield Hills middle schools, and high school open nights. We appreciate all of the support that we get from our community and hope to continue to improve and expand our robotics program.

-Rohan Sinha

BIONIC BARONS WELCOME 8TH GRADERS TO TEAM



Andie M. and I were given a great opportunity to join the high school robotics team, the Bionic Barons, while still eighth graders at BHMS. In total, four eighth grade students have joined the team from district middle schools. At first, it was intimidating and a little frightening since we didn't know much about *FIRST* robotics. Also, our teammates are older than us, many of them seniors, and even many of those who aren't seniors have more experience programming and building a robot. But from the first meeting, the team has included us in discussions and made us feel welcome. Andie and I have worked in the shop and have joined groups working on different

parts of the awards presentation.

There are two main reasons we decided to join the team. First, we both love robotics, and want to continue to build, program, and participate in robotics at the high school level. This early membership gives us a great opportunity to experience FRC first hand, gain invaluable experience in the FRC program, and make friends with fellow teammates. The Bionic Barons have had a great reputation and we want to be a part of it. Most of all, we have lots of fun on the team.

This is not our first experience working with the Bionic Barons; they mentored us during our 7th grade FLL competition, when we won the research award at States. During our

two years in FLL (and three years for Andie), our team went to States and won the research award in 2009 and 2010. We are somewhat familiar with the team since 7th grade, and we are looking forward to FRC competitions. Since both the FLL and FRC emphasize "Coopertition" to support and encourage each other, the welcoming attitude of the team comes naturally, even though we are "just" eighth grade students. We are both extremely excited about attending the World Championship with the Barons later this year. We made it to States in FLL, but not to the World Championship, so we are sure that it will be an experience we will always remember.

-Sarah Gerendasy

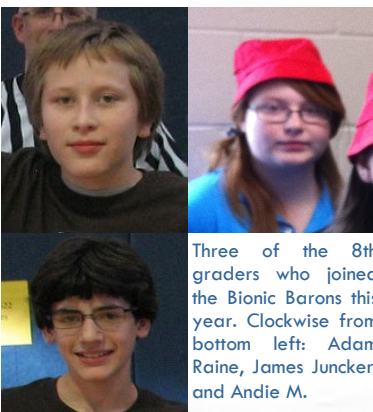


A team picture of the Bionic Barons.

PICTURE GALLERY



The Barons, in yellow shirts, assist attendees at the PTC Hands-On Workshop. See page 2.



Three of the 8th graders who joined the Bionic Barons this year. Clockwise from bottom left: Adam Raine, James Juncker, and Andie M.



FLL participants, coaches, parents, and referees watch an anticipated match during the FLL Practice tournament. See page 2.



FLL Research Award, won by the MegaBites. See article above.

LET THE RUMBLE BEGIN!

In December, the excitement and buzz began to build as the *FIRST* Robotics Competition (FRC) kickoff approached. On Saturday, January 7th, *FIRST* Team #503, the Frog Force hosted dozens of teams for the live, world-wide broadcast revealing the 2012 competition season game: "Rebound Rumble." In the hour-and-a-half-long broadcast from New Hampshire, the game animation and kit of parts were shown, as well as words of encouragement from people such as *FIRST* founders Dean Kamen and Woody Flowers, President Bush, and President Clinton, to name a few.

This year's competition involves shooting baskets with foam basketballs, balancing robots on see-saw type bridges and the added feature of using the Microsoft



Team members examine the field set up at Novi High School during the FRC Kickoff.



A team brainstorming session.

Kinect controller during the hybrid/autonomous period. Check out the game animation at <http://www.youtube.com/user/FRCTeamsGlobal>.

After the presentation, the team was excited to view the partial set-up of the playing field. In the afternoon, our own Dr. Ed Law was presented a seminar about our team's scouting database. We left Novi High School with excitement for the much-awaited 2012 competition season!

Later Saturday night, part of the team met to read over the game rules and brainstorm a list of the important features of the game as well as attributes the robot should have. During this process the team implemented Quality Function Deployment (QFD) to summarize this work.

The next day, student member Luke Kuza and parent mentor John Kuza of AllStar Wireless and sponsor MetroPCS hosted our team strategy meeting. Here, Dr. Law and team captains Jason Law, Justin Lopas, and Matt Rein presented the QFD spreadsheet to the rest of the team. The rules were discussed again and breakout groups were formed to brainstorm the potential concepts of what the robot could look like based on the QFD spreadsheets.

Also at this meeting, a safety presentation was given by Safety Captain/Team Captain Ryan Hoyt and parent mentor, Todd Hoyt of Hoyt, Brumm & Link. They discussed the highlights of the team's newly created safety manual, "The Safety Shield".

By the end of the day, many ideas were exchanged and presented to the rest of the group. This prepared our team to begin the 6 1/2-week period in which we build a robot to play the game at competition. Let the "Rumble" begin!

- Ryan Hoyt

MARK YOUR CALENDARS!

The Barons are excited to announce that we are scheduled to attend the following competitions:

- March 9-10: Waterford *FIRST* Robotics District Competition at Waterford Mott High School
- March 23-24: Niles *FIRST* Robotics District Competition at Niles High School

The team welcomes and appreciates all who join us at the competitions. Come watch the matches, support the team, and taste the thrill of the *FIRST* experience.



Design Editor: Hiba Chaabi

News Editors: RJ Richmond and Josh Inwald

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Team 2834



BIONIC BARONS

Coach's Corner

As I reflect on how the team did in the last three years, I can't be more proud of what the students have accomplished. The team has won one or two awards at every district and state competition, including the Website, Engineering Inspiration and Entrepreneurship awards. I am especially proud of these awards because they are accomplishments above and beyond building the robot and the robot competition.

Last year we adopted a new mission statement. It has just three simple words: Learn, Serve and Grow. This isn't just a mission statement, it is the team philosophy. Year after year, we really do learn more, serve more and continue to grow. It inspires me to see how much this team has learned and also how experienced team members mentor new members through the FIRST

experience. I am also proud of the service the Bionic Barons provide to our surrounding community; hundreds of families had food on the table because of our efforts. Our community outreach programs not only taught others but contributed to our growth. After starting and mentoring numerous FIRST LEGO League (FLL) teams and running FLL summer robotics camps for three years, it was time for us to elevate our FLL involvement to the next level. We completely redesigned the Michigan FLL website and incorporated it seamlessly into the FIRST in Michigan website. The Bionic Barons also hosted a FLL practice tournament to help new FLL teams prepare for their qualifying tournaments. It was a great opportunity for students to be involved in the planning and execution of the event. It was a big undertaking, but we successfully

completed the challenge.

I am honored to report to you that PTC has selected our team as one of only ten teams to receive platinum sponsorship this year. The sponsorship is for \$5,000. We were chosen because of our community involvement as well as our close partnership with them to promote science, technology, engineering, and mathematics initiatives.

As you can see in the many articles in this newsletter, we had a very busy summer and fall. I hope you enjoy reading about it.

- Dr. Ed Law

Captains' Comments

We are extremely excited for the start of this new robotics season! We are eager to welcome our many new recruits to the team as we continue to prepare for a grueling new robotics season. Our team has been vigorously preparing for the challenges that lay ahead and we have been extremely active this

summer and fall off-season. We've been very busy going to competitions, doing community outreach events, helping mentor FIRST Lego League teams, and training new team members, among many other things. We are extremely proud of what this team has accomplished so far, and we urge our team to keep pushing

forward. We are excited to see what this team can do, and we know that with the hard work and dedication that everyone has shown thus far, this team is capable of doing amazing things. Go Bionic Barons!

-Jason Law and Matt Rein
Bionic Barons Co-Captains

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Serving Our Community in Need



Team members help pack food for the needy at the Yad Ezra Food Bank.

FIRST robotics isn't just about building robots, it's about spreading the message of education, engineering, and community service. Each year, the Bionic Barons serve our local community through volunteer activities and

events. We realize how fortunate we are, and try to give back to our community in various ways. This year marks the fourth year that the team volunteered at the Yad Ezra community food bank in Berkley, MI. There, we helped pack and store food for the needy. Team members felt great after leaving, knowing that they made a difference in someone's life.

We also participated in the BHS Make a Difference Day, an event which brought together Bloomfield community members and volunteers to give books and supplies to the Detroit Public Library System.

We also volunteered our time at Gleaners Community Food Bank in Pontiac, MI, helping assemble backpacks that would be distributed food to the hungry in southeastern Michigan. Through these efforts we packed 250 bags of food, representing 250 kids/families that were fed for the weekend. Each backpack provided nutritious meals for the children to eat over the weekend. Currently, the weekend backpack program provides food to more than 5300 of our community's most needy children. We plan to continue to serve our community in need for years to come.

-Justin Lopas

Community Outreach



FLL campers plan their strategy for a mini competition at the end of FLL camp.

The Bionic Barons continue to reach out to the younger members of our community to get them interested and excited about robotics. On August 15-19, the Barons hosted a summer FLL Robotics camp for middle school students to learn and demonstrate the Lego Mindstorm Robot (NXT). Mentors and their students were assigned teams and those teams developed and practiced their robots. During the last hour of camp, the students

demonstrated what they learned throughout the week by participating in a mini competition. Their parents were invited to see their new talents and skills too. The students gained a great understanding of what the actual FLL experience is like and enjoyed competing with friends and peers. They also learned that this is a friendly competition and that teamwork is fun as well as important to their overall success.

people who witnessed the show were of all ages. Children especially loved the robot; we even gave them a chance to control the robot. For parents, seeing their children use such a complex machine was both nerve-racking and funny. Overall the parents were amazed at what was happening in their community and were encouraged and excited about robotics.

-R.J. Richmond

On Saturday October 15th, the Bionic Barons demonstrated the robot at the Bloomfield Township Public Library. The purpose of this demonstration was to show to our community that science, technology, and engineering can be combined to build and program a robot. The



Team members, parents, and siblings watch as young kids try their hand at driving the robot at the library.

Maker Faire at The Henry Ford Greenfield Village

This past summer the Bionic Barons attended the Maker Faire at The Henry Ford Greenfield Village in Dearborn. It was our second time attending and being part of the exhibits that feature everything from homemade clothing, food, rockets, electronics, and of course, robots. The Maker Faire contains many inventions that are creative and imaginative. We exhibited our robot throughout the two-day event along with other FIRST robotics teams from Michigan.



FIRST Robotics Teams—including the Bionic Barons, of course—at the Maker Faire.

There was a partial Logomotion field set up that was very helpful in demonstrating to the public the game and what the robots can do. The Maker Faire is held throughout the United States and is a great event where you can check out

some really cool ideas. There is a huge “Mouse Trap” game set up just like the board game and other really cool ideas. In addition to all of the neat displays, when you attend the Maker Faire in Dearborn, you also get free admission to The Henry Ford Museum. Don’t forget to check it out next time the Maker Faire comes to The Henry Ford.

-Matt Rein

Picture Gallery



Left: Team members explain to visitors at the Maker Faire how our robot works.

Right: The Bionic Barons at the Yad Ezra Community Food Bank.



Spectators watch the robots during a practice match at the Maker Faire.