

- November 9-10 ~ MadTown Throwdown
- November 17 ~ FIRST Lego League Qualifying Tournament
- January 5 ~ 2013 FIRST Kickoff
- February 17 ~ Fembots Practice Day
- March 2 ~ eWaste Fundraiser

St. Francis
CATHOLIC HIGH SCHOOL

Robotics Team
The Fembots

The Drill

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Another Year of... BIG FUN!

Once again the Fembots have shared their love of science and technology with the people of California. This is our fourth year participating in the California State Fair, doing multi-day demonstrations. The Fembots use this demo as an opportunity to not only share FIRST with their community, but also to train their rookie members in public speaking and all the fun of being a Fembot. Our alumnae come and play with us too, sharing their knowledge and a unique perspective on how being involved in

FIRST Robotics has given them the desire to learn and grow. Our demos at the Fair this year were Big Fun. The Fembots spoke to thousands of fair-goers and impressed everyone driving their Rebound Rumble practice robot, Atari, out the door and around the building using only the on-board camera. He had a couple of human spotters, of course, safety FIRST!

Special thanks:

Michelle Johnson, our contact at the Fair for taking such good care of us and inviting us back year after year. We are already committed for the 2013 California Exposition!

Thanks also to our friend, Jim Beck, for the use of the FIRST pop-up banners, tablecloth and "I love Robots" stickers. They really helped draw more people in to find out more about FIRST.

Above: Front row (left-right) Mary '14, Kathleen '16. Back row (left-right) Zaire '15, Moriah '13, Ty '13, Reanna '14, Marian '10, Michelle '09

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POWERHOUSE CAMP

By Rachel J.

This summer, the Fembots were invited to a Robotics Camp hosted by Powerhouse at the Discovery Museum and Science Center. There, we demonstrated one of our robots, Atari, in front of twenty-four children from ages 10 to 13. We explained to them who we were, what FIRST was, and the different branches of FIRST, from Junior FIRST Lego League to FIRST Robotics Competition. When we opened up the show for questions, some of the children asked basic questions like if the robot could shoot basketballs and drive around. But many of them asked about our team, how we made our robot, and what we do. They asked so many questions that we couldn't even answer them all! They had to move on to the next part of the camp--but, if we could have--we would have spent all day answering their questions. It was an amazing experience to see all the children so interested in FIRST, math, science, and technology.



Above: Front row (left-right) Rachel'13, Zaire'15, Mary'14. Back Row (left-right) Laura'14, Jasmine'13, Moriah'13, Shirin'14, and Ria '13.

MEET ZYGY

By Dani D.

Last year, we named our robot Syzygy (Zygy for short) and had him powder-coated an appropriate pink. We used a series of rollers (similar to our robot from 2009) to pick foam basketballs off the ground, bring them to a storage area in the back of the robot, and then feed them to the shooter in the front. The gatherer is wide in front to make ball gathering easier and gets narrow in the back to help funnel the balls to the storage area, which is designed to hold no more than three balls at a time. The shooter itself uses four wheels to shoot out the balls, similar to a tennis ball launcher. We also used a window motor to adjust the angle on the shooter so we can not only control how fast the balls go, but also the angle at which they are launched.

Our shooting mechanism is virtually the only aspect of the robot that still looks like our original design. During our first competition, the Sacramento regional, we decided to cut about 2 feet off of the top of the robot, thereby lowering the robot's center of mass and making it less likely to tip over. Thanks to the people at NASA (and their saw), this task got done in only a couple hours and we had time to make our last practice round.



Competition robot Syzygy at the FIRST World Championships in St Louis, MO.

In autonomous mode, we used several sensors to aim the shooter and take balls off the middle bridge. Our camera determines how far the basket is from the robot and adjusts the shooter accordingly (with the help of a gyro). Then, we used encoders to set the exact speed of the shooter wheels and fire the balls to the hoop. Then, we backed up the robot using encoders to make sure we go the exact distance, and tip the Coopertition Bridge to bring the balls to our side of the field. During teleoperated mode, we used a similar code to automatically aim the robot and shoot hoops with the push of a button, essentially eliminating human error.

We continued working on and improving Zygy throughout the rest of the year and over the summer so he is in top-notch shape in time for our off-season competition, Madtown Throw-down. Zygy will be ready to take on new teams from all over California and the world!

Home Is Where You Hang Your Goggles

By Ria F. and Mary R.

Over the past few years, our school has been so kind in providing us with an extra classroom, known to the Fembots as "the Pi room," Room 314, to use as a workspace for the non-building related aspects of FIRST robotics. However, this summer, the school requested the classroom back, to use in the upcoming school year for smaller sized classes. St. Francis graciously offered our team a new workspace which is located beside our storage bin, Wargo Hall, near the soccer fields. The space is currently being called "the Hot Box," due to the lack of air conditioning in the workspace. Within a matter of weeks, we were able to transfer all our material, which includes six rolls of carpets, our newly donated computers, shelves, and much more, to "the Hot Box". We are so thankful that our school has been so supportive of our team and that they have provided us and continue to provide us with various workspaces throughout the years. However, moving into our new workspace isn't the only thing the Fembots have been doing this summer. While many were moving our material to the Hot Box and cleaning the Pi room, other Fembots continued working on the robots used in last season's competition. We needed to make sure we were ready for the 2012 California State Fair. Each year we Fembots present the FIRST organization, our team, and the



robots that we build at the California State Fair. This year, we demonstrated for 3 days and spoke with over 4,000 people. We mainly spoke to parents and handed out tons of buttons to the kids! We demonstrated our robot, leaving kids in amazement and impressing many of the adults. A Fembot was even approached and told, "You girls should be proud of yourselves. Many people don't see a team of girls achieving so many goals!" Through presenting at the California State Fair, we hope that we can spread the message of FIRST and inspire others to become a part of the FIRST community. And just like every year, the California State Fair was not only a huge success, but a ton of fun and a great experience for our rookies, returning Fembots, Fembot alums, and parents.

BUILD SEASON 2012

By Olivia D.

This build season proved successful. Although I cannot compare it to past seasons, I believe it was considerably more organized. We kicked off the season on January seventh with a clean build room, new materials, and fresh minds. Our Design Team met for the entirety of the first week, brainstorming, prototyping, and calculating. The Build Team worked simultaneously with Design—making the first cuts for Syzygy and Atari, our practice robot, from the chassis up as they put the finishing touches on their design. All the while, Programming and Field Build had been working on Half-Pint and the field elements, respectively. As chassis pieces were cut, Welding assembled them together. By the end of week four, two complete chassis were ready to be built upon. After all the major components were built, the robot shells were sent off for powder coating. Upon their return, drive trains, ball storage compartments, rollers, motors, and the shooters were installed. Meanwhile, Programming worked to create the E-board. They calibrated gyros and cameras, and set the motors to run at the same speed.

As we neared the end of our allotted six-weeks, the Build Room became an avalanche hazard zone for all the aluminum scraps and team members had long ago slipped into a sleep-deprived, brain-dead, stupor. Despite such conditions, we managed to get both robots up and running before bag-and-tag day. Overall, Build Season 2012 was a resounding success.

Upper left: Row 1 (left-right) Meagan'12, Sherry'03, Marian'10, Zaire'15, Moriah'13, Shirin '14, Olivia'14, Ty'13.

All Nations Church Presentation

By Moriah B.



On August 17th, the Fembots went to a presentation at All Nations Church of God in Christ. We were invited to come to the service and demonstrate our robot, Atari. We showed off Atari and shot basketballs to people in the audience. The back-to-school celebration was outside.

During dinner, Mr. Albert taught one of the church's deacons how to chain extension cords to make them easier to use the next time. We also taught one of our rookies how to do the extension cord trick as a basic skill in robotics. All in all, it was one of the most fun and relaxed presentations that I have been to recently. All the people were warm and seemed to truly enjoy the presentation.



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FIRST Team 692

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Far left: Mr. Albert (mentor),
Moriah '13, Mikia '16, and Shirin '14.
Below: 2003 Team picture

Just a Little Perspective

By Sherry Batin '03

It has been 11 years since I was first introduced to FIRST and all its wonders and 11 years since I became a Fembot. In that time, my perspective has changed and morphed all while I watched the team change and morph.

As a Student

I joined the team as an enthusiastic and excited junior. I had no idea what I was getting myself into, but I was ready to take on the challenge. 14 other rookies and I spent 6 weeks building a robot for the the 2002 FIRST Robotics Competition (FRC) game, Zone Zeal. We had to maneuver 60 lb goals and manipulate soccer balls. We were ambitious and we managed to create a 5-foot robot with more functions and capabilities than the 2001 predecessor which was simply deemed the piece-of-wood-on-wheels (a.k.a. Bob to more current Fembots and friends of the Fembots). We brought our machine to the Silicon Valley Regional (SVR) where I made my debut as one of two robot drivers and became a part of the pit crew. This adventure alone stirred a passion in me that I never knew I had.

It stirred me enough that I became the President of the club my senior year. I had so many ideas and plans



that I wanted to implement in this third-year veteran team. I especially wanted to do many things to promote the Fembots with the introduction of the first Sacramento Regional. One of those goals was for the Fembots to earn the spirit award as a proud team from the Sacramento area. The second goal was to produce an effective machine that did one thing and that one thing well; we made the mistake of doing too many things with sub-par abilities the previous year. Precious, the robot, effectively drove around and established itself as the king of the hill earning 25 points in almost every match. My third goal was to somehow earn the team a trip to Championships in Houston, Texas.

Goals for Season By Jasmine A.

The Fembots are so excited for the new season of FIRST Robotics! Many new faces have shown their interest in robotics and have been welcomed into the Fembot family. So far, we have six new rookies and two new mentors as well: Mrs. Ruano and Mrs. Espindola. During our next meetings, we are going to get situated in our new programming room and reorganize the build room in preparation for build season. We plan to host our annual E-Waste fundraising event, and are planning for our annual Kick-off event

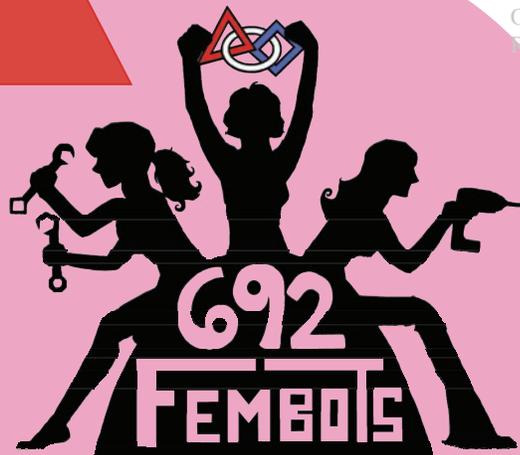
on January 5, 2013. The Fembots are currently organizing pre-season workshops to train our new rookies. The team is ready to face all of this year's challenges head on. It's going to be a blast! The Fembots are going to show the world that "We can do it!"



Above: Row 1 (left-right) Rachel '13, Laura '14, Sherry '03. Row 2 (left-right) Olivia '14, Jasmine '13, Maxine '15, Ty '13 and Reanna '14

With the womanpower and effort of about 30 members, the Fembots left the Sacramento Regional with 3 awards in hand. My teammates did me proud by screaming, shouting, cheering, and dancing to every song earning us the Daimler Chrysler Team Spirit Award. Precious' robustness, simplicity, and easy of maintenance won us the Motorola Quality Award. Lastly, the Fembots were crowned Regional Winners along with team 662, Rocky Mountain Robotics from Colorado Springs, and team 1147, Herd Bot from Elk Grove, earning all 3 teams an invitation to the Championship event. The experience was beyond amazing and exceeded all the expectation I ever had for the team. My Houston experience was the highlight of my senior year, hands down. In matches I drove the robot like mad and played as hard as any other team at the event. In the pits I chatted up the judges to the best of my ability showcasing everything that we managed to achieve up to that point. With my teammates I tried to experience all the things that only the Championship event could offer. I refused to leave Houston with any regrets. The competitive nature of the other teams was certainly a league beyond what we were capable of, but it was still an experience I would never trade in for anything in the world. I finished off my senior year with such a high and managed to achieve so much with only two short years on the team. Needless to say, I didn't want to graduate and it was hard to leave the Fembots behind. But I had to become an alumna, I had no choice.

Stay tuned for our next issue to hear more about Sherry's story...



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