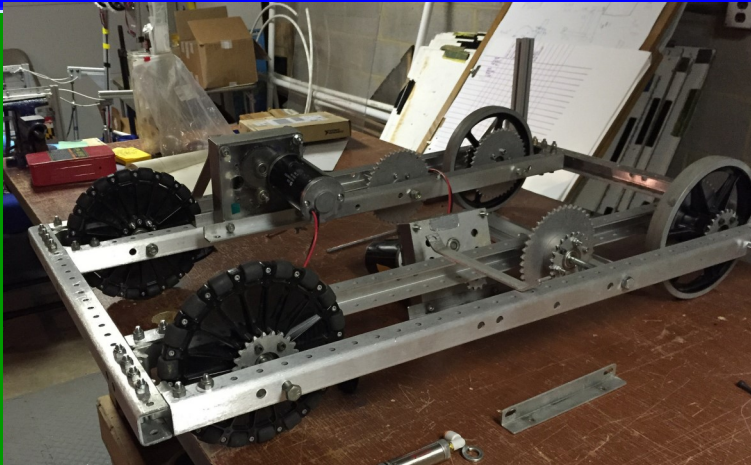




FRC Team  
2199

FIRST Robotics Competitions (FRC) combine the excitement of sport with the rigors of science and technology to provide students a “real-world engineering” experience.  
~ [www.usfirst.org](http://www.usfirst.org)



*The RoAR in the early stages takes center stage in the shop*

## ADVOCACY FOR STEM EDUCATION TAKES ROBO-LIONS AND PARTNER TEAMS TO DC

*Emma*

The Robo-Lions sent representatives to the *FIRST* National Advocacy Conference (NAC) between June 14-16, 2015. Mentors Rose Young and Tom Milnes, parent Gary Smith, and team members Matt, Nathan, Emma and Spencer spoke for the Robo-Lions alongside mentors and team members from PIE<sup>3</sup> teams and others from around the state of Maryland and the nation.

The *FIRST* NAC is an event which gives FTC and FRC teams from around the country the opportunity to gather at the nation’s Capitol to learn how to talk to their Senators and Congressmen about what *FIRST* is and why legislation supporting such STEM extracurricular activities should be passed. This includes sections of the reauthorization of the bill known as “No Child Left Behind”.

The first two days of the conference are similar to school because attendees learn about FIRST and how to present a position to a Member of Congress or staff. The final day is spent at the Capitol in pre-arranged meetings with Representatives and Senators. Maryland was well-represented, at this event. The Robo-Lions brought some of the few FTC teams along, including FTC Team 8221 Cubix and FTC Team 7265 Gear Grinders. All of the students and mentors found this to be a great learning experience, and something to make a team tradition in future years. And to it was lot of fun, too!

## ROBO-LIONS TAKE ON ROAR

— *Olivia S*

How do young children with severely limited use of their limbs learn to drive a wheelchair? In Fall of 2014 the Robo-Lions found out that there are some challenges for these children when we were approached by the Carroll County Public Schools (CCPS) Assistive Technology Team with a request.

Providing a mobility vehicle for students who were too small for standard motorized wheel chairs is the goal of the Robotic Assistive Rover. The Robo-Lions began by repairing CCPS’s existing “Cooper Car” Mobility Device. The Cooper Car is similar to a toy Jeep but allows a car seat to be strapped to it and has special electronics to allow control using head movements. Unfortunately the Cooper Car was rather expensive (\$3000), and no longer manufactured. To support the student population, additional mobility devices are needed.

The Robo-Lions are currently designing and constructing the RoAR— Robotic Assistive Rover to fill this need using parts from old robots. As of now the Robo-Lions have built the first RoAR prototype and are currently programming and testing in preparation for a demonstration in the winter.



*Robo-Lions members posing with team members from Cubix^3 at the FIRST NAC. Pictured: Matt, Emma, Nate, Spence, Mr. Fremgen (Aide to Congressman Cummings)*

*Inside: upcoming events and off - season competitions during the 2015–2016 school year!*



# GIRLS IN ENGINEERING CAMP SEES GROWTH IN NUMBERS AND PARTNERS WITH GIRL SCOUTS OF CENTRAL MARYLAND

*Coralie M.*

The Robo-Lions built on the success of last year’s Girls in Engineering summer camp on August 10th–14th, 2015, with great success. The girls spent the afternoons during a full week crafting solutions for the many engineering challenges they were given. This session was a collaboration of the Robo-Lions and FTC Team 8221, Cubix^3.

Activities included building boats out of tinfoil that would hold the most marbles, and towers out of straws, coffee stirrers, tape, and rubber bands to hold up to earthquake forces. In between working on engineering challenges, the girls also worked on programming and building Sugo Bots. The girls had a great time learning about the different types of engineering through fun challenges and activities. They were treated to a workshop lead by FIRST alum Cynthia Davey, a Mechanical Engineering student at the University of Maryland, in circuit design and the fundamentals of electricity. The flowers featuring LEDs were a real hit!



*(Left) campers battling sumo-bots that they built and programmed. (Middle) Girls in Engineering campers posing with LED flowers that they created. (Right) Girl Scouts at the Girl Scout workshop programming Lego Mindstorm robots.*

*Girl Scouts about exited about making circuits*



*Girl scouts building and programming Lego mindstorm robots*



The Girls in Engineering Girl Scout Workshop was a special one day camp session. It was created because a few girls were unable to attend our summer camp, but the Girl Scouts of Central Maryland (GSCM) requested a one-day workshop. The Robo-Lions along with members of FTC team 8221 Cubix^3, FTC Team 7266 the Dragonettes and FTC Team 7265 The Gear Grinders worked together to create a modified camp session.

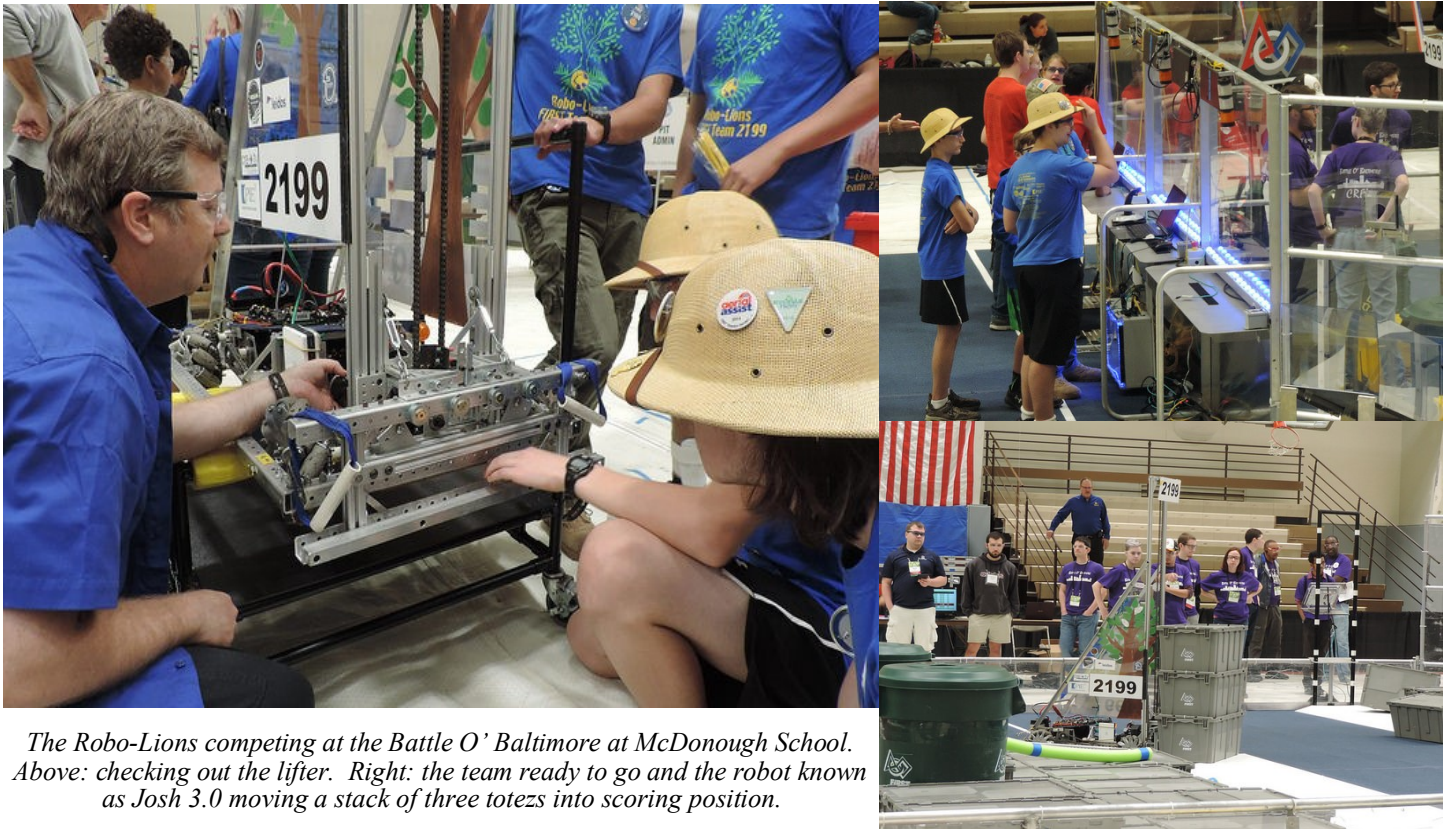
The demand exceed the capacity, with 40 girls enrolled in the first week for what was expected to be 15-20 girls total! The workshop GSCM STEM Center in Baltimore on August 21st. The girls had a a great day of fun programming and driving EV3s robots, learning about circuits, and creating LED flowers. Due to the overwhelming interest in the workshop we may hold another session later on in the year.



## ROBO-LIONS ROCKIN' AT THE BATTLE O' BALTIMORE

Olivia S.

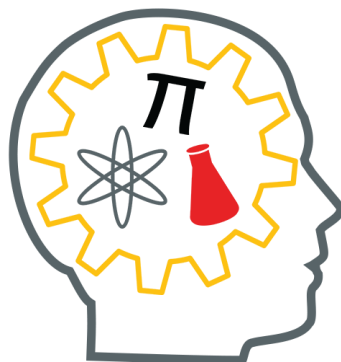
The Robo-Lions returned to the Battle O' Baltimore (BoB) once again on September 24th. The event was hosted this year at McDonough High School in Owings Mills, MD. This off season robot competition features robots from all across the state of Maryland as well as Virginia, Pennsylvania, New York and New Jersey. This year the game was "Recycle Rush", with the goal of Recycle Rush of stacking as many recycle bins and totes on top of each other as possible. The more totes stacked, the more points are earned. This year the Robo-Lions made their way all the way to Semi-Finals. Although we did not win the Battle O' Baltimore, those that participated in the event found it was a great day to work on improving team camaraderie and robot performance.



The Robo-Lions competing at the Battle O' Baltimore at McDonough School. Above: checking out the lifter. Right: the team ready to go and the robot known as Josh 3.0 moving a stack of three totes into scoring position.

## ROBO-LIONS PARTNER WITH LIBRARIES, MARYLAND STEM FESTIVAL.

MARYLAND  
STEM  
FESTIVAL  
2015



The Robo-Lions hosted two Maryland STEM Festival events in November, in partnership with the Carroll County Library System. We were featured on the front page of the Carroll County Times after the November 9th "Pumpkin Smash" in Eldersburg. A repeat performance is planned for November 12th in Mt. Airy. Our teams also ran Java courses in Eldersburg and events at the Taneytown and Finksburg Libraries.



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