

TEAM 4909



Billerica Bionics

Week 2 of Competitions 3/9/16– 3/13/16

Reading Recap

After six long weeks of building and two weeks of anticipation, we've had our first competition! Hosted at Reading Memorial High School, the North Shore District event was our first event of the season taking place in week two of competitions.

It was an amazing experience in seeing the teams all came up with different ways to tackle the same challenge. Some teams chose to focus entirely on crossing defenses, building highly specialized drive bases and manipulators to get by every type. Others hybridized, including a manipulator to intake a boulder and dump it into a low goal. With us included, some teams even had capabilities to shoot boulders into the high goal, and still be able to cross most defenses.

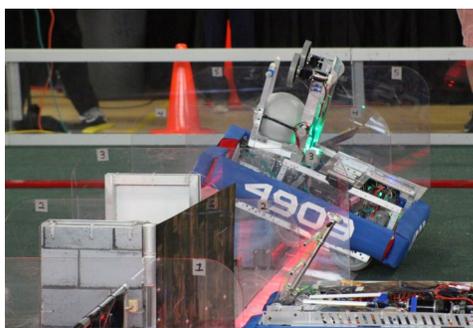
Unfortunately, our competition didn't go as smoothly as anticipated. On load in and before the start of matches on the first day, we had to work out some issues with our bot. For starters, our electrical box, the plastic housing for all of our motor controllers and power distribution, was giving us issues. On the first night, those were corrected. Unfortunately, on the first morning, we discovered that the central axel that the entire shooting mechanism rests on had bent out of shape. It is believed that the axel bent while in transit. Fortunately, one of our mentors who work at CRM Advanced manufacturing was able to machine us a new keyed steel shaft. Before the start of our first match, all of our major problems had been mostly corrected.

Through the problems, however, we went from being ranked 31st out of 40 to pulling all the way to the 10th ranked team at the event. We went on to become the 6th seed alliance captain, and made it to the quarter finals round of elimination matches. We won the Engineering Inspiration award, the Hard Hat Pin award, and our safety captain, Jonathan Sanchez, won the Star of the Day award.

Our next competition is at the University of New Hampshire, where we'll come even fiercer than ever. We have plans to utilize our out of bag time to make improvements with our robot vision and electrical configuration. We're going to be a force to reckon with.



Shooting a High Goal



Crossing Defenses

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In the action

Inside the Event

FIRST events are pretty cool in the way that they're set up. The very first day of competitions is called load-in. Usually, this happens at or after five until well into late into the night. Teams arrive at the venue with all of their things and set up their pit area with their tools, robot, and workstations so that it won't be a scramble on the next day. Other teams may also use this time to test out new features that they couldn't get done in the designated out-of-bag time after stop build day.

The second day, or the first real day of competitions is when most of the competing happens. There's usually practice matches in the morning if the venue can accommodate it, then, after opening ceremonies, the real competing starts to happen.

The way that the event works is that all teams for a day and a half will compete in randomly assigned teams. Each "alliance" (team) is made of three robots selected completely at random to face another randomly selected team. The idea is that by being able to perform well when you can't pick your team means that individually, you're a better robot. That's what it means to have a qualification ranking.

On the third day are the elimination matches. Just before lunch, the top eight ranked teams are called up to become "alliance captains". From there, the first, then second, then third, and so on, get to pick their first robot to compete in the mini-tournament style matches. After the first round of picks, the order reverses, and the eighth seed gets to pick, then seventh and so on.

From there, an 8-alliance tournament bracket is set up. The 1st seed faces the 8th seed, 2nd and 7th, and so on.

We have a history of making it to quarter finals matches. But for some reason or another, we've almost never made it past the first round of quarter final matches (the first stage). Hopefully, if we perform well at UNH, that may change.



Lining up for a high goal shot



Drive Teams discussing strategy

UPCOMING EVENT

UNH Competition

3/24/2016 - 3/26/201

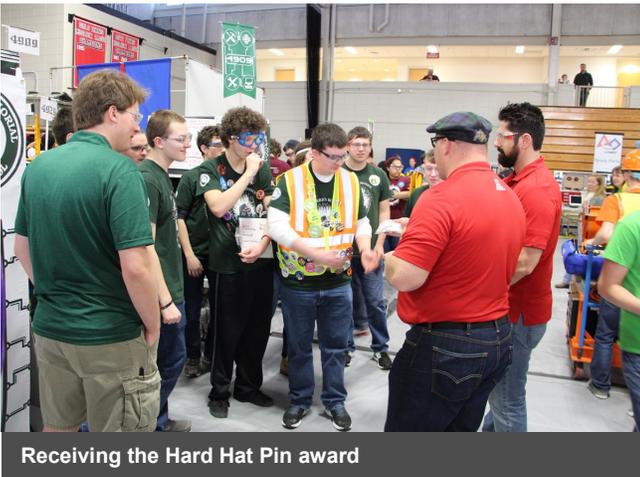
University of New Hampshire

105 Main Street

Durham, NH 03824



Drive Coach with Alliance Captain band



Receiving the Hard Hat Pin award



Presenting to judges

Awards

Not all of competitions is about doing well during matches. A major component of FIRST is being more than just robots. Our mission is to spread the message of STEM within our school and community through our robots and how we make them happen.

In order to continue on to the regional competition, you need district points. You can get these through doing well in the competitions and winning elimination matches, but you can also win awards. These awards help to recognize all of the other efforts put in by teams at these events other than of course building an awesome robot.

We won the Engineering Inspiration award at the North Shore District event. The engineering inspiration award recognizes a team's outstanding efforts to raise awareness and generate excitement for STEM in their school and community. In our award recognition, they noted how we had been very involved in our community through our participation in the Yankee Doodle parade, NERVE center open house, Billerica family New Year, among many others. They also gave a mention to how we sent out weekly newsletters to our sponsors and supporters, in order to get people interested and getting a view into our perspectives on the tasks and challenges at hand.

In addition to the engineering inspiration award, we also won the Hard Hat Pin safety award. That award recognizes the top three teams at the event for having the best safety program. For the third time in two years we've received this award. Our safety captain, Jonathan Sanchez, also won the Star of the Day award, which recognizes an individual for their outstanding safety initiatives at the event.

Safety in robotics usually comes in the form of common sense. It's using proper protective equipment when necessary, but also knowing how to do tasks properly. A lot of our safety program comes from training and prevention; we have a tool training program at the beginning of the year to get new people trained on all of our power tools, and getting them to know when they need to wear safety goggles and gloves and hearing protection.

At our event at the University of New Hampshire, we are hopeful that we will be able to bring home some more hardware, and maybe even take home the Underwriter Laboratories safety award. However, there's still a week to go, and we still have our work cut out for us.

The **Engineering Inspiration Award** celebrates outstanding success in advancing respect and appreciation for engineering within a team's community. Inspiring others to respect science and technology requires passion, knowledge and commitment. *FIRST* celebrates these qualities by presenting its Engineering Inspiration Award.

This team spreads the mission of first all year long.

Their weekly news letter tells what's going on.

It creates a wave of interest.

Which they use to build their "fan base".

Qualifying to compete for the Engineering Inspiration Award at the District Championship is

Team 4909

The award blurb for Engineering Inspiration



Engineering Inspiration Trophy

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