THE NUTS AND BOLTS

TECHHOUNDS TEAM 868

February 21, 2014

this issue

Upcoming Events:

Crossroads Regional
March 6th - 8th

The TechHOUNDS are traveling to Rose-Hulman Institute of Technology to take part in the Crossroads Regional.

Boilermaker Regional
March 20th - 22nd

The TechHOUNDS' second competition, the Boilermaker Regional, will take place at Purdue University.

Queen City Regional
March 27th - 29th

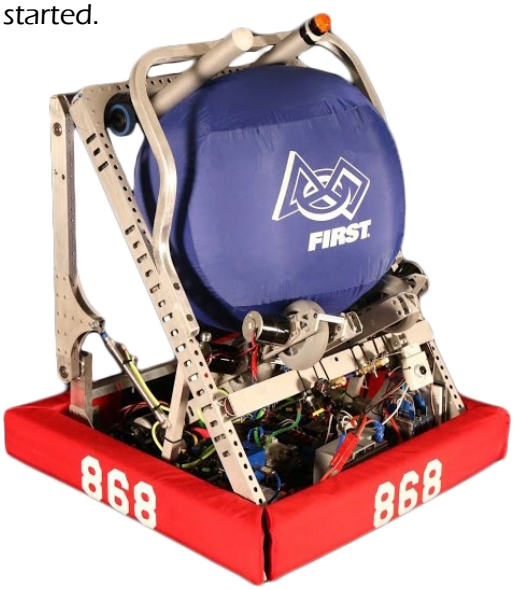
The third competition the TechHOUNDS will be attending is the Queen City Regional, in Cincinnati, Ohio.

At all competitions the TechHOUNDS encourage friends, family, and sponsors to watch the matches and cheer on the team.

Ready for Battle

The TechHOUNDS have ended the season strong.

Over the past six weeks, the TechHOUNDS have been working diligently to complete an efficient, fully-functioning robot for this years game, Aerial Assist. Our robot drives on an eight wheel, six CIM motor, single speed drive train. It collects the ball using three inch Banebot wheels powered by one BS550 motor. Our robot utilizes a fly-wheel style shooter that launches the ball with four Colson wheels. It has a range between five to twenty feet from the goal. We also utilize a stopper mechanism that has two main functions. The first function is to ensure the ball stays off of the wheels while we are preparing to shoot, and the second function of the stopper mechanism is to stop an accidental misfire from occurring if we get hit by another team. There is also a retractable cylinder that has a set of wheels used to feed the ball into the wheels, giving it a slight rotation in order to maintain a consistent shot. Also new this year, we have constructed an ammeter for our robot. An ammeter is used to control the current of the electrical board in order to prevent any blown fuses. It measures the current of the robot and, when it reaches a set limit, it will slow down the robot's different processes to help protect it. The TechHOUNDS are prepared and excited to get the competition season started.



The TechHOUNDS final robot, Android.

Division Updates

Throughout the six week build season we've faced many challenges, with snow days, and other various obstacles. With these challenges the team was even more driven and excited to complete a new pit, spirit wear, our Chairman's Award application, a competitive robot, and several other incredible projects. Now that the robot is bagged and tagged we are beginning our preparation for the competition season and can't wait to see all of our generous sponsors and supporters at our regional competitions!

- Blake Loncharich/ Molly Wardlow (Team Leads)

Auxiliary Construction

We have been working on creating a new way of supporting the sponsor banners displayed in the pit to make sure they do not roll up. We have already begun thinking of ideas on how to organize the equipment necessary when we travel to competitions and making sure everything gets there safely.

- Eric Lentz (Division Lead)

Programming

We have worked hard to create new code for the drive train and the shooter. We have also created camera code that is able to be used during the competitions during autonomous mode.

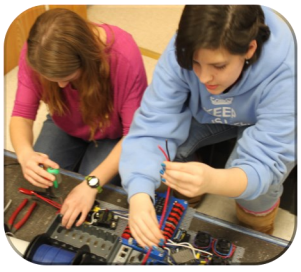
- David Murzyn (Division Lead)

Robot Operations

We have worked hard throughout the past six weeks to come up with the best design for our robot. We have created an amazing robot and are excited to see it working in action at our first regional, Crossroads, in a few weeks.

- Evan Chivington (Division Lead)

Electrical



We have created a fully functional electrical board for both the practice robot and the final robot. We have also worked on other smaller projects throughout the season to help out with teachers around the school.

- Jacob Swiezy (Division Lead)

Website

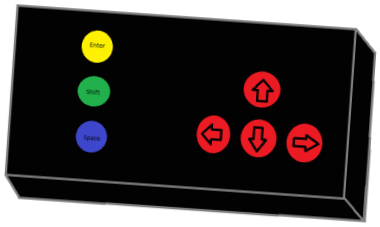
We are continuing our search for tablet donations for use with the scouting system. We have also begun working on a specific Android app that will essentially turn a tablet into a "smart whiteboard" that is easy to use during competitions.

- Vincent Mai (Division Lead)

Innovation to the Max

Over the six-week build season, multiple groups comprised of TechHOUND members have been working on various projects to make the team stronger and help the community.

Key Buttons

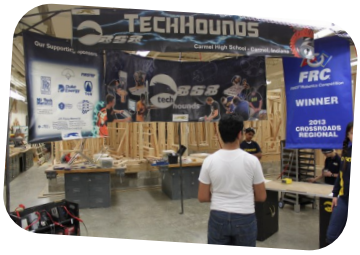


First year members Garret Ferry and Matt Hussey have been working on a simple gamepad for Riley Children's Hospital located in Indianapolis. The gamepad is made of arcade buttons that create four arrow keys and three multicolored buttons. They will be used to teach physically disabled children simple rotary functions while letting them play fun arcade-style games.

Battery Tester

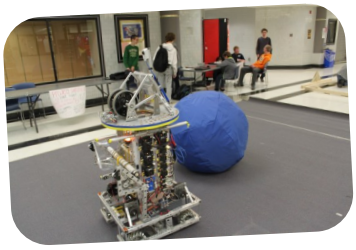
Sam Shurina and a mentor, Mr. Waidner, have been working to create a product that will test the lifetime of AA batteries for a statistics class here at Carmel High School. The battery tester takes the current from the AA battery and pairs it with an equally powerful voltage, which in turn powers a twenty-four hour timer. While the current depletes, the voltage depletes at the same rate until it can no longer power the timer, marking the end of the battery's life. This test will tell us which battery brand has the longest lifetime.

New Pit



Members of the TechHOUNDS construction division have been working to redesign and construct a new pit. The pit is where the team works to repair the robot during competitions and our previous design took around ten minutes to set up, using PVC pipe as support structures. The new design uses a tailgating frame that has been modified to hold up our banners. The new pit takes around three minutes to set up, making it much more efficient at competitions.

Ball Tracking



Using the TechHOUNDS 2012 robot, "Boomer", Andrew Bass, Riley Borgard, Andrew Dennison, and Austin Weaver have taken the initiative to create a new program that autonomously tracks and follows this year's game piece. They have the program erase all colors in a camera frame, except for the targeted color of the game piece, in this case blue or red. Once it has found the color it's tracking, it outlines the game piece and calculates the diameter and distance to the targeted game piece. It uses the calculated distance and begins to follow the game piece. This program will be useful in the future during autonomous periods.

Rookie Corner

Why did you join the TechHOUNDS?
"I joined the TechHOUNDS because I am interested in engineering and I wanted to do some hands on work."

What division are you in and why?
"I'm in the electrical division, but because I have an interest in electrical engineering and wanted to learn more about it."

What are you most looking forward to this season?
"I am most looking forward to the competitions because I'm interested in seeing our robot in action."

Matt Bonini

Grade: 10
Dream College: Purdue
Favorite Class:
Intro to Engineering Design
Inspiration: Sister

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FOR YOUR SUPPORT THIS SEASON!

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