



# The Nuts and Bolts

FIRST Robotics Competition

Carmel High School -  
Delphi - Rolls-Royce -  
TechHOUNDS

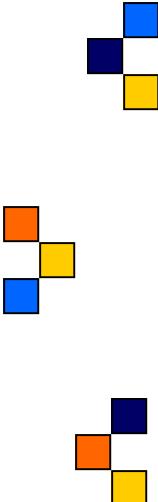
Team 868

Issue 1.2

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## Upcoming Events:

- St. Louis Regional Competition:  
Feb. 28–Mar. 1
- Purdue Regional Competition:  
Mar. 13–Mar. 15
- Atlanta Championship Competition:  
Apr. 17–Apr. 19

“Time flies by when you’re having fun” - this certainly was the case for the TechHOUNDS as this build season raced by quickly. Over the past six weeks, Team 868 has worked hard towards the FIRST Robotics Competition. We have accomplished several goals, all of which can be seen in this edition of *The Nuts and Bolts*.

The FIRST Robotics Competition is part of *FIRST (For the Inspiration and Recognition of Science and Technology)*, an organization that, according to founder Dean Kamen, strives to “transform our culture by creating a world where science and technology are celebrated and where young people dream of becoming science and technology heroes.” For more information, please visit [www.usfirst.org](http://www.usfirst.org).





## Presenting...Our 2008 Robot!

*The build season has drawn to a close, and our robot has come a very long way in a very short time. First, the robot was just a thought, then a drawing, then a wooden prototype, and now, it is a sturdy, aluminum, ball-hurdling machine. As always, it was not an easy journey, complete with the usual assortment of unforeseen problems, but with time we worked through the setbacks. We exchanged our weak, little garage door spring (used for catapulting the ball) with a heavy-duty industrial model. We traded our bulky, immobile claw (with which we grab the track-ball) for a slimmer one with pneumatic valves to hold the ball in place. Our latest launching capability includes a distance of forty feet at a height of over fifteen feet in the air, and with a few more tweaks mechanically and programming-wise, we expect to be throwing even farther. This robot will surely be a crowd-pleaser in the stands!*

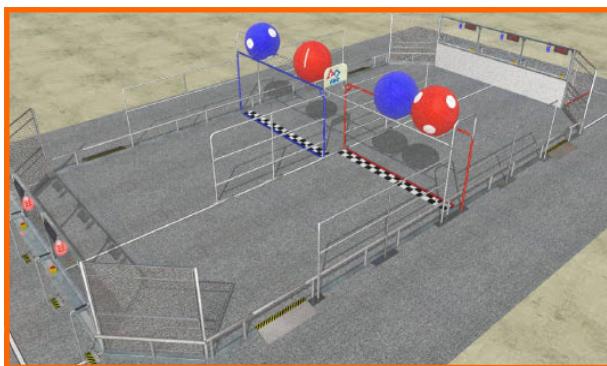
— The Robot Operations Team



## Recap of FIRST Overdrive



Here is a quick review of the *FIRST* Robotics Competition challenge revealed on January 5, 2008 to teams worldwide:



This year's game involves a large racing track with a center bridge called an **overpass**. The goal of the game is for each alliance to score as many points as possible during the **hybrid** period (where each team uses pre-programmed commands to operate the robot) and the **teleoperated** period (where the alliances have complete control of their robots). The teams do this by moving in a counter-clockwise direction along the track, passing **trackballs** under the overpass, or "hurdling" the trackballs over the overpass for extra points. To see the animation of this game, please visit

[http://robotics.nasa.gov/events/2008\\_frcwebcasts.php](http://robotics.nasa.gov/events/2008_frcwebcasts.php).

### Our Strategy

After presenting several ideas on how to play the game, the TechHOUNDS have decided to offensively score as many points as possible for its alliance by "hurdling" the trackball over the overpass using a catapult system during teleoperated mode. During hybrid mode/end game, our robot will knock appropriate trackballs from the overpass by driving underneath and using a "windmill" contraption on top of our robot.



On the construction side of TechHOUNDS, it has been a busy build season. Some members constructed a **mock playing field** for the robot to practice while other students redesigned the **crate**, which is used to ship the robot to competitions. More projects that were finished include a new **battery box**, a **dolly for the toolbox**, a **foldable table** for our computers, a **coat rack** for storing jackets at competitions, and a **scissor lift** to elevate the robot for working in the pit. Another project that members finished was the **floor plan design** for the pit to showcase our sponsors as well as hold all of our equipment. After a busy build season, the construction branch of TechHOUNDS accomplished a lot of crucial tasks in a short six weeks' time!

## Construction Team Update



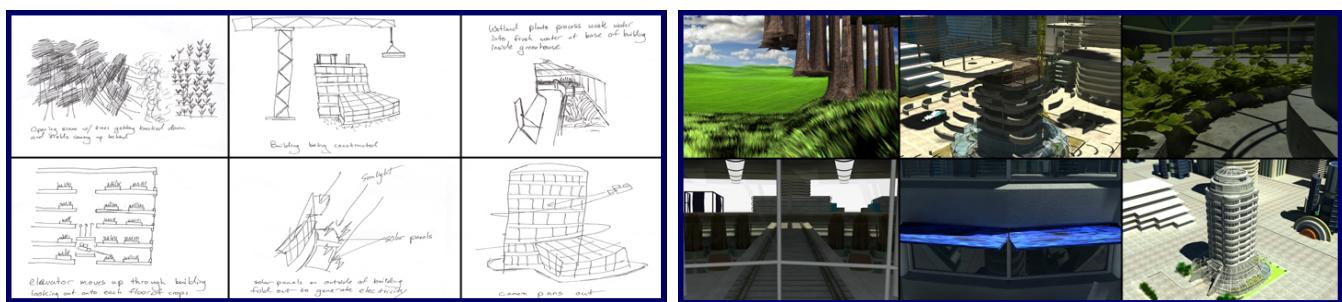


## Animation Team Update

In the last six weeks, the Animation Team has created a thirty-second animation to express the given theme of “an invention for the community”. It took a long time to create and design a definite idea, but ultimately we formulated the concept of a skyscraper that would contain special “hydroponic” basins, which in turn would grow crops. Hydroponics is essentially replacing the typical growing technique of planting in soil. Instead, the plants are submersed in a nutrient liquid. The idea is that these skyscrapers would prevent forests being torn down for farmland, and these allow a place for plants to grow even when farms begin to lose their arability.

It was a challenge to get the project done, but we were able to successfully render it and get it turned in on time. We have six different scenes in the animation, showing off a different part of the building concept. The beginning of the animation shows the destruction of the forest, then the floors themselves, the greenhouse at the bottom, and the solar panels around the outside.

See our storyboards and the animation itself on our website at [www.techhounds.com](http://www.techhounds.com).



## Website Team Update

A few programming languages, HTML books, and Microsoft Notepad were all that the Website Team needed to create our brand new site: [www.techhounds.com](http://www.techhounds.com), which was officially turned in to the St. Louis and Purdue Regionals as submissions for the acclaimed Website Award on February 14, 2008. A huge improvement from previous years' sites, this new portal of information is user-friendly and modern with unique touches. Here one can find meeting times, news and updates, pictures, sponsorship information, past newsletters, animations, our current members, information about TechHOUNDS and FIRST, and much more! There are also some notable Flash elements (such as the navigation menu and the rotating sponsor section) as well as

interesting features, including the center highlights screen and quote boxes on the home page and the various types of media. We are proud to present a website totally created from scratch (meaning that the code was done by hand without tools such as FrontPage or Dreamweaver) that will be frequently updated throughout the year. The Website Team experienced frustration during long nights along with times of utter joy, and it ultimately resulted a remarkable accomplishment.

## Woodie Flowers Award Submission

*This year, the TechHOUNDS had the pleasure of nominating a mentor for the Woodie Flowers Award, a prestigious recognition that acknowledges the significant impact a certain coach as made on his team members. Mr. Dave Smith, also a teacher at Carmel High School, undoubtedly deserves this award, along with much appreciation and gratitude from our team. Below is the nomination essay submitted to FIRST:*

The TechHOUNDS hear the same mantra every build season: “Pick one goal or strategy and work to be the best at it.” This motto of Mr. Dave Smith, a founder, teacher, and mentor of Team 868, echoes throughout the six-week journey, motivating every student to show dedication in all endeavors. With his continuous fervor, whether diligently directing students or laughing with team members, he embodies the characteristics of a Woodie Flowers Award recipient, right down to the last letter.



**F - Fluent**, “Mr. Smith communicates effectively so that everyone understands his message clearly. Not only does he convey his ideas effortlessly, but he’s also fluent in FIRST ideals, including encouragement of gracious professionalism, teamwork, and learning through hands-on processes.” - Mr. Keith Broerman, Fifth-Year Mentor and Father

**L - Likeable**, “The instant I met him, I found him very approachable and easy to talk to. Whenever you share an idea with him, he never shuts it down; rather, he tweaks the idea until you eventually create an even better one - he helps you grow as a thinker. Also, I can go to him when I have any type of problem, whether it’s related to TechHOUNDS or a personal matter. He simply lights up the room with his energetic, jovial nature.” - Daniel Potash, Student Team Lead

**O - Original**, “Mr. Smith is constantly brewing new ideas, but often he has pure strokes of genius - concepts never thought of by team members. He guides us with his innovative ways of performing different and often difficult tasks, and I love that I can always expect the unexpected from him.” - Meera Chander, Second-Year Member

**W - Wise**, “He is knowledgeable in everything relating to robotics and technology - with thirty years of teaching experience and seven years of overseeing the TechHOUNDS, he knows how to work with students and accomplish set goals. He’s an excellent problem-solver and strategist along with being well-versed in management; he has a real grasp of what is needed to ensure that a job is done right from start to finish.” - Mr. George Giltner, Faculty Team Lead

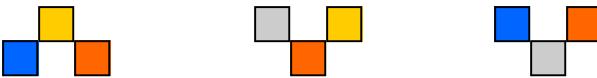


**E - Enthusiastic**, “Whether it be a weekday, weekend, late night, or early morning, Mr. Smith is always giving his 110% to the TechHOUNDS. Always with a light mood and a smile on his face while simultaneously working hard, he is eager to be involved in all aspects of the team. His genuine drive and energy are surely marks of true leadership.” - Stephen Spence, First-Year Member

**R - Resourceful**, “He always seems to know what to say and do at the right times. He is also adept in everything pertaining to machinery; he often opts to have components built by our team rather than purchasing them - that shows how proficient he is.” - Tyler Anselm, Fourth-Year Member

**S - Supportive**, “Mr. Smith is the one who encouraged me to join TechHOUNDS; I’m really grateful for that because this team is the perfect avenue to practice the skills I’ve learned in my STEM classes. He helps me in all environments: during build season, at school, or in my personal life. Mr. Smith always manages to push me to the peak of my skill level, yet through it all, he’s still a great friend.” - Karl Nepomuceno, Third-Year Member

Respected and admired by every student and mentor on Team 868, Mr. Smith is simply a pleasure with his motivation to instill passion and knowledge in every member, tempered by a fantastic sense of humor. He stimulates creative thinking and a positive attitude throughout the build season and beyond, while personifying those himself. Mr. Dave Smith will always be tremendously appreciated as an inspiration for the TechHOUNDS.



**A Special Thank You to...**

*All TechHOUNDS parents and supporters who have provided dinner for team members during the build season and our skilled teachers and mentors...*

*Plus, Mr. Spence for taking professional pictures of our team, which have been featured in this newsletter.*

*We sincerely appreciate your support!*



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*For more sponsorship information, please contact Mr. George Giltner or visit [www.techhounds.com](http://www.techhounds.com).*