



TEXAS TORQUE

TEAM 1477 ■ THE WOODLANDS, TX

JANUARY 2014



FIRST

HALLIBURTON



LEAD MENTOR

SCOTT RIPPETOE

BUILD MENTORS

JAMES TONTHAT

RAYNE BERION

CASSIE STEFFY

CHAIRMAN'S MENTOR

JASON BALL

SHERRY COATS

BUSINESS MENTOR

MATT DAVIES

UPCOMING EVENTS

Build Season Ends 2/18

Dallas Regional 3/13-15

Lone Star Regional 4/4-6

2014 FIRST ROBOTICS COMPETITION SEASON BEGINS

After an outstanding 2013 season, Texas Torque team members met bright and early for the much-anticipated **FIRST Robotics Competition KICK-OFF**. This is the webcast through which FIRST reveals the challenge of the year for all FRC teams.

This year's game — "Aerial Assist" — requires teams to build a robot capable of passing a 2 foot diameter ball to other robots in order to score in ground and 7 foot high goals. Teams may also toss balls over a 5 foot high "truss" that spans the

width of the field along the center line.

Texas Torque team members and mentors spent the day going over the new set of rules, potential strategies, and design concepts. The event marks the beginning of the build season for Texas Torque; for the next six weeks, team members will work to design, prototype, and construct the robot for the year before the seven week competition season begins. This year, Texas Torque will be attending the Dallas Regional, Lone Star Regional, and

the FIRST World Championship (held in St. Louis following the seventh week of competition).

We hope to keep everyone updated on our progress!



WEEK 1 - 4 UPDATE

Without a doubt, this FIRST Robotics Competition season is looking to be a great one for Texas Torque.

Torque engineers, media personnel, and other members have been hard at work to make sure all functions are working smoothly. As usual,

the time commitment is great for all students involved, but the reward will be great in the long run.

Texas Torque students and mentors alike have focused on subsystem prototypes for the last two weeks. As of today, more than five working proto-

types have been developed with more coming soon. Visit the "Build Corner" on the reverse side to learn more about recent developments.

TORQUE MENTOR COMPLETES THREE DAY CHALLENGE

The FIRST community loves to challenge itself, and Texas Torque loves to be a part of that action.

James Tonthat, a longtime leading mentor for Texas Torque and an employee at Innovation FIRST International, recently participated in Build Blitz, an intense challenge in which teams of IFI employees worked to complete design and construction of a robot for this year's

FIRST Robotics Competition challenge – in three days. As the first pick of the team headed by president of VEX Robotics Inc., a subsidiary of IFI, James worked tirelessly alongside amazing engineers to design and build a robot capable of gathering, launching, and catching the ball used in this year's game. Both "Team Copioli" and "Team JVN" completed the challenge; the techniques

and designs that the teams used to complete the tasks required will undoubtedly serve to guide and inspire the efforts of other teams participating in this year's FIRST Robotics Competition season.

We are incredibly proud of James for his work and are glad to have him working with us for the remainder of the season.



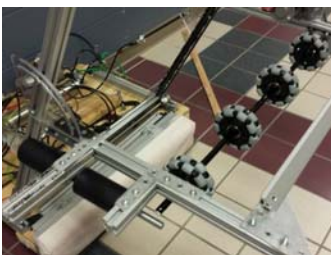
James Tonthat at the 2013 Lone Star Regional.

BUILD CORNER

CATAPULT

In order to launch the game ball into the goals and to maneuver it around the field, Texas Torque engineers are trying a classical, tried and tested design – a catapult. The current design uses surgical tubing to store energy when the catapult is pulled back and nylon strings to hold the catapult arm at a set initial angle.

Texas Torque has successfully designed a compact catapult capable of launching the ball along a flat trajectory over a long range. In addition, iterations of the prototype included pneumatic cylinders to set back the standoffs holding the ball, allowing for an even greater range of potential shots.



INTAKE

Balls on the field will need to be taken up and into the robot. To do this, Texas Torque students are designing a mechanism to roll the 2 foot ball into the base of the robot by using polyurethane rollers spun backwards by a motor. The most recent prototypes have been extremely successful, and have been able take in the ball from a relatively wide range in front – even when the ball is bouncing. After adding side rollers, we have seen the intake perform incredibly well over a very wide range.