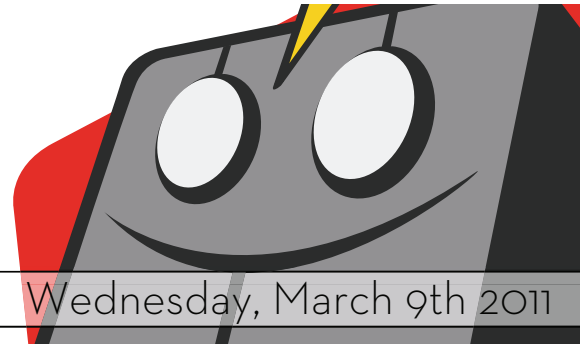


# The Sprocket:

A Robotics Geared Newsletter

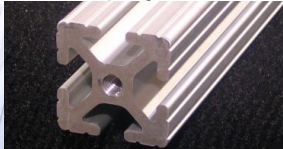


www.team2502.com

Volume 1 Issue 2

Wednesday, March 9th 2011

## Fourth Season For Team 2502 Ends



Left: The robot built for the 2011 season during mid-season. Top Right: The "Mecanum" wheel used on the robot. Bottom Right: An example of the 80/20 aluminum extrusion that was used to build the chassis and arm of Team 2502's robot. Pictures courtesy of robot-shop.com and cedar-rapids.com

### How Can I Help Support Eden Prairie Team 2502?

1. Come support us at the competition from March 31st to April 2nd at Williams Arena on the University of Minnesota campus!
2. We are also starting FIRST Lego League teams for younger Eden Prairie students. You can help by mentoring kids in grades 4-8 that join - no experience is necessary! If interested, send an email to [mail@team2502.com](mailto:mail@team2502.com)
3. If you are interested in joining next season, send an email to [mail@team2502.com](mailto:mail@team2502.com) and look for us at the Activities Rush next year!

Since kickoff day, Team 2502 has worked hard to try and make their best robot to date! The robot this year is made from grooved aluminum stock (80/20) that fits together to make its frame. This 80/20 stock allows for Team 2502 to turn the ideas on paper into reality. Everything from the frame to the lift system is carefully designed, drawn, and assembled.

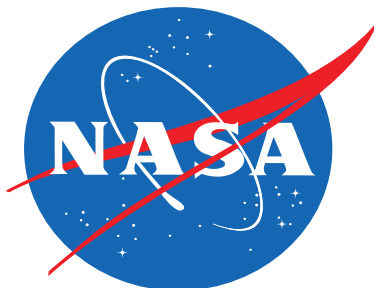
This year Team 2502 is utilizing a four wheel drive system for stability and speed. The wheels are of a unique design called "Mecanum". Mecanum wheels can be described as wheels made out of wheels. The "tire" consists of several plastic rollers angled so that the wheel can move along several axes which give it quick turns without sacrificing acceleration or speed, and even allows the robot to strafe sideways!

Apart from just building, programming is also an essential part of making the robot operate. There is anywhere from 1,500 or more lines of code on the robot. This year in particular, the programming team focused on code that allows for the robot to detect reflective tape through a camera, as well as other basic functions like controlling the Mecanum wheels, raising the arm, and moving the grabber.

The challenge of the game involves finding a way to pick up inner tubes, transport them to the opposite side of the field, and hang them on pegs attached to a wall. Team 2502's solution to this challenge involved a system that mimics a forklift and a moving hook system to securely hold the tubes. Another aspect of the competition involves trying to deploy a smaller robot. For this challenge, the team designed and built a mechanism that can deploy the "minibot" quickly and efficiently.

Team 2502 ended their building season on Tuesday, February 22nd. With the building completed, the team is currently preparing for the competition by working on the mini-bot, team mascots, presentations and even posters and chants! The competition is at Williams Arena from March 31st to April 2nd.

## Team 2502 Official Sponsors



Automation.com

Minaurik

Dri Steem

Recon Robotics

Twin Cities Automation

Air Engineering and Supply

Quantum Graphics

Glen Prairie Press

Horizon Graphics

# Technology News



*Image courtesy of 101arena.com*

## Microsoft encourages Kinect Modifications

The Microsoft Kinect is the revolutionary new gaming peripheral that was released back in November 2010. It works in conjunction with the Xbox 360, one of the most popular gaming consoles of all time. You don't need a controller to use the Kinect - as Microsoft says, "You are the Controller." This means that you are able to control it without using buttons or holding controllers. By using cameras, infrared sensors, and microphones, it is able to do an impressive range of tasks including face recognition, depth and gesture sensing, and voice control. The Kinect encodes information in infra-red light patterns as they go out, and the deformation of those patterns is what the camera looks for. The \$150 device, made by PrimeSense and licensed by Microsoft, has the potential to completely change the way humans interact with robotics and technology as can be seen by the countless amazing projects already created with the Kinect by technology creative developers everywhere.

One of the most impressive things about the Kinect is how easily it is for anyone to get raw data from the device. Encouraged by a \$3000 bounty offered by micro-controller seller Adafruit, Héctor Martín cracked the Kinect and released open-source drivers for the device just three days after it was released. These drivers allowed developers to read data from the device's sensors by connecting the device to a PC. Despite declaring that they would pursue legal action, Microsoft later realized the potential creativity of these developers, and encouraged them to take advantage of these capabilities. The results have been impressive. Developers have ultimately used Kinects for a number of purposes, including: controlling standard PCs and PC games; creating 3D maps of a room; transmitting holographic images and video (like Skype); remotely controlling a robot by copying human movement; and virtual reality using Vuzix goggles with Kinect.

The Kinect will have a cousin soon released with the same PrimeSense hardware. It's called Xtion and looks like a mini-Kinect that can be mounted on top of a laptop. This will pave the way for more "natural interfaces" in personal computers and could bring many of these new projects into mainstream use. After selling over 8 million units in just two months, Microsoft is also rumored to be looking into incorporating the hit Kinect device into its Windows software, possibly in Windows 8, which is due to be released in 2012.

## Gadget Guide



### Spray-on Skin Gun

*Image courtesy of the Huffington Post Online Newspaper*

A medical miracle, a dozen patients have had their burns miraculously cured in days rather than month after having skin generated from their own stem cells sprayed on using this device. This "skin gun" shows promise in being able to reduce recovery time and scarring in patients with severe skin damage.

### Xoom Tablet

The flagship tablet from cell-phone maker Motorola, this tablet is to have the radically new "Honeycomb" tablet version of the Android OS which will be tough competition for the iPad, considering its reasonable price and slick user interface.



*Image courtesy of venturebeat.com*

### Google CR-48 Laptop

These computers sport the radically new Chrome OS, which seeks to make hardware virtually irrelevant by saving everything into the cloud. With the cloud, all your files are saved in a server, so all you need to get your files is the Internet. This makes the danger of losing your files almost irrelevant.



*Image courtesy of thegadgetsite.com*

## Credits

### Editor-in-Chief

Paul Vaynshenk  
Jesse Loi

### Editors

Triet Pham  
Adarsh Ravishankar

### Team 2502 Article

Ray Guo  
Eric Reinking  
Jesse Schuster

### Technology News

Aaron Schmitz  
Joe Haynes  
Gavin Ovsak