The Sprocket:
A Robotics Geared Newsletter

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"Ultimate Ascent" Challenges Team 2502 During Sixth Season

On January 5th, 2013, robotics teams all over the nation gathered to watch the NASA channel for a broadcast about a game of Ultimate Frisbee. But not just any game, though - this game of Ultimate will be played by robots. Ultimate Ascent is its name, and here's how it works.

Ultimate Ascent is played on a field measuring 27 by 54 feet with two alliances of three robots each. The objective is to shoot discs into four goals at different heights, with higher goals worth more points. In the center of each half of the field is a ten foot tall steel-framed pyramid with a very small goal on top. This goal is the hardest to score in because of its height and because only the six colored alliance frisbees can score points in that goal. At the end of the two minutes when robots are driven around scoring points, the final namesake task awaits our robot. Robots must ascend the three layers of the pyramid, and the higher our robot ascends on the pyramid, the more points we will score. We will have the last thirty seconds to climb the pyramid before points are tallied and the round is over.

To attempt this year's game, our team is building a robot that can pick up discs from the ground and shoot them into the goals, while also being able to ascend the alliance pyramid for additional points. Alliance members can feed discs into the arena from designated areas on each half of the court, and our plan is directly feeding discs to our robot to quickly shoot them into the goals.

Image courtesy of usfirst.org

Since the unveiling of Ultimate Ascent as the challenge, our team has created many prototypes for the various modules on our robot, namely the drivetrain, collector, and launcher modules. The first module we prototyped was the launcher, and its design changed many times. It started as a spinning wheel in the middle of a guardrail arc and changed to a two wheeled design with no guide arc and ultimately settling on the more accurate and reliable guiderail two wheeled design. A great deal of tweaking and editing still needs to be done in order to get it right. It required lots and lots of testing and failure, but with such "failure" came success and many melted discs. Our drivetrain and collector prototypes are also following a similar design path—some ideas that we have thought of include stacking the discs or a cartridge type design.

Cool Technology from the CES

The Consumer Electronics Show unveiled more cool technology like augmented reality glasses, waterproofing electronics, and programmable batteries.

Image courtesy of dvice.com

Innovega displayed new augmented reality glasses at this year's CES. Although it is widely known that Google is creating a similar product, Innovega has made leaps where Google has only made a few steps. The major problem with displaying information on glasses is that your eyes cannot focus on much detail directly in front of them. This caused Google to make their glasses with a very small, low resolution screen. However, Innovega solved this problem by first developing contact lenses that allow the wearer to focus on objects very close to their face. With use of the contact lenses, Innovega's augmented reality glasses can project images through the entire 120 degree range of vision. Innovega's only challenge now is projecting images from the sides undistorted—which should be relatively simple.

CES was not just about new technologies—there were also new ways of protecting gadgets. The new WaterBlock coating developed by HZO protects the device inside and out. Any gadgets and gizmos coated in WaterBlock can literally run while submersed in the liquid of your choice. This provides leaps and bounds towards bringing technology everywhere. Even with the battery cover off WaterBlock could protect the valuable electronic components inside just fine.

Image courtesy of dvice.com

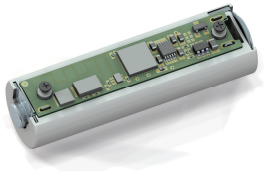

Image courtesy of tetherboard.com

Tetherboard has created a way of not simply turning off an electrical device, but ***the batteries themselves***. They have only accomplished this with AAA batteries programmed to turn off and stop the battery from passing currents in a AA spot, but more batteries are soon to come. A small plastic sleeve contains a tiny circuit board controlling the rest of the device. Called a Tethercell, it may soon be the parents' next weapon in the war against teens using technology late at night. There are other uses for this incredible little tool: home automation seems to be big , as well as turning off a device for meetings. This is just the beginning of great ideas in electronics control.

How Can I Support Team 2502?

1. Come support us at the competition in Williams Arena at the University of Minnesota from March 28 to March 30!
2. Make a donation! Send an email to mail@team2502.com and we'll get back to you with more details for support.
3. The best way to support us is to join Team 2502! Look for us at the Activities Rush next year and sign up!

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