The Sprocket:
A Robotics Geared Newsletter

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Team 2502 Continues Building "Rebound Rumble" Robot

As the 2012 FIRST Robotics build season ticks down to its final seconds, Team 2502 is scrambling to put the final touches on its robot. In case you've forgotten, this year's basketball-based challenge, "Rebound Rumble," requires teams to build a robot that can retrieve balls, score points, and defend its hoop. For the past month, Team 2502 has been hard at work doing just that. Read on to see how far we've come in designing a mechanized Michael Jordan!

February 21, 2012, is the official deadline for Team 2502 to finish building its basketball robot. As of writing, the robot consists of a shooter system, a vision system, the main frame, and a drive train system. The shooter is the system that launches basketballs into hoops to score points and operates like a tennis ball shooter. It is being tested with different motor power levels to determine how far it can shoot basketballs. The vision system will help find where the field targets are based off of camera images it captures; the programming team is working on this system to better locate targets. The main structure of the robot is made up of 80/20 aluminum bars that help keep the robot light yet durable. The main drive system to coordinate the movement and direction of the robot consists of a set of carpet wheels powered by a chain-and-sprocket system.

Right: The prototype for Team 2502's robot. Image courtesy of Ashley Auerbach.

Even with this much we still aren't done! With just over one more week left to build the robot, Team 2502 still has to finish writing the programs and building a system to pick up basketballs! Programming Captain Alex Reinking is leading his team in using C++ to program the robot. Programming is key to having our robot function the way we want as every part of the robot will be controlled by a program. A team member will be able to remotely control the robot as it navigates the course at the competition. The system that will pick up balls is still being constructed, but our plan is to have rotating brushes that will "swivel up" the balls into the shooting system. This will allow the robot to pick up balls just by running into them!

Team 2502's robot is definitely going to come down to the wire! Only time will tell if we'll be able to succeed in creating our mechanical basketball player. Be sure to check back in a few weeks for news on our final design!

Cool Technology of the Day

Apple is introducing even more new technology, among which the iDesk is one example. The iDesk, for example, is an interactive work desk that can hold numerous apps, such as a calendar, phone, calculator, the weather, and even digital post-it notes. The iDesk operates on touch based controls, and it even has the capability for wireless charging! Even Team 2502 is considering getting an iDesk—why shouldn't you?

Image courtesy of Adam Benton and maclife.com

For many years, scientists have been trying to obtain part of a comet; now NASA thinks they've found a solution: the comet harpoon! Because landing on a comet going at 150,000 mph is too dangerous, scientists are developing a harpoon to acquire samples from comets.

The comet harpoon consists of a cannon and a metal ballista. The cannon should be able to fire the metal ballista towards the comet and penetrate its surface. Once this happens, the ballista will use a scooping mechanism to gather materials from the comet. Once full with materials, the ballista will then be pulled away and brought back to Earth for scientific testing.

The information from the comet will be used to further study the formation of our solar system, as well as provide crucial information for the deflection of comets. Unfortunately, the testing of the harpoon will take a few years, meaning NASA won't be firing at any comets in the near future.

3D printers are constantly being improved as the years go by—in fact, researchers are beginning to use 3D printers with a wide variety of materials for many different prints. Some of these printers can even use plastic or liquids in their prints! 3D printers provide people with the opportunity to rapidly construct 3-dimensional objects to use as prototypes or for actual construction. 3D printers operate through a process called additive manufacturing, which fuses materials together in layers based upon designs created using computer-aided design (CAD) software. Recent trends in the pricing of 2D printers has hinted that eventually, 3D printers will replace 2D printers in both the home and in the office.

How Can I Support Team 2502?

1. Come support us at our competition in Williams Arena at the University of Minnesota from March 29 to March 31. It'll be fun!
2. Buy a Team 2502 Superfan T-shirt! If interested, talk to your robotics friends or send an email to mail@team2502.com and we'll place an order for you!
3. The best way to support us is to join Team 2502! Look for us at the Activities Rush next year and sign up there!

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Editors

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