



Week 3 Newsletter

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Archimedes's screw hopper prototype



Wheel shooter prototype



The third week of build season was strenuous and exciting. The design for the robot was finalized and prototyping became the focus of the week. The team decided on final designs of the two main parts of the robot, the game piece hopper and shooter. With the help of mentors and parents the prototypes were nearly completed.

The hopper and pickup mechanism are based on the Archimedes' screw. The team is using a flat square board as a base. There is one wooden pole at each of the four corners of the board, and there is another wooden board at top. The hollow rectangular prism has a tube wrapping around the inside of it following the shape of a screw thread. There is a pole in the middle of the prism running board to board, acting as an axle. Shelf liner is wrapped around the axle pole to transfer the force of the turning axle onto the game piece. A motor will be used to turn the axle, which will in turn move the game ball up the screw thread created by the rubber tubing.

The shooter utilizes two pairs of wheels to propel the game ball onto the field. The shooter is comparable to a baseball pitching device. Each set of wheels is powered by a separate motor and is mounted on an angled wooden board. The PVC tubing that attaches the wheels to the board allows sufficient space for the game piece to pass between the set of wheels and be propelled forward.

Prototyping during this week was quite successful; the design and build teams accomplished much. While the impending exam week and SATs limit work time on the robot, the team is committed to finding the balance between academics and robotics.

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Maynard Foundation for Childhood Cancer

Jake's Reindeer Race is a local fundraiser for the Maynard Childhood Cancer Foundation. It is held annually in December, and 2008 was its fourth year. Godwin Robotics has been involved for the past two years. This race is available for all ages to attend in order to raise money to donate to hospitals for children who have been afflicted with cancer. Godwin Robotics volunteers to work and participate as runners. The team takes Lieutenant Shiny Sides, our T-shirt shooting robot, as entertainment for kids attending the fundraiser.

Recently, in 2008, the team received an award for Highest Donation & Participation: \$2500. Accepting this award was a great honor; all of the students who attended contributed and worked very hard to raise money. Godwin Robotics will continue participating and hopes to donate a larger amount in future years.



Participants in 2008 Jake's Reindeer Race



Jake presenting the trophy of appreciation to Team Captain Alex Bush

Mr. Hurlburt Lead Mentor

This week was a busy one trying to finalize our hopper and shooter design using the prototyping and design process. I think we have worked out all the kinks with our design and look forward to the real deal. The kids are learning bunches and bunches this year and I hope that with all of their hard work we can do well at Regional's. had a parents meeting to get some additional parental support this week. We have formed a lead parent committee to assist Pam and I with some of the administrative aspects of mentoring a larger team like ours. I look forward to implementing this new parent committee and take our team to a whole new level that we have never seen before. My goal is for our team to have a greater impact within our local and *FIRST* communities. We have a long way to go but with our parents helping we will achieve many great things in the future. I am excited and grateful for all of the help from our sponsors, parent helpers & mentors. Without you we can not or have not been able to get to where we are today. We are getting there and I can not wait for what our future holds.

Mrs. Holley Assistant Mentor

This has been an exciting third week. Our PR team and our other members have all pitched in to complete our first stage of our new web site. In addition, we have added many new items for our Pit Packages that we are planning to incorporate this year. The team is working hard to develop our new theme of FRC — Focus, Respect, and Commitment. The team believes that focus on each other, respect to others and the environment, and commitment to the team and community will not only bring success as a team but also as individuals as each grows and develop into better citizens. In addition, we completed our design for the new T-shirt and have moved forward in all aspects of the competition. I think I've caught the *FIRST* bug!

A Look at Week Three from the Students

Andrew Sylvester - Pneumatics and Safety Lead

This week Teja, Ryan, and I finished the sweet shooter using wheels instead of conveyer belts, the prototype works well and shows that the concept will work but we definitely need a better way to make it for the final design. I also worked on the Archimedes screw hopper which now works when it is lying on the floor but has trouble with friction when standing up. The rest of my group has been helping CAD, electronics, strategy and PR.

Maher Malik - Strategy Lead

This week, the team assessed the potential of our team and explored the possibilities of potential drive teams and human players. On Saturday, the team set up a human player tryout, and chose future human players for the regional competition this year. The team and some of its alumni also came up with a plan for training our drive team so that the drivers are ready for competition. Since the robot is currently being built, strategy plays for the competition could not be created this week.

David, Jessica, Quinn, Vijay, and Andy - Programming Team

The Programming team has accomplished to track with the camera. But it's a very jittery program so we have spent a week trying to get the camera to detect the center of a specific color instead of a random spot on a color. We accomplished this by placing a threshold on the input images on the camera and filter out every other color but the one I want. This creates a 8bit image and after that we did a particle analysis to create a mask on the color so we can find the area of the color and thus track on the object with the center it sees.



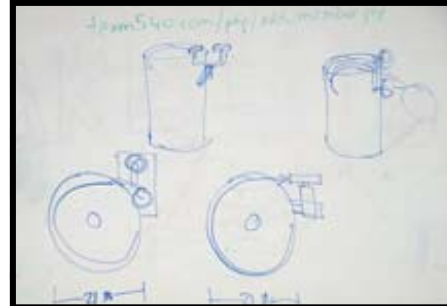
Mentor Mr. Rick helping the members build the Archimedes's screw

Ben Spence - Mechanical Lead

This past week we placed wheels on the old robot and trailer. We received the trailer and placed the bumper on all sides. The trailer although made of wood is close to the real weight. The realistic driving of the robot was good to experience. The trailer jack-knifes easily when backing up and with the low friction the robot must be driven forward. The drive team this year will have a lot on their shoulders this year.

Teja Chiluvuri - Sensors Lead

This week, we have gotten a lot accomplished. We started the week with prototyping, where I helped with the shooter and hopper. Ryan and I successfully finished a strong shooter prototype. We wired it up and were able to consistently launch the orbit balls about 10 feet. As excited as we were, we continued to improve it to make it more robust. I also helped Brock with prototyping the Archimedes screw pickup/hopper mechanism. Our first attempt was not very successful but on Thursday, we were able to get it working finally. We had to go through many trial and error phases and re-design it many times.



The team designing the hopper and shooter



The CAD team working hard on finalizing the design

Alumni Corner

Matt Sporn

Class of 2008

As a 3-year-veteran and an alumnus of TALON 540, I've seen many changes throughout the team. When I first joined the team we were rather small and had virtually no female members. We lost our mentor Mr. Brice when he moved out of state. My first year on the team was when Mr. Hurlburt, our current mentor, joined the team. The changes were just starting. The first thing Mr. Hurlburt did was teach the team to really care about what they were doing and actually act like a team. The team then began to transform into a true FIRST robotics team. More members joined, we learned to organize and work together, and we ended up winning the 2007 NASA/VCU Regional's. The next year our membership grew even more and although we did not win the regional competition, we worked together and we had pride as a team. This year, we once again had a surge in membership and although I am off the team now, I come back to mentor many days. I don't want the team to forget where they came from and why we do what we do. Back before Mr. Hurlburt, the team had to work with less and therefore was very resourceful when other teams had major sponsors to help them. Now that our membership has grown as well as our resources, I hope that the team remembers who they are. We have built a reputation and I would like to see it continue this way for years to come.

January 10, 17, 24, 31; February 7, 14: Saturday build days

Saturdays are TALON 540's full work days. Team members will work with mentors on the robot.

February 17: Ship day

This will be when the robot needs to be sent to the regional competition at VCU. Essentially, this will be the last build day for the teams.

March 19-21: NASA/VCU Siegel Center FRC Regional

TALON 540 will be attending the local regional here in Richmond. The three days of competition include two days of practice and qualifying rounds and one final day of elimination rounds.

Words to Know

E-Board

Electronics board, the board on which all electronic parts are situated

Deploying

The term used for uploading the code from the laptop to the robot.

Router

Forms a wireless connection between the computer and robot to upload code

cRIO Control System

The brain of the robot; the wiring and programming of the system dictates the robots actions.



Programming team working on the camera system



Robot Designed by Alex Hill