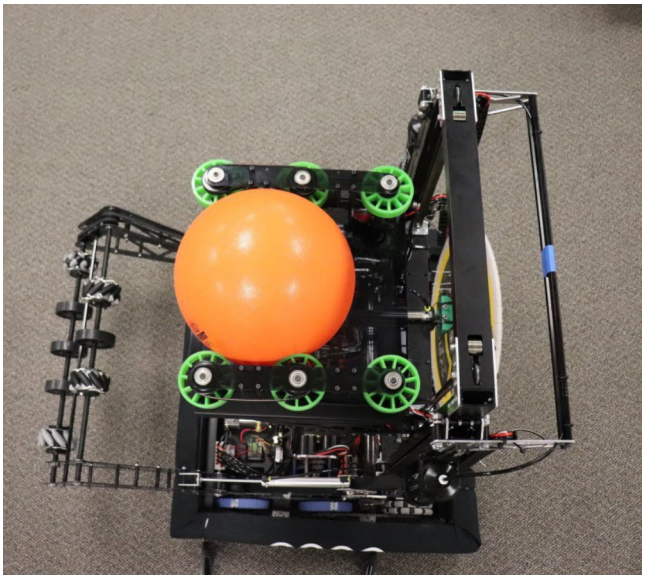
THE VALOR OBSERVER

Build-Season Week: 1/14-19/19

Leading up to bag day, hardware made lots of necessary changes to get our competition robot ready. Our first competition is a regional meet in Oklahoma, which is in a week and a half. On Monday, we had some major setbacks. Our lift and hatch broke during driver practice, shifting our focus to finishing the second robot, and redesigning a new hatch mechanism. Devan began practicing driving with the competition robot as other members on hardware were assigned to fixing the practice robot. On Tuesday, we bagged our competition robot and continued driver practice with the practice robot. The rest of the week was spent focusing on finishing the practice robot for drivers and software. Next week, all team members will be preparing for our Oklahoma competition.



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STUDENT SPOTLIGHT

Geneva Brown

Controls

This week, my goal was to assist hardware by working with the rest of the controls team to prepare better commands the drivers. For example, we created set points for our elevator so that our drivers would not have to manually adjust every time they went to the rocket. This week, we made a lot of progress with improving the code for our elevator and hatch mechanism. An obstacle we had this week was limited access to the robot. Since it was bag week, there were a lot of last minute hardware changes that had to be made, making it difficult to find time to test. We overcome this obstacle by making the best of the time we were given and going over our code to make sure it would work when tested. My goal for next week is to assist the software team by helping test the robot and beginning to create a basic autonomous.

Varun Gorti

Controls

My goal for this week was to finalize our autonomous movements. I developed the autonomous using Pathfinder, which allows us to generate a path for the robot to follow. The Pathfinder methods allow us to input target waypoints in conjunction with a PID loop to target and regulate the direction the robot will travel. I initially had issues with the robot drifting to the left, which was supposed to be corrected using our PID loop. There were several problems I encountered that caused this issue: the motor speeds of both sides were hitting maximum without correction and the motors were coasting instead of braking. With these errors fixed, the robot was prepared for autonomous tuning on an artificial field for next week.

Object Collection Device

This week, we switched the mechanum wheels on the intake to make the wheels lighter. We began to manufacture the bearing blocks on the carriage to delrin, because the 3D printed blocks were breaking. We had some difficulties milling since we have only milled aluminum, so Devin and I had to learn how to manufacture delrin. We are planning to switch out the bearing blocks on the robot next week.

Business

This week business worked on many things, including practicing chairman's presentation, editing final robot pictures, creating this week's newsletter, and making competition blue and red bumpers. Next week, chairman's team will continue to practice chairman's, make newsletter 8, and record the voice over for the chairman's video.

Controls

This week, we set up elevator macros to allow our driver to quickly move the elevator to specific set points. Initially, we were unable to map multiple movement commands to one button. We fixed this issue by implementing a trigger class to pass commands based on the elevator's conditional state. Ideally, the hatch mechanism will automatically avoid our elevator bar so the driver can operate the elevator seamlessly using our macros. We will test the macros next week and decide the work-around for the hatch mechanism based on the results.

Above Chassis

This week, when testing our forks, we also ran into some problems with the strength of our lift. We fixed this problem by reinforcing our crossbar to prevent this from happening again. We also broke our drum because the pins holding the two sides together sheared,meaning each side of the lift would spool up at a different rate. To fix this, we remade our adapter to we could use stronger pins. An obstacle we faced this week was after testing the robot, we found out the bearing blocks on our carriage broke under the stress of the lift. Our goal for next week is to restring th lift, fix our broken drum, and make and test the outriggers for our robot.

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VALOR 6800

FINAL ROBOT

PICTURES OF THE WEEK