



BONDS Week 4 Newsletter

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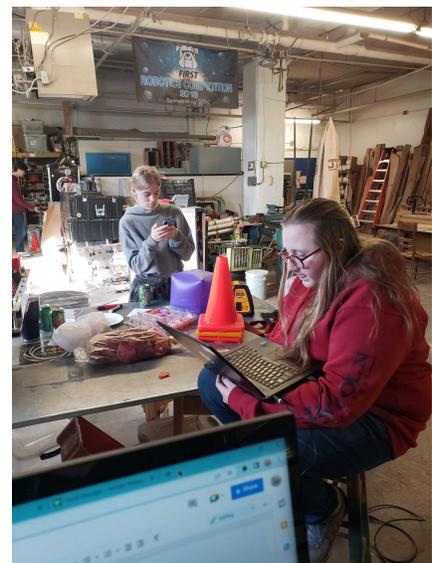
Introduction

Welcome to the fourth week of the BONDS Status Report of the 2023 season! In this entry, you will see what BONDS Robotics accomplished in the third week of our official season for this season's 2023 FRC competition, Charged Up!

In our fourth week of build season, we started off the week on Monday working extremely hard to prepare for our critical design review that happened on Tuesday. Making quick decisions and working through our slideshow, we made an excellent presentation that we presented on Tuesday. Tuesday was our CDR, we presented how we decided our design, our final design, then how we plan to build our robot. We had a wonderful time talking to the judges and getting feedback on how we can finalize our design further. Using the feedback we got, we made a to-do list to use from Wednesday to Saturday.

Critical Design Review

On Tuesday, January 30th, we held our Critical Design Review with plenty of feedback from the panel! There were many concepts to consider and the panel. The panel suggested alterations for the suction mechanism and was impressed with the articulation mechanism with a few adjustments. For the next three days, our team worked on finalizing our CAD for the robot and analyzing suction cups for our intake mechanism. After CDR, our team reviewed our priority list so that we could start manufacturing pieces for the chassis and articulation for the robot.



Intake Mechanism

On Thursday, February 2nd, a few of our students met with a specialist in automation who has used suction cups in numerous works. We received excellent tips that would be useful in our intake mechanism. Our team decided to use more than two suction cups to have an excellent grip on the cones so that when an opponent hits us, the cone is stable on the suction cup without losing grip. The intake mechanism team worked very hard experimenting with different size suction cups to see which would work best for our mechanism.

Overall, our team has accomplished numerous tasks this week and will strive to learn and develop new assets for the robot and our team.

Articulation Mechanism

The articulation team started working on finalizing the robot's CAD and making the gearbox that would rotate the arm. With a few technical difficulties, we were able to cut out the gearbox on the X-Carve and start constructing a prototype for the programmers to look at and begin programming the arm. Next, we calculated the size of the articulation mechanism and collected numerous aluminum pieces to use for manufacturing the robot.



Manufacturing Day

On Saturday, February 5th, our team decided to have a lengthy practice that lasted seven hours. Mentors were very proud of the students for maintaining their focus and dedication to the practice. We started the day by analyzing the CAD and creating a list of parts we needed to manufacture that day. Our team agreed to build the chassis, the gearbox, and the articulation mechanism. We had a student running the X-Carve and a few others working on cutting the base of the chassis and the frame for the articulation mechanism. We had slight technical difficulties using the bandsaw to cut the aluminum; however, we successfully cut all the pieces to the correct measurements and began cutting the octagon belly pan to go on the bottom of the chassis. As many hours went by, we took a lunch break filled with laughter and discussion about the robot. After the enjoyable lunch break, we began assembling the chassis by removing the swerve module from our old chassis and onto the new one. This took time, but with a few people assisting, we could finish it before our practice ended. Our team will continue to work hard and be determined to accomplish the goals we set for this season!



We want to give a big thank you to all of our sponsors! Our team can compete because of your support, and none of this would be possible without our sponsor's help. Our team, BONDS, will keep improving and continue learning STEM skills and values this season.

To see our season's progress, please follow us on Instagram, Youtube, Tiktok, Twitter, and our official website for weekly newsletters.

