BONDS Week 7 Newsletter

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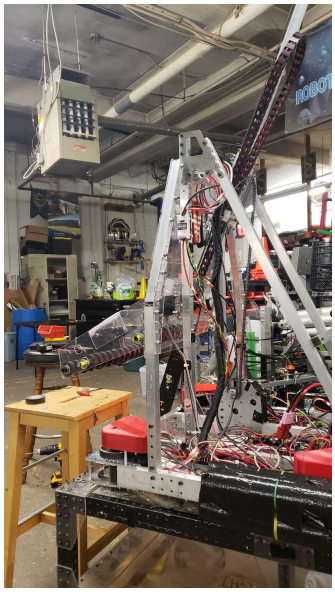
Introduction

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

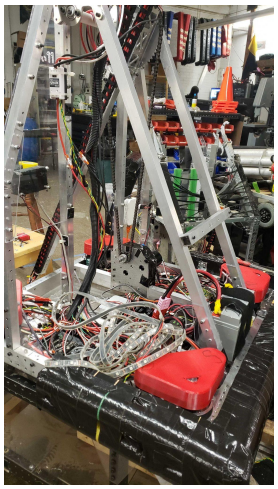
Our team had a productive week with a scheduled overnight practice in which we accomplished many tasks. The robot is wired with a fully functioning intake and arm that can move in and out. The build, programming, and electrical teams were able to work together to finish the robot and start experimenting with both subsystems. With the time we have left, we are excited to pick our driving team for this season and start driving the robot to prepare for the competition!



Build Team

From Monday, February 20th, to Wednesday, February 22nd, the build team finished the robot for the electrical and programming team, so both teams could start wiring and programming the arm and the intake mechanism. Later, we discovered that our robot was too tall, as the rule book says that the robot has to be 54 in. at the starting position. After some modifications, we got the robot height to be 51.5 in. Next, we decided to test how far the arm could reach, and to our surprise, the arm reached the high nodes. We then added the limit switches and the potentiometer on the robot for the programming team to start programming the arm. After the robot was handed off to both subteams, we assembled a new, refined intake. We also cut extra pieces on the X-Carve for both the arm and the intake so that in competition, we could swap out the arm when it breaks. The build team will continue to improve and build additional mechanisms.

Electrical Team



After numerous soldered wires, the electrical team finished the main wiring for the robot. They also connected the limelight, a camera to detect objects on the field. At the beginning of the season, our team decided to put LED lights on our robot for design and communication purposes. The light will signal to the human player which game piece to place on the loading station by color. For example, purple lights indicate cubes, and yellow lights indicate cones. This helps the human player and drivers know what game piece they are picking up.

Programming Team

The programming team had a productive week. The arm and the intake have been programmed and functioning normally. The intake was able to pick up both cones and cubes successfully. The linear articulation system is controlled by a PID control system which allows the drivers to tell the robot what position to move the arm to instead of how fast to spin the motors. It tells the robot what position to move to and automatically proceeds to that position accurately. We experimented with limit switches and tuning the PID for the robot to move accurately.

Business and Marketing Team

The marketing and business team worked on pit and robot banners this week. We started by ordering this season's t-shirt and collecting sponsors who have donated more than $500 to put on our robot banner. After some help from mentors, we could start putting sponsors on the banner. The business team had some help from mentors with the pit banners and discussed printing options and options for stickers and buttons. A few students helped make the buttons for the competition, and we are excited to hand out our buttons and stickers. We also cleaned the woodshop and disposed of old marketing materials we had from previous years. We found many items we could give away at the competition, and our shop looks cleaner now, which will be helpful for the rest of the 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 continue improving and 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.