



BONDS Week 1 Newsletter

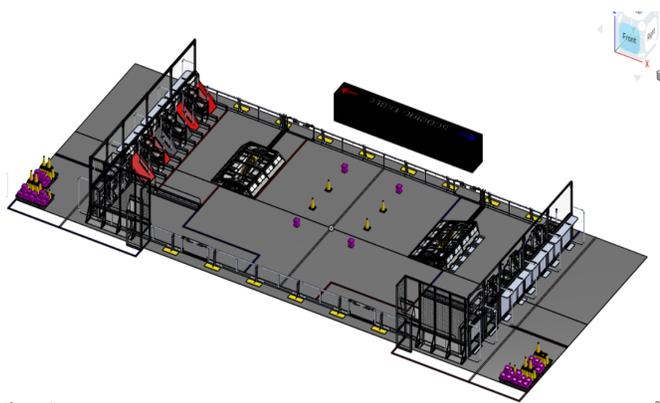
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Introduction

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

Our year started with our Kick-Off day on January 7th. Like last year, BONDS attended an FRC game reveal party with the host team 6032, Pirate Robotics, at West Carrollton High School. It is an excellent experience for returning members as well as new members. This season, we have numerous students on our team who attended kickoff for the very first time. Anticipation rolls up when a minute hits on the clock. Students from Pirate Robotics and BONDS are whispering and talking about what the game will be like. The clock hits ten seconds. The emcees counted down five, four, three, two, one! And the game reveal begins!



Game Reveal

After the excitement of the game reveal, students split into small mixed-team groups and started brainstorming and strategizing for this year's competition.

This year is focused on picking up, transporting, and placing objects. The game is 2 minutes and 30 seconds, with the first 15 seconds being the autonomous period. After the first 15 seconds, the robot will be driven and controlled by our drivers. Our objective is to either pick up and place cones on pegs or place inflatable cubes on shelves. When there are no game pieces on the field, we can go to the human player station to pick up more.

During the last 30 seconds, all robots rush to the charging station, a flat balancing



platform. When one robot drives on, the charging station can put weight on one side, causing the charging station to tip to one side. Our team decided what would be best and quickly eliminated some options when strategizing and discussing what our robot would look like and how it would function.



Strategizing Week

On Monday, January 9th, BONDS met and discussed our season goals and explored different possibilities when strategizing for our robot. First, we made a list of goals we had for the season. One of our goals was to make it to play-offs. Last season, our goal was to have fun and learn as much as we could. Although we did not make it to the play-offs last season, we learned how to fail and pick ourselves back up,

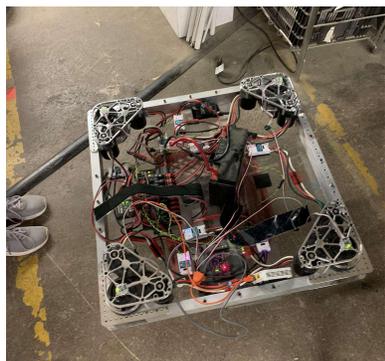
and most importantly, we had fun! Since we learned different processes to build robots, we had the determination to get chosen for playoffs this year. Another goal we had was to raise \$20,000.

Unfortunately, we could not go to a second competition this year; however, we aimed to raise \$20,000 to cover all of our expenses and hope to go to a second competition next season! We sat down and made a priority list for what we wanted our robot to do. We agreed to have an object placed and picked up during the autonomous period. We also decided that we want to be able to balance the charging station using a gyroscope. We will pick up from the ground and place both game pieces in the low and middle rows. After talking through our goals, we split into groups. One team researched the intake mechanism, and another team researched articulations. This year, we are fortunate to have a swerve drive base which is a drive base with four wheels that move independently, similar to an office chair on steroids. Our programming team



programmed the robot in 3 days, and we were thrilled with the end product and thankful for our programming mentors.

Prototyping



From January 9th through the 14th, our team worked on proof of concepts and prototyping what would soon be on our robots. For articulation, we had different ideas, and our team talked about what would be best for our robot. We had designed a scissor mechanism that would go in and out and a mechanism similar to a pendulum that would go up and down with an elevator. We had different ideas for the

intake mechanism, such as a compliant wheel intake and a suction cup intake. We prototyped some of the designs and eliminated others that would either not work with what we wanted or needed to be simpler to construct in time. We are getting ready to present our preliminary design review to engineers to get feedback on our prototypes and continue to improve on our prototypes. Our goal this season is time management, sticking to deadlines, and enjoying the season. We have accomplished so much in the first week and are excited to learn more throughout 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 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.

Instagram: @bonds5811

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