



BONDS Week 1 Newsletter

1.6.24- 1.13.24

Introduction

Welcome to the first week of the BONDS Status Report of the 2024 season! In this entry, you will see what BONDS Robotics accomplished in the very first week of our official season for this season's 2024 FRC competition, Crescendo!

A new year meant a fresh start to the 2024 competition season! On January 6th, 2024, the students gathered at the K-12 Art Gallery in Downtown Dayton for a thrilling day. As you walked in, you could hear the laughter and excitement of all the students ready for the game reveal. As the emcee counted down from 10, the nervousness and exhilaration began to rise. Five, four, three, two one, here we go!

Game Reveal

When the game was revealed, students were shocked, however, unique ideas began to fill the room. After the game reveal and rules, students were able to access the game manual. The game manual had everything from dimensions of the field to the rules of the game which became helpful when strategizing. The team split into small groups along with mentors discussing rules to ensure that every student understood the rules of the game.

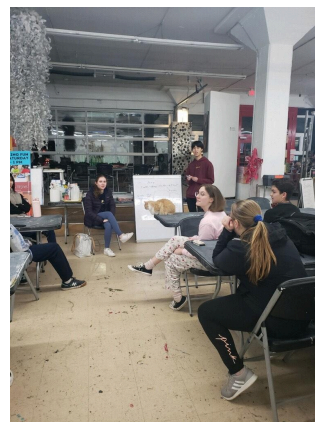


Then, we came together to answer any questions the students had to clear up any misunderstanding and clarification. We split back into our small groups to discuss strategy. This year's competition theme is called Crescendo presented by HAAS. The objective of the game is to score notes (rings) into a speaker (high goal) or amp (low goal) and climb a chain in the end game. The game is 2 minutes and 30 seconds, with the first 15 seconds being the autonomous period. The remaining 2 minutes and 15 seconds are teleoperated by our drivers having full control. Teams from each alliance will try to score as many game pieces as they can into the speaker or the amp. When two notes (rings) are scored into the amp, the human player presses a button that will amplify their speaker for 10 seconds. Scoring into the speaker while the speaker is amplified is worth more points than an unamplified speaker. However, if an alliance scores 4 notes into the speaker before the 10 seconds end, the 10 seconds will be reduced to the number of seconds it took to score 4 notes into the speaker. As the splits into groups to talk about strategy, students discuss potential options during the match. Some options were eliminated due to difficulty or limited time we have during the

season. We ended a long productive day with a group discussion about options for strategy, various mechanisms, and goals that would be achievable during the season.

Strategizing Day

On the first day of the new season, the team spent the first hour reviewing our strategy that we proposed a day prior. We looked at additional ideas using a robotics forum to complete the strategy. Some of the questions asked were, “Should we go under the chain to reduce time?” or “Should we shoot in both the amp and speaker or focus on one?” After much deliberation and alternating different strategies, we concluded the meeting with a strategy that we would be completing in a timely manner and achieving our goals we set during the kick-off meeting.



Prototyping

From January 7th- 13th, the team focused on prototyping the intake and climbing mechanism. The team split into three groups to prototype the intake on the first day. One group had an angled flywheel arm mechanism that would pick up from the human player station and would shoot at different angles depending on the alliance strategy. This team prioritized flywheels as their intake



mechanism because they took inspiration from other teams that fit the criteria of our goals. This team decided on a fixed angle shooter, however, this did not work due to bounce-outs from the amp. Our team focused on shooting into the amp and occasionally shooting into the speaker. Our team chose this strategy because we think it would be beneficial during the picking stage of play-offs. Teams that are ranked higher pick teams that are consistent with one objective during the match. The second prototyping team chose the pizza box design. This prototype is designed like a “pizza box” where there would be 2 3 inch



flywheels and 4 1 inch flywheels at the opening of the box. The flywheels would then intake the note from the human player station and shoot into the speaker. The flap of the “pizza box” would take the note and score into the amp using a motor or piston. The third team designed a prototype using pneumatics. The piston would shoot the note in their respected area and would intake by sliding the note into the box at the human player station. The three teams continue to test and work on their prototypes to get ready for our preliminary design review next week!

Sub-team

Programming Team- The programming team started the season by downloading new software on the programming laptops. By downloading the software, the programming team was able to start new code for the swerve drive modules we will be using for the season. All new firmware was updated on the robot controllers and the swerve drive modules from last season’s robot were tested using updated code.

Marketing Team- This week, the marketing team worked on updating our social media for Instagram and TikTok. Our marketing captain posted about our kick-off season on Instagram and took videos to post on our TikTok page. The marketing team is also working on a documentary montage to showcase the meaning behind FIRST and our team.

Business Team- BONDS had a business meeting with Matrix this week. The team gathered 9 people to attend the meeting and present a slideshow. The team had a great time and answered questions about the team. Matrix has been gracious enough to sponsor us again this year. Thank you and we really appreciate your support time and time again!

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.