BONDS Week 7 Newsletter

2.19.24- 2.24.24

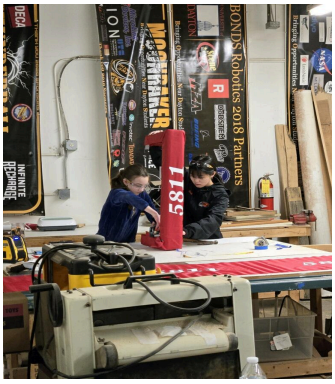
Introduction

Welcome to the seventh week of the BONDS Status Report of the 2024 season! In this entry, you will see what BONDS Robotics accomplished in the seventh week of our official season for this season's 2024 FRC competition, Crescendo! We are almost there; only three weeks to go. This week, the team completed building the main components for hardware lock. We broke out into different groups to maximize efficiency before time ran out. The team also had their productive overnight practice! Although the practice was exhausting, the team accomplished numerous tasks and was able to test the robot.

Manufacturing and Assembly

As we are one week ahead of schedule, the team continued to assemble the robot. We tested the mechanism numerous times and developed alternate solutions to ensure the robot's success! The first predicament was lowering the gear ratio on the amp and setting a higher gear ratio on the indexer/intake. The gears caused skipping, which would be complicated during matches as we would not pick the note fast enough. The backplate was pushed back as it caused difficulty with the note when the mechanism started intaking it. When the team redesigned the intake and indexer, this resulted in replacing the motor mount and fixing the design; however, when we tested the intake and indexer, we found out that the note traveled through the indexer faster than before. We evaluated the various mechanisms on Wednesday, February 21st, and had a great turnout. After several changes, we simulated the game with our mock field. The shooter worked very well and did not need to be adjusted. We also experimented with the different angles of the speaker shot to see which angle worked the best. The amp shot worked consistently, and we explored various distances between the robot and the amp to evaluate how consistently the note would go into the amp. With the team's hard work, we are now handing the robot off to the programming team in a couple of days to start programming!

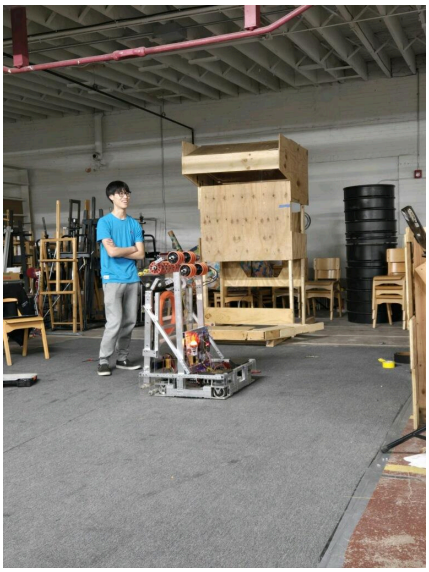
Bumpers



This week, the team finished both sets of bumpers. With limited time left, the team finished placing brackets on the bumpers and attaching the pool noodles to the robot. After both sets were completed, we measured the fabric for the red and blue bumpers. The colors for the bumpers indicate which alliance you are on. We used a Cricket to print out our team number and ironed on the

numbers. Then, we placed the numbered fabric on the bumpers. Even though bumpers are the least favorite task on our team, we are very proud to finish them before the team deadline.

Overnight Practice



This week, the team had our overnight practice. It was a productive 16-hour practice, and we accomplished most of our tasks in the first half of the practice. The first couple of hours were spent dedicating our time to bumpers. We successfully finished the bumpers and worked on adjusting the indexer, switching the motors for the amp mechanism, and vacuuming the carpet for the robot to drive on. After adjusting, we took the robot upstairs and tested the amp and speaker shots. We also realized that our robot was top-heavy and wanted to experiment by driving at full speed and stopping. To our surprise, the robot tipped over less than we thought, which was great news for the team. In conclusion, we decided to review the intake once again to improve from our last design.

Sub-Teams

Business Team- The business team helped our newer students talk to businesses.

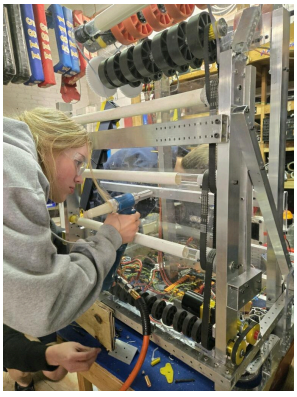
CAD Team- The CAD team assisted the build team with the shooter and indexer mechanism. They also found placement for the climber mechanism, which mentors reviewed.

Electrical Team- The electrical team finished wiring the final robot, created an electrical diagram, and reorganized the wires on the robot

Marketing team- Posted to our Instagram page about the Women and STEM event

Programming- This week, the programming team focused on autonomous and tuning PID controls.

Closing Words



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. 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.