



FRC 3100 LIGHTNING TURTLES



Build Season Week #4 Newsletter
February 2nd, 2020

Our workers just keep working!



2020 BUILD SEASON

WEEK 1: 1/04 - 1/12
INFINITE RECHARGE Kickoff &
Prototyping

WEEK 2: 1/13 - 1/19
Design Finalization
Collector & Begin Robot
Fabrication

WEEK 3: 1/20 - 1/26
Design Finalization
Shooter & Climber
Component Fabrication

WEEK 4: 1/27 - 2/02
Fabrication Completion
Full Robot Assembly
Component Programming

WEEK 5: 2/03 - 2/09
Full Robot Program
Integration &
Autonomous Routine

WEEK 6: 2/10 - 2/17
Drive Team Tryouts
Final Preparations
Week Zero Event

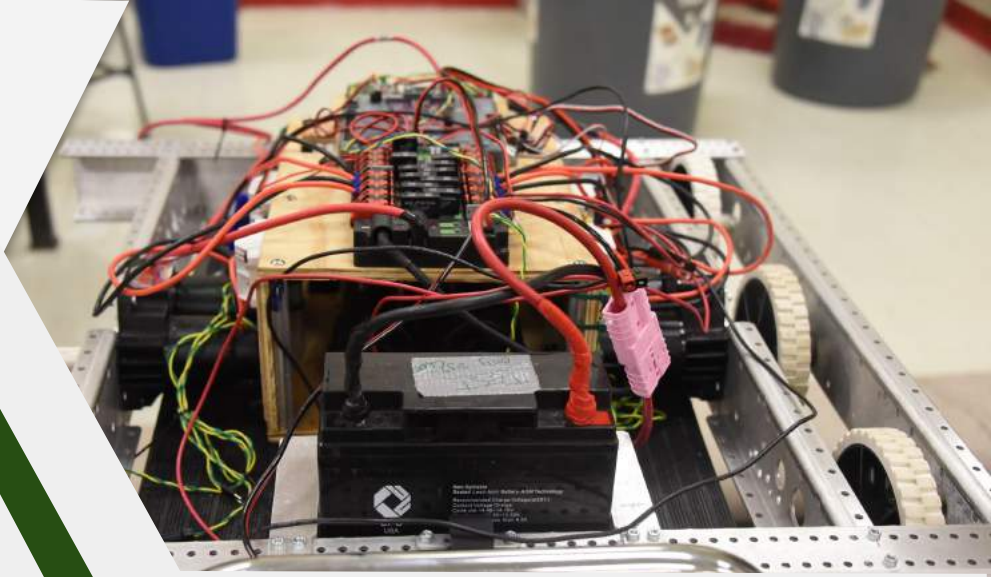
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Build Progress

Drive Train

The first metal parts fabricated and the first system assembled this season, our drivetrain is nearly completed. The wheels for our robot arrived this week. We are putting them on the drive train, with some motors that have been mounted along with the control systems and battery.



One of our top priorities this season is to be the fastest robot on the field. To do that our drivetrain needs to be as speedy as possible. That's why we are using the new falcon motors. We anticipate that their high speed will allow our robot to drive across the field in seconds.



Over the last few weeks, the Programming Division has been working behind-the-scenes to test many potential devices that could be used with this year's robot. They worked on all of the code required for these external devices to ensure whichever one we choose will function properly. In addition to that, they are making sure to adjust for any new plans or changes in our robot and its design. All of this has been possible because of the hard work and dedication of our Programming lead, Spencer Halsey, who is providing the code we need this season.

Programming

Our Programming division is currently working on something known as Spline Pathing. Spline Pathing is giving the robot a series of waypoints, then making it get to those points using an automatic series of curves in the robot's movement.



Continuous Fabrication

This week, we started fabrication processes on the parts for our shooter. We used the Plasma Cutter and our CNC machines to make in-house parts. Caztek, one of our sponsors, helped us make pieces we didn't have the machinery to fabricate on our own.



Robot Assembly

A group of students worked to complete assembly of our Conveyor-Collector systems. The side frames of our Conveyor were attached to the baseboard of our robot, and the belts were strung in between the sides. The students have also begun assembling our custom gearboxes. Focusing on the drive train, they have also been fixing wires and gears on the drive train to ensure everything moves as it should. Unfortunately, as much as we'd love to show you our robot, you'll have to wait a few weeks for our official robot reveal to see it.



Mentor Spotlight & Belts & Poly-Cord

Mentor Spotlight

This week's mentor spotlight is Dan Gentilini! Dan is one of our Build Division mentors from ECOLAB, and works closely with our students to ensure they gain a deeper understanding of the different fabrication processes and safety procedures.



Dan first heard out about the team through his coworker, our lead mentor, Charles Nepomuceno. Since joining the team, Dan has found that his favorite part of being a mentor is seeing how much the students learn in a short period of time.

Fun Fact: Dan used to go to different countries in Africa with a team to teach the people how to build their own utility vehicles out of scrap car parts.

Belts & Poly-Cord

This week, a group of students worked to create belts for our robot to use in it Conveyor- Collector systems to move game pieces. Students tested multiple ways to get the belts to work, and found using a heat gun to weld the poly-belts together was effective. To make the belts, Bailey and Adelita made a contraption that tightened down the belts to melt both sides with the heat gun. Then they would score the plastic until it overlapped, and repeated the process for each belt. Similarly, they did the same process for making the poly-cord, with the exception of using a lighter to melt one side of the cord.



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