



FRC 3100 LIGHTNING TURTLES

Henry Sibley High School - Mendota Heights, MN



Build Season Week #1 Newsletter
January 12, 2020



**The INFINITE
RECHARGE
2020 Game
REVEAL Video!**

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



Click to watch!

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About the Team

Who We Are

Hello! For those of you who are new here: Welcome! We are Team 3100, The Lightning Turtles. We are a FIRST Robotics Competition team, and this will be our 11th year in FRC. We are a team dedicated to educating people in FIRST, and giving them the tools they need to move on to be leaders in whatever they do.



Team 3100 is comprised of 29 students, with members ranging from 8th through 12th grade, and 41% being female. We have 9 mentors from 4 different companies and team alumni. This year our team has 7 rookies, and 4 new leads.



Kickoff!

On January 4th, we spent the day at Heritage E-STEM Magnet School, where this year's game, Infinite Recharge, was announced live from FIRST Headquarters in Manchester, NH!

We were joined by Team 2239 - **The Technocrats**. During this joint meeting, students collaborated with one another to determine what our robot should be able to do during a match, working on an intuitive spreadsheet created by our mentors.

With the "What's" of this robotics season determined, our students will be looking forward to thinking of creative and efficient ways to make these "What's" a reality.



What's

The Strategy

At Kickoff day every year, our team comes together and comes up with a general strategy of **What** we want our robot to do in the coming season. In this year's game, Team 3100 will plan to collect game pieces from the ground, drive through the one inch barriers and the Rendezvous Point, then score Power Cells into the Outer and Inner Ports. During Endgame, we plan to make a level climb.



Thank you Parents!

Over the course of this week, parents have been coming in to help assemble field pieces. We would like to give a big thank you to everyone who helped - Mr Ryan, Mr Elskamp, Mr Heuer!



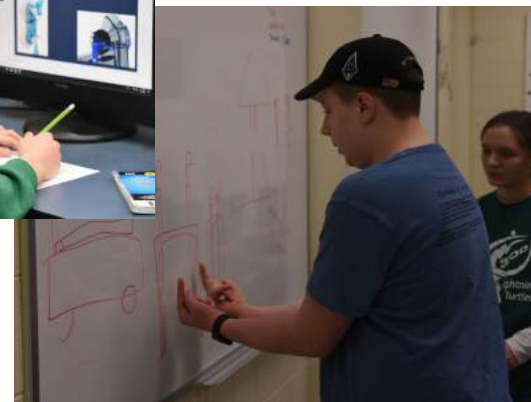
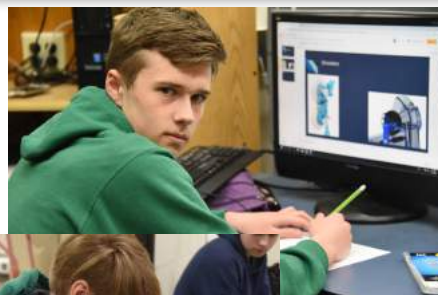
How's

Solutions to the Problem

After strategizing, Team 3100 split up into small groups to brainstorm mechanisms to accomplish our strategy. This is what we call the **How's**. Each group presented their ideas, and as a team we decided what concepts to prototype. In the end, we separated into groups again based on what we wanted to prototype: Collector, Shooter, or Climber. The Collector group is designing a wide ground collector to take in multiple balls at once and has a top opening to allow collection from the upper slot of the loading bay.



Power Cells will be contained in a conveyor system as we drive to either the Target Zone or an open space near the start line to shoot. Shooter prototypes are being developed to determine how the team wants to shoot into the outer port. The climber designs will allow us to gain climbing points during endgame.



Spotlight & Prototyping

Student Spotlight!

Max is a first year rookie, in the build division, who was inspired by his dad to do robotics. He found out about the team through his mom and he thought that it would be fun.



His favorite part of robotics is getting to build things. The robotics program has fueled his interest in pursuing a STEM related career. Fun Facts: He loves fishing and the outdoors.

Shooting Mechanism

Our students have been separated into several groups, each working to create functioning proof-of-concepts and prototypes for different aspects of the robot. Two groups have been assigned to two different types of shooter mechanisms, which will be used to score game pieces in this year's Infinite Recharge game. The first of these two groups is currently working on a single axle hooded shooter, which uses an angled sheet of Lexan to angle the trajectory of balls shot using high-speed spinning wheels. The parts for this are being developed in CAD, to allow for precise pieces to be created. This group has been successful using their current design, so they will continue to improve upon it. They hope to find a method to attach this shooter to the drivetrain we created during our Turtle Trial Challenge Series. This would allow them to test their mechanism more accurately.



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