The Valor Observer

Build Season

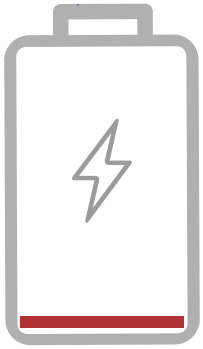
Week 1
Jan 4-11, 2020

Game Reveal

Renewable sources of energy are everywhere, all the time. Working together in the 2020 season of FIRST Robotics Competition, INFINITE RECHARGE, we can support boundless innovation and create a society that's empowered, inspired, and hopeful. In INFINITE RECHARGE, two alliances race to collect and score Power Cells in order to energize their Shield Generator for maximum protection. To activate stages of the Shield Generator, robots manipulate their Control Panels after scoring a specific number of Power Cells. Near the end of the match, robots race to their Rendezvous Point and rise to the challenge.

Robot Report

Our first week of build season for the 2020 game is here! At kickoff on Saturday, January 4, we got off to a great start, brainstorming as a team and breaking down every element of the "Infinite Recharge Game." This week consisted of design meetings and planning, as well as prototyping. Due to the weather, we are short of time for Week 1 but still working to meet all our deadlines. Students on the design sub-team have been testing prototypes for each sub-system and CAD'ing their designs. Students on the manufacturing sub-team have been working extremely hard on cranking out everything needed for the chassis to have it completed and sent out for powder coating.



Robot status:
3% complete

Student Spotlight

Devan

Manufacturing

Senior

I started FIRST in 5th grade and this season is my 8th year in robotics. I have done 2 years of FLL, 3 years of FTC, and I'm in my 3rd year of FRC. I initially joined because I was curious about robotics, and I have enjoyed it ever since. For college, I am going to the University of Texas at Austin to study mechanical engineering. As the hardware lead for the team, my focus this week was manufacturing chassis parts. At competitions I am the Pit Captain, so in between matches I oversee robot repairs.

Karina

Business

Freshman

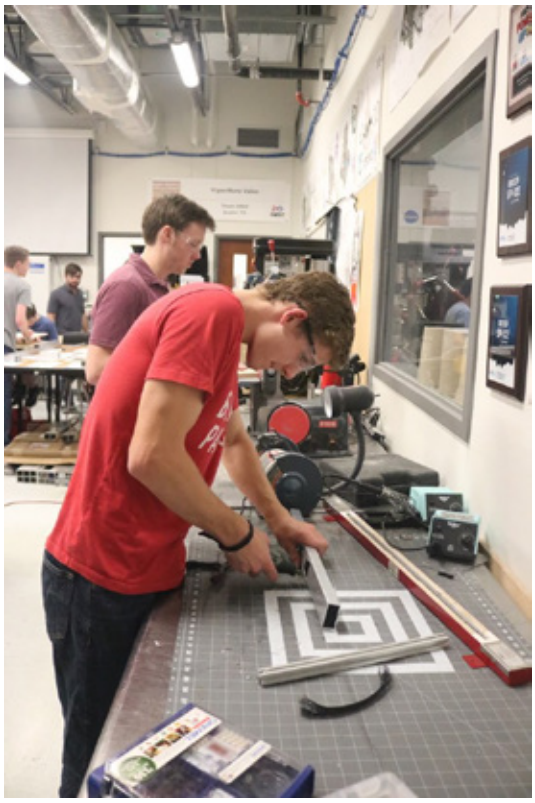
I started robotics in 7th grade because I was interested in learning about business and graphics. I'm not sure where I want to go to college yet, but I want to pursue the business field. As a member of the business sub-team I take pictures, manage the social media accounts, and help with newsletters, essays, and sponsorship. At competitions, my role is to document and post content online. This week I worked on setting up the "FIRST Fact of the Week." In addition, I took pictures to capture the team's progress throughout the week, and all the team member headshots for the newsletters.

Rohit

Software

Junior

I started robotics in 4th grade because I heard good things about the FIRST program. In college, I want to study Computer Science at the University of California, Berkeley. I'm on the software sub-team, and at competitions I am the Pit Programmer. In between matches I run the systems check, make real-time code changes, and maintain pit safety. This week I worked on setting up our code with basic sub-system code and started with the teleop driving commands.



Sub-team Updates

Manufacturing

Our goal for this week was to manufacture both chassis and assemble our practice chassis. By the end of the week, we completed and fully assembled our practice chassis. Our competition chassis is completely manufactured as well but we will wait for it to be powder coated before we assemble it. We ran into challenges with not having enough air compressors for everyone to use while machining parts on the CNC and the mill. Also, while learning the right settings for the Ozzyboard we broke two 1/8" bits. Next week, we are going to design prototypes that we will attach to our chassis.

Design

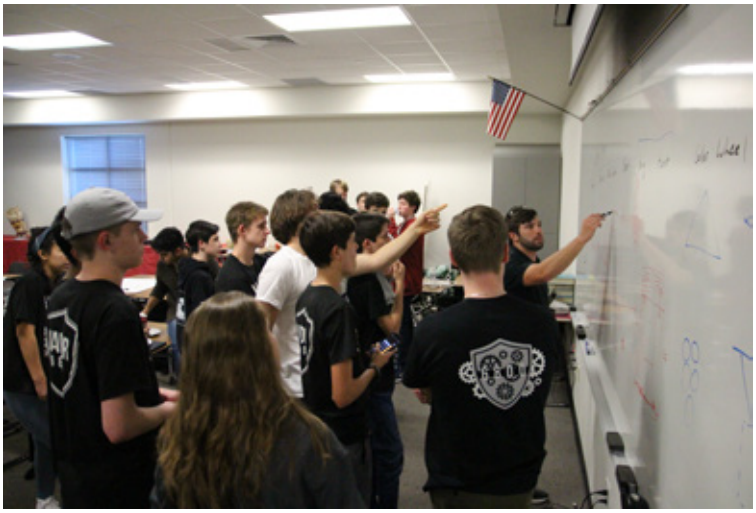
This week on the design sub-team, our goal was to begin prototyping and finish chassis CAD. This week we designed the shooter, prototyped designs for endgame, and finalized chassis CAD to be manufactured. We discovered that our original chassis CAD was too low to the ground, meaning we would run into trouble if we drove into the rendezvous point. To fix this, we had to adjust the entire CAD to account for larger wheels. Next week, we plan to extensively design prototypes that can mount to our manufactured chassis.

Software and Electrical

Our goals this week were to create a basic teleop program with split arcade drive, create commands for 1D moving and turning autonomously, and prepare the basic wiring setup for both chassis. This week, we wrote code for the sub-systems, a basic teleop, and commands for shooting and intaking. We started researching the motion profiling classes provided by WPILIB. The chassis motor controller assembly was also prepared and put on the practice bot chassis along with the roborio and the VRM. The challenge this week was learning the new 2020 WPILIB updates. Next week, we will focus on writing an autonomous with motion profiling, creating commands for new sub-systems, and preparing the second robot's motor controller assembly.

Business

Our goals this week were to finish the rough draft of the business plan, and to explore infographics since we want to incorporate more visuals in our material. This week, we successfully drafted our business plan and scheduled 4 outreach events during build season. We continuously take pictures and videos to track the design and mechanical progress. Additionally, we created the bumpers for our robot to use once the robot chassis is finished. Looking ahead, we planned the business schedule for the rest of build season and mapped out our outreach events. Next week, we plan on finalizing our business plan, working on sponsor outreach, and continuing to take pictures and videos of the robot's progress.



Meet the Mentor

Michael Ray
Head Mentor

I am an application engineer at Arm. When a customer asks for Internet of Things products, I am the first line of support and create prototypes and solutions for the customer. I was on an FRC team from 2009 to 2013, and I started 6800 Valor in 2016. I come in to Viperbots every day to provide students with the same opportunities that I was once given. My responsibility on the team is to make sure every system integrates properly and effectively.

Sponsor Showcase

Thank you to our sponsors for all their support! These partnerships help us pursue our mission and make a larger impact within the STEM community.

Follow the Journey

Kickoff
January 4
Game reveal and strategy

Build
January 5-11
Chassis assembled, prototyping

Build
January 12-18

Build
January 19-25

Build
January 26 - February 1

Build
February 2-8

Build
February 9-15

Drive Practice
February 18 - March 13

Competition
March 14-15
New Braunfels

Competition
March 20-21
Austin

Competition
April 2-4
San Antonio

Competition
April 15-18
Houston

Quote of the Week

"Every once in a while, a new technology, an old problem, and a big idea turns into an innovation." - Dean Kamen

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