

# The Valor Observer

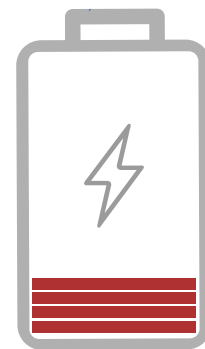
## Game Summary

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

Week two was a big week for us, as we are now getting close to our final robot design! We got our powder coated parts back early and finished assembling the ALL BLACK competition robot. This means both of our robots are now moving! We also prototyped different methods for scoring the power cells (balls). On Friday, we had our very first design review of the season where we discussed different design ideas for the final robot. By the end of our Saturday meeting, we had made all final decisions for each sub-system design. As far as software, the drive controls are set up and we are able to test our prototypes on a fully moving chassis.

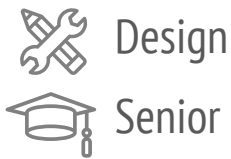


Robot status:  
17% complete

# Student Spotlight



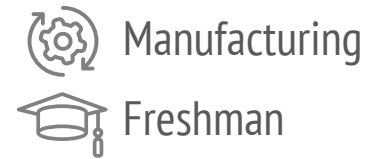
## Gabe



I started robotics in 4th grade with FLL and instantly fell in love with the program. I loved the competitive aspect of robotics, math, and engineering. I developed my knowledge and passion for robotics throughout middle school and high school. In my sophomore year, I became a founding member of 6800 Viperbots Valor. This year I applied to the University of Texas at Austin for aerospace engineering. I am the design lead and part of the Chairman's team. As design lead, I manage and guide my team to ensure every team member has a voice in the design of the robot. This week I worked on finalizing the geometry for our intake and also began a new prototype for our hopper that would allow us to store balls more efficiently.



## Wes



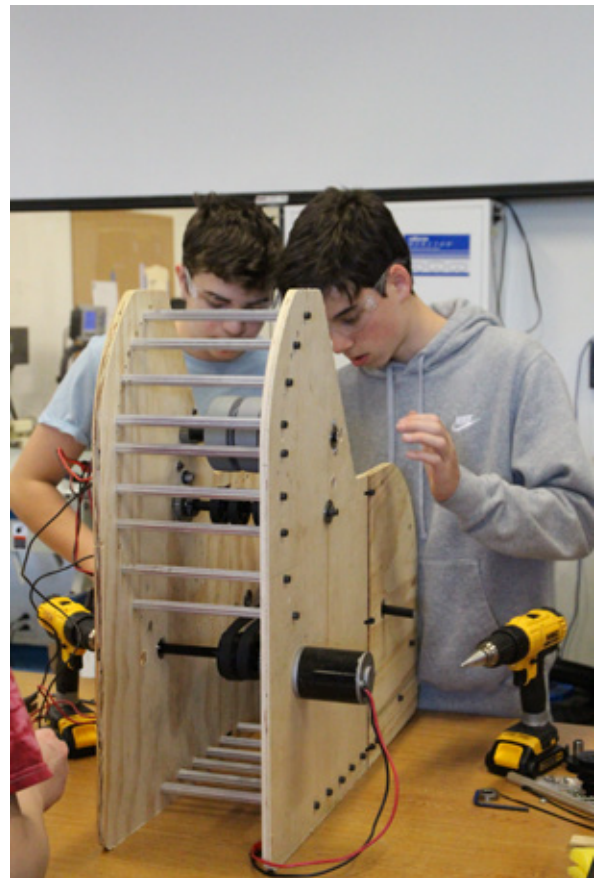
I started robotics in 5th grade on an FLL team. The engineering and presentation aspect drew me in until I was hooked all the way to where I am today. I want to pursue my extensive love for engineering through mechanical engineering at the University of Texas. For competitions, I work with our scouting team to get accurate data for future game strategies. On my sub-team I am a rookie in hardware and work hard to learn all the unique manufacturing methods for future years. This week I worked on machining and assembling the chassis, and unique prototypes for the intake and shooting mechanisms.



## Cooper



I started robotics in 2nd grade with junior FLL. I saw one of my closest friends having a blast, so I joined the team and started my robotics career. I want to study software or computer engineering at the University of Texas at Austin, or mechanical engineering at the Georgia Institute of Technology. My role at competitions is the backup driver and to work on strategies with the drive team. On my sub-team I am a rookie programmer and my role this year is to follow along and learn for future seasons. This week, I worked on writing code to help prototype parts for the robot and I researched how to use vision on the robot.



# Sub-team Updates



## Manufacturing

Our goal this week was to get a drivetrain assembled and finish prototyping our shooter, throat, hopper, intake, and utility arm. We finished our drivetrain and prototyped our shooter. Some of our progress was slowed because we had to tread the wheels in house and weren't able to finish testing all the prototype designs. Next week, we are going to finish prototyping our throat, hopper, intake, and utility arm, so we can finalize our design by next week's deadline.



## Design

The goal of this week was to figure out the best geometry to vector balls into our intake, begin designing the utility arm, and establish the angles, compression, and power needed for our shooter. We started this week by testing our shooter. We were able to effectively shoot from the target zone, the initiation line, and the trench. After these findings we began to work on our intake and get it to center balls into our robot. Finally, we began to prototype different designs for the hopper. This week we struggled with finding the right position and velocity for the intake, which took a lot of small adjustments. Next week we are going to begin CADing the robot as the final robot CAD is due by the end of next week.



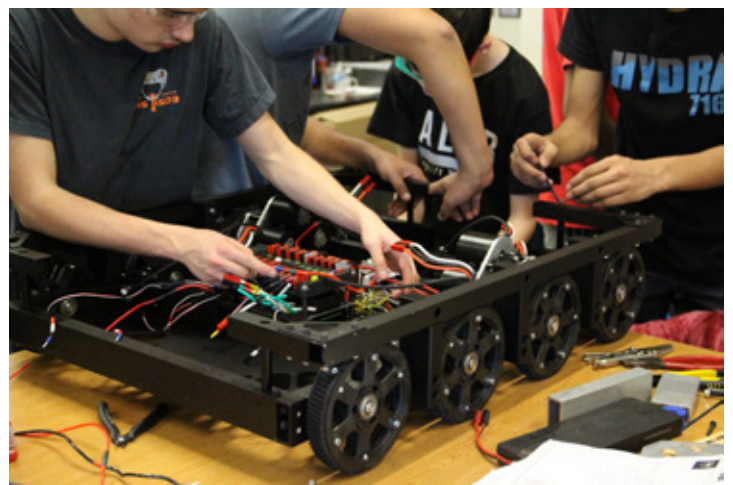
## Software and Electrical

Our goal this week was to complete all the wiring preparation on the practice robot and attach the main electrical components to the competition robot, as well as continue to learn the new FRC control system and get our sub-systems programmed and moving. We made great progress this week by completely preparing the practice robot's wiring so it is ready for all other components to be attached. We also programmed sub-systems and commands for our robot. This week we had an issue with connecting our code to the driver station, but at the end of the week our chassis and intake were both moving successfully. Next week we will complete the wiring preparation for the competition robot and continue to test subsystems and create new commands.



## Business

Our goal for this week was to finish the first draft of the Chairman's 10k essay. We looked at all the team activities from the past 3 years and had a lot of discussions about what to say and how to articulate the content to be within character count. Along with the essay, we worked on infographics for the business plan, planned our open house event, and continued taking pictures and videos of the robot's progress. Next week, we are going to finish the business plan, plan the other details for our STEM nights and open house, and reach out to new potential sponsors.



# Meet the Mentor

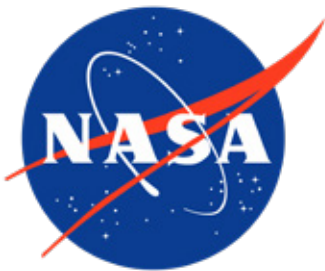


**Jan Helgeson**  
Software Mentor

I am a Solutions Architect at Alchemy Technology Group. I'm focused on building solutions for our customers using Robot Process Automation and managing windows deployments in SCCM. I was on an FRC team from 2007-2011 (the same team as Michael Ray), and joined Valor as a mentor in 2019. I enjoy mentoring and working with students, helping them solve the unique challenges in FIRST. As a student, FIRST taught me many skills that I still use and were invaluable to getting me to where I am today. I manage the Software team, and it is my responsibility to ensure the robot's systems can all be controlled effectively, and that all the hardware and electrical systems work together.

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## Sponsor Showcase

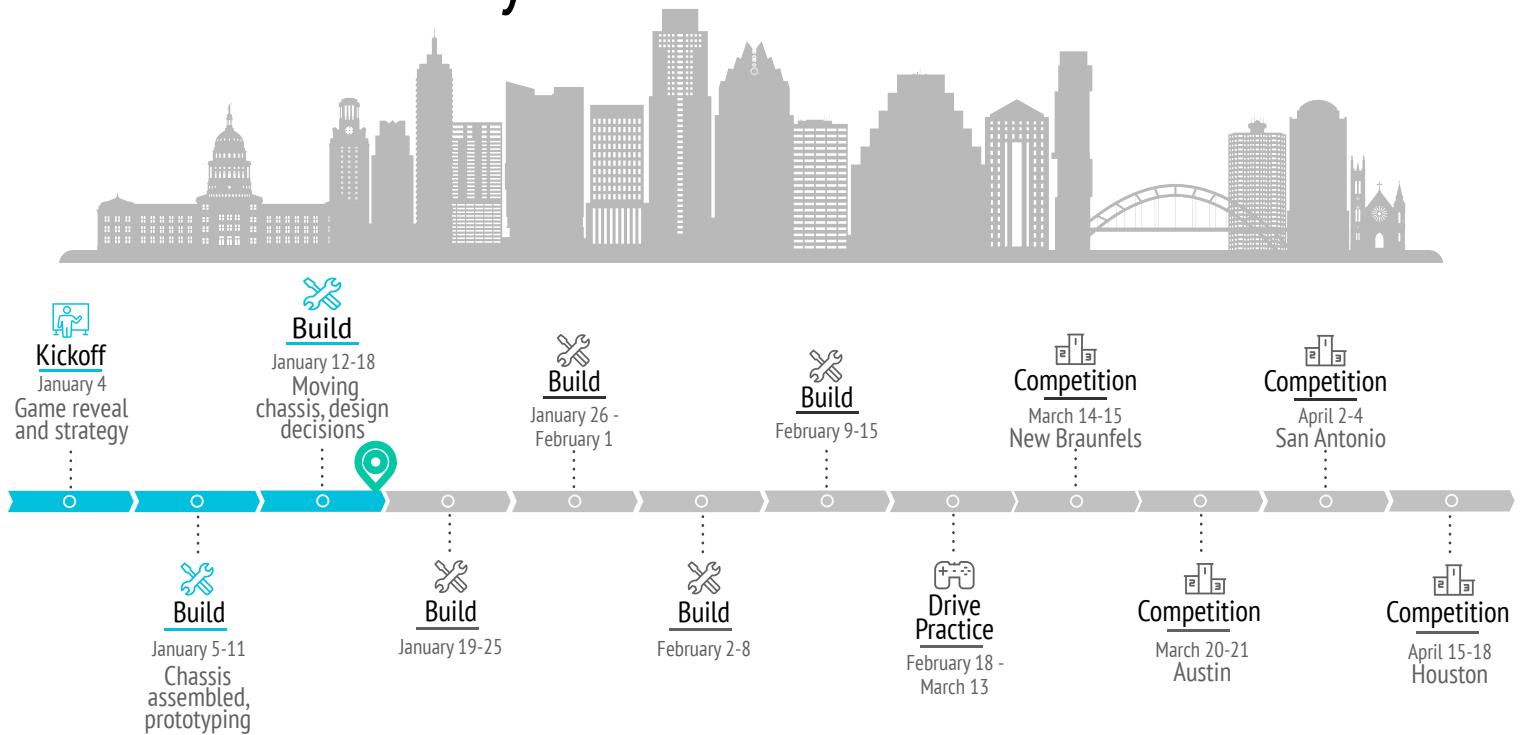


Thank you to our sponsors for all their support! These partnerships help us pursue our mission and make a larger impact within the STEM community.





# Follow the Journey



## Quote of the Week



“When you see your target, your aim is perfect.”  
- Woodie Flowers

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Vandegrift High School FIRST Robotics Competition team