Oscar

Team 3294
Backwoods Engineers
Pine River Backus High School
Pine River, Mn

Designed/Built/programmed by Team 3294
Led by Alexa Tuchtenhagen

What is *Oscar*?

Project Overview

Oscar is Team 3294's 2023 FRC robot, designed to compete in the CHARGED UP challenge. The robot was engineered to intake, transport, and score game pieces efficiently while maintaining stability and power across the field. Oscar features a robust drivetrain, reliable scoring mechanism, and balancing capabilities that allowed it to perform consistently in competitive match environments.

Goal

The primary goal of this robot was to intake and place game pieces effectively while also climbing onto the charge station ramp and balancing with alliance robots to secure endgame points.

Team

Team Captain: Alexa Tuchtenhagen
Driver: Ethan
CoDriver: Maranda
Technician: Shannon
Teammate: Jake
Teammate: Sophia
Coach: Andrew Rudlang
Coach: Mike Shetka
Mentor: Jake Shetka

Bill of Materials

- FRC Kitbot Frame
- NEO motors
- Spark Max
- Battery
- Power Distribution
- Radio
- Cameras
- Metal
- Exercise bands
- Winch systems
- Limit switches
- Wheels
- Leds
- PlexiRoborio
- Voltage Regulator Module
- Wires

What Went Well?

This season was by far my favorite. As a junior, I finally had my time to shine and step into a lead role on the robot. I was hands-on in designing, building, and wiring Oscar, and it became the first robot I truly knew inside and out.

We competed at regionals where we learned a lot, then took Oscar to another competition where we won first place — the only robot on our team so far to do that. I even presented this robot in a scholarship pageant and placed, which made the experience even more special.

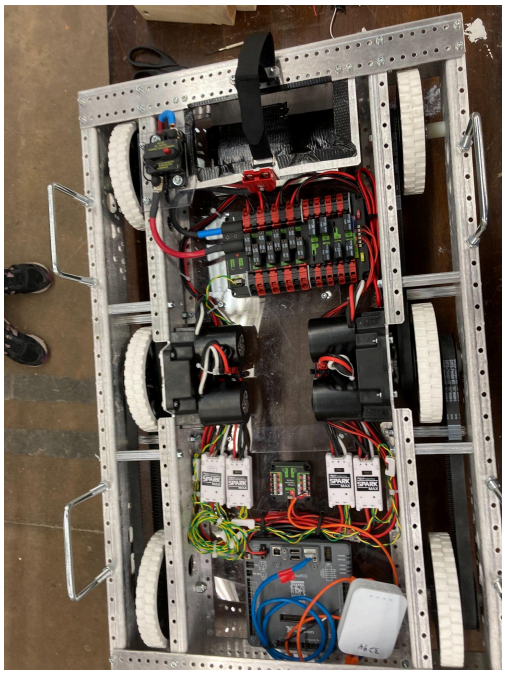
This robot meant a lot to me not only because it was successful, but because it represented the hard work and skills I developed.

What Could Be Changed?

While the season was incredibly rewarding, it definitely came with challenges. We spent a lot of late nights and weekends in the shop, and by the end it was exhausting — and we probably ate way too much pizza along the way. A little procrastination (which is pretty normal for me) made the final push more stressful than it needed to be.

Looking back, better time management and pacing would have helped balance the workload, and involving more of the younger team members could have built their experience while easing the pressure on the core build group. These lessons will help make future projects more efficient, collaborative, and sustainable.

Schematic



Other Documentation

[Match 21]

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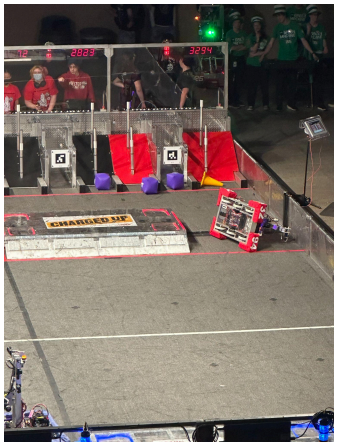
CHARGED UP


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WINNER
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Northern Minnesota
Robotics Conference
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KAWAI
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