

Safety With Covid-19 this year, maintaining a safe environment was the utmost priority. As a result, we took measures seriously to keep everyone safe and healthy. A couple of new rules added to this year's season were wearing masks, maintaining a social distance of six feet, and washing our hands often. In addition to these new rules, we maintained key rules from previous years which included wearing eye protection while in the shop.

Rules

How it works

This year, we made a specific effort to focus on only a specific few of the challenges and doing them as well as we could, instead of trying to do everything as we've done in previous years. Our robot is built to complete the manual and autonomous racing challenges, and the accuracy and speed shooting challenges. For maximum maneuverability and consistency, we utilize swerve modules as our drive train. Our shooter mechanism is made up of a carousel that stores the power cells, and feeds them into our single spinning wheel shooter, powered by two falcon 500 motors, coordinated to run opposite directions at the same speed on either side of the shaft to enable the fastest and most consistent shooting possible. This shooter also features an adjustable hood, allowing us to hit our target from anywhere on the field.

What it does

This year's robot can accurately shoot a target from up to [I DON'T KNOW HOW FAR WE CAN SHOOT], the shooting mechanism is able to adjust the angle mid-game. The bot can store up to 3 game balls using a carousel that allows for easy and consistent feeding into our shooter. Swerve Drive and our small frame allows us to be more responsive and faster on the field, compared to other robots in the competition.

Issues overcome.

Constructing our bot to what it is today was no easy task. Various ideas had to be brought up, prototyped, and dropped to give us the best possible competition robot.

Of which the largest problem was space. The 24"x24" chassis was a challenge in a sense that it difficult to fit all available components in a viable sense. This led to the decision to drop a ground to intake system, which we feared would be taxing in materials, effort, and usable space on the bot.

Optimization/Design

With the competition being solely recorded online this influenced our decisions in design and optimization. We decided in our early prototypes to take much more risk than we would in previous years. This included designing a shooter that was powerful enough so the wheel would not slow down as a result of shooting a ball. We have also made our intake system and transport system much more reliable and effective. With there being five total games, you can participate in this year we decided to focus more on the shooting, racing, and autonomous

games. The intake was not the main priority as we wanted to keep the bot as compact and light as possible.

Decisions

Everything from the initial concept of the robot to the color had to undergo intensive decision making.

The differences in this year's competition allowed our team to deviate from a larger chassis size, and we found it possible to settle on a smaller 2'x2' frame. This led to a string of other decisions to abandon last year's shooter design. Learning from our flaws of previous seasons, we began the conception of a shooter which could accurately fire balls at desired pitches, rather than just one singular pitch. This evolved into what we now know as the Super Amazing Adjustable Hood Shooter of Amazingness™ on our current bot.

Stats/Specs

-24"x24" chassis

-Top speed of ___ m/s

-Carousel holds 3 balls

-Capable of shooting ___ balls/minute

-Preprogrammed autonomous pathing for speed challenges

-Gyroscope-assisted driving

Description of competition

Of the five at-home challenges, two are entirely autonomous, and three are remotely controlled by human drivers. Challenges test the robot's speed, agility, autonomous navigation, and transportation of power cells. Each has its own specific rules and guidelines defining "success," and gracious professionalism is assumed and expected. Raw scores are either calculated using the sum of the challenge completion times or the number of points scored by shooting power cells (methods varying by challenge). Raw scores are then converted to computed scores within a group of teams assigned by FIRST Headquarters.

Team Info

Name: Ozone Robotics

Number: 4611

Founding Year: 2013

Name Meaning: named after the molecule Ozone / O₃, with original three high schools representing each O.

Team Motto: "Building Quality Robots since 2013....."

We are Ozone Robotics, our team represents and consists of the 4 Olentangy High Schools in the FIRST Robotics Competition, we were founded in 2013, with the intent to teach and support the interests of people who are interested in electronics and robotics alike. We are based out of Olentangy Orange High School Industrial Tech Classrooms.

Robot pic, team logo, name



Team pic

