

Week 3 & 4

Enigma Robotics

Custom Parts Play an Integral Role

02.01.20
Week 3 & 4

More and more our team is using custom machining to build our robot. Our design team has been working hard on designing the custom systems of our robot.

Our router is constantly cutting parts that our design team has CADed for our robot. For example we have cut

many of the structural parts of the robot as well as articulating parts for the shooter, indexer, and turret.

We have also decided to incorporate many custom 3D printed parts into our robot. We 3D printed vectored intake wheels and also rollers for all the belts in our

robot. During the past two weeks we have successfully cut and assembled our drivetrain, intake, and hopper.

Also, for our structure we have put bends in several pieces of tubing.

Inside this issue:

Custom Parts	1
Programming	1
Introducing Our Robot 2	
Updating Our Website 3	
Robot Names	3
Senior Spotlight	4



Sam Deburring a freshly cut custom turret part



A selection of custom 3D printed parts

Programming

Enigma's programmers are in the early stages of programming many functions and capabilities of our robot and prototypes.

One of their earliest concerns has been developing a system to

sense and react to the colors on the color wheel. They have successfully programmed a prototype to spin a wheel a set number of times and land on a set color.

They have also started work on vision for the robot. They are still working on making the camera acquire the target more consistently.

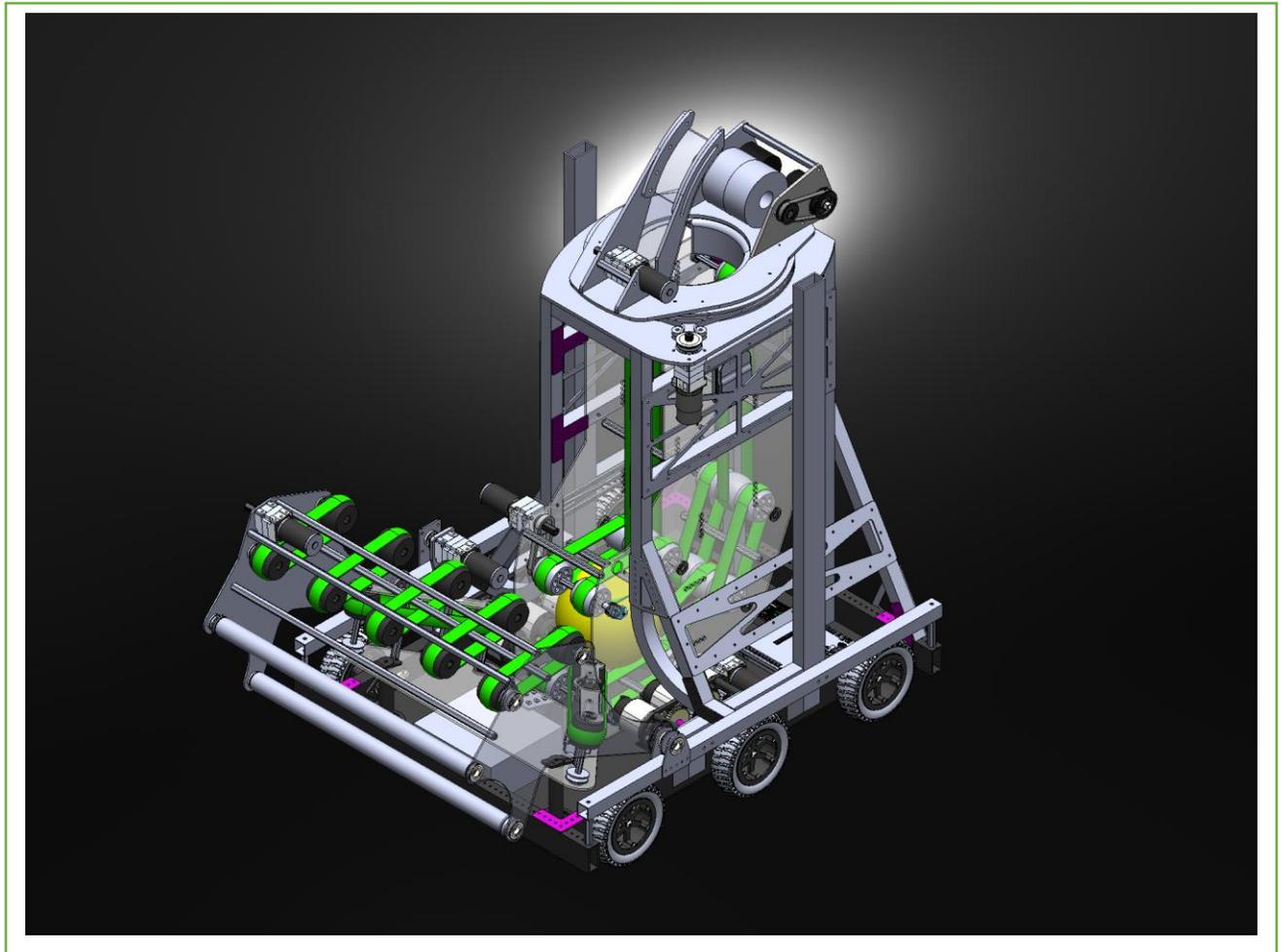
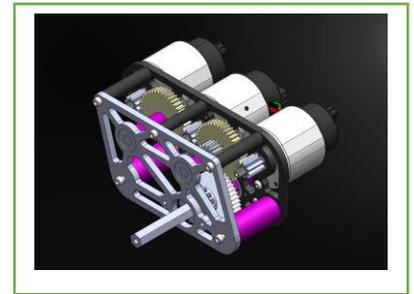
They are also fleshing out how the turret will operate.

Introducing Our Robot

This past week we have begun to finalizing our CAD. We are now cutting and assembling the parts that are outlined in our CAD file. This year we have chosen to go with a tall robot design in order to optimize our shooting capabilities. In order to tackle this year's task we have designed a roller bar to intake the power cells. Our intake folds into our robot and during match play it reaches outside of our robot's frame perimeter. The intake uses fast spinning rollers to actively intake the power cells into our hopper. Our hopper then

redirects the powers cells using a belting system into our indexer. Our indexer uses sensors to indicate how many power cells we are holding at a time and then carries them up to our shooter. Our shooter consists of a flywheel spinning at 9000 RPM which then shoots them at the target. The shooter rotates on top of a belted turret. The turret uses vision to acquire and maintain our target, which is the 8 foot tall goal called the power port. We are also looking at putting a device to spin the color wheel on our robot. It will likely use

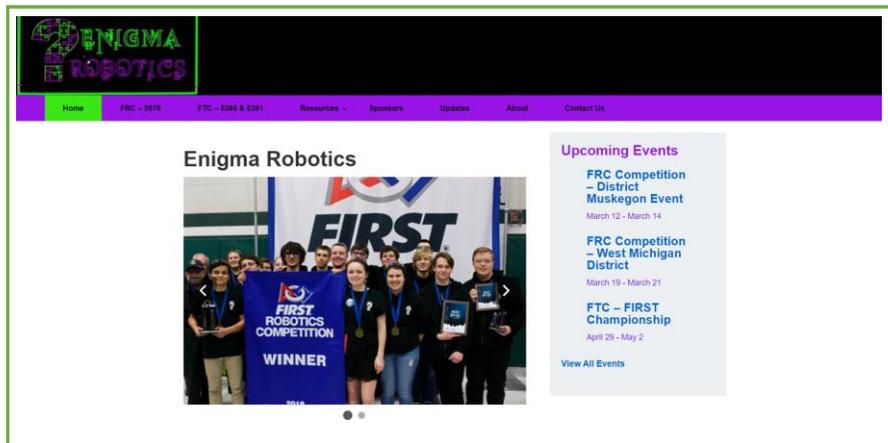
a spring-loaded system with a spinning wheel to spin the color wheel. Another mechanism we are looking to add is climbing system. We plan to use a linear lift which is spring loaded up and winches down. Shown below is an isometric view of our robot in SOLIDWORKS as well as a view of our drivetrain gearbox.



Updating Our Website

During the past week, we have worked through some much-needed updates to our team website. We worked all day Saturday on adding current photos, dates, and season information. We also updated to a more modern template which has easier to use features. We are still working out kinks and figuring out how information should be organized. Overall, we are satisfied with the progress made and are eager to keep improving. To check out our new and improved site visit:

<https://enigmafirstrobotics.com/>



Name Ideas

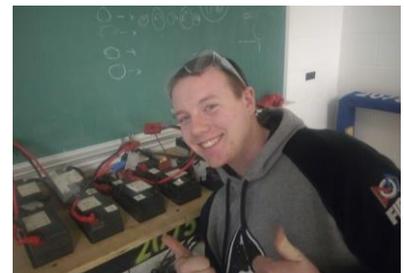
We are in a frenzy about what we should name our robot for the season. These are some of the ideas that our teammates are advocating for.



Sam: "Budget"



Owen: "Hoodwig"



Christian: "DOUG DIMMADOME"



Abby & Emily: "Super Automated Machine (S.A.M.)"



Eli: "Full Send" or "Budget"

We have not yet come to a consensus, but we will be voting in the upcoming weeks.

Enigma Robotics

West Catholic High School
Attn: Paul Dressel
1801 Bristol Ave. NW
Grand Rapids MI, 49504

E-mail:

enigmafirstrobotics@gmail.com



? 5385 ? 2075 ?

Check out our website!
enigmafirstrobotics.com



Senior Spotlight – Christian Boshoven

School:

West Catholic High School

Team Experience:

This is Christian's 4th year on Enigma Robotics. He joined his freshman year at the beginning of the 2017 season. He was excited to join the robotics team at his high school because he wanted to build robots just like NASA's rovers.

Team Involvement:

Christian is heavily involved with the build team. He also helps to manage the robot batteries, his team nickname is "battery boy." He is also the team spirit leader because he starts the chants in the stands during competitions.

Activities:

He plays the tuba in marching band. He is also a part of school clubs like Catholics in Action. Outside of school he works for Celebration! Cinema.

Family:

He has an older brother who is a 2019 West Catholic graduate. His mom and dad support him in the stands and contribute to many of our team activities. He also has a rabbit named Cadbury.

Future Plans:

Christian plans to attend Purdue University to study Aerospace engineering.

Fun Fact:

His parking spot number is 254, a popular robotics team from California. He is also an avid consumer of internet memes.

