GREENWOOD ROBOTICS

| Green Machine | Wired Woodmen |

Competition Season

This year's competitions will be virtual, meaning they will be recorded and scored at remote locations. The results are then compiled by Indiana FTC and the teams are ranked. Currently the GREEN MACHINE is ranked 11th in Indiana, and WIRED WOODMEN are ranked 26th.

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Greenwood Robotics

The 2020-2021 Greenwood Robotics team has gotten off to a great start after two weeks of learning about robotics skills such as CAD, Programming, Build, and Engineering Notebook. After attending the robotics workshops the teams were chosen.

The Green Machine is led by veteran Sophia Alexander. Sophia works the Engineering notebook with sophomores Elijah Buck and Charlie Jackson. The Engineering notebook team documents the robot through the design process. The builders for this year's team are freshmen Corabelle Hite and Ishani Shah. Joshua Sirkin, Ben Wehnert, and Braden Hafen make up the team of programmers that hope to use cameras and sensors for this year's robot. The lone CAD team member Austin Smith. Austin has had experience with the Wired Woodmen for two years.

The Wired Woodmen team has a full squad of rookies and returning members. The Build team this year is made up of Grady Havens, Olivia Forster, and Tabytha Hite. The CAD section this year includes Tucker Pierce and Joe Rhynearson. The Programming section is Jack Thompson, Noah Sirkin, and Thomas Satterfield. The Engineering section includes Moriah Ellington and Brianna Neumeyer.

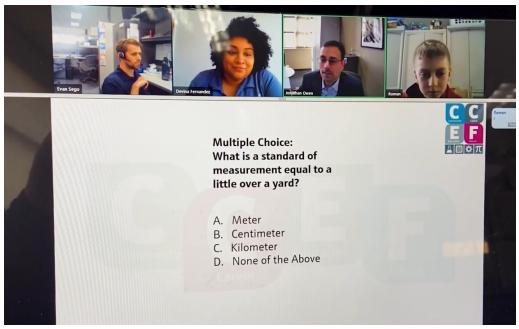
Teams are working hard to get the robot ready for this year's challenge!

2021 FTC ROBOTICS CHALLENGE

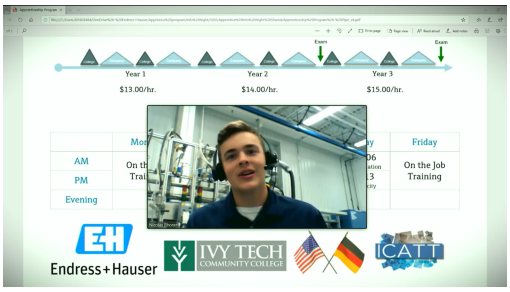
PRESENTED BY Qualcomm

This year's FTC Robotic competition is called "Ultimate Goal". The challenge consists of a 30 second autonomous program where the robot must place objects in target areas using only programming with no human driver. After the initial start, the robots are then driven by team members and will maneuver and launch rings into goals to score as many points as possible. The end game consists of removing a wobble outside the playing field and the robot should return to the launch line. The points are awarded based on the difficulty of the tasks.

Endress+Hauser Forum



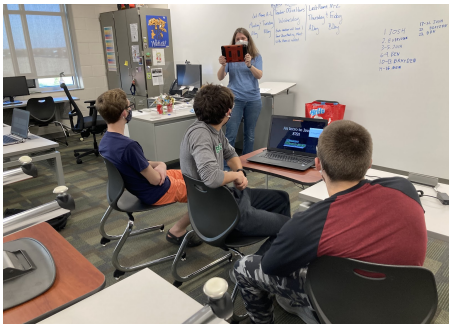
Robotics Teams 8791 & 8793 participated in the Virtual Endress+Hauser Community Career and Education Forum on November 5th. Here we were able to learn from business representatives, meet with college representatives and take a tour of facilities. We also had a presentation where our team members demonstrated our robots and talked about what we do in our robotics programs.

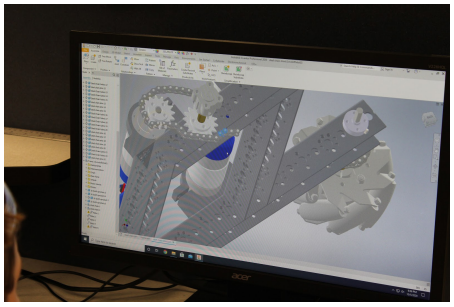


Endress+Hauser has been a generous sponsor for all of our teams since we've begun. This year, through the money they donated to GEF, we received a grant to purchase a 3D printer, Dremel Tools, and a new chassis for the robot.

Purdue Forums

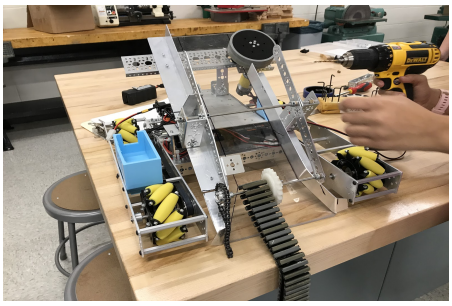
This year, members of the Green Machine Programmers presented a tutorial on basic Java programming. Ben Weinert, Joshua Sirkin, and Braden Hafen gave an online overview of why the team chose to program with Java, the basics of how to get started, and the benefits of using it in FTC Robotics. This gave the team the opportunity to teach new teams from around the state, using a ZOOM call through Purdue University. This learning experience gave the team practical experience in communication.





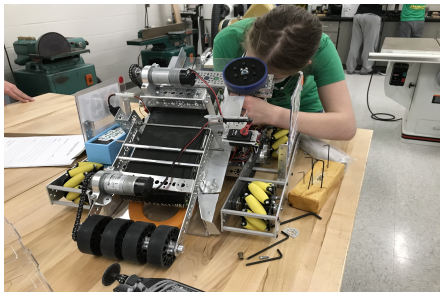
Green Machine Design

For this season's game, Ultimate Goal, we decided through a team vote to prioritize shooting the rings into the tower goal over the wobble goal. We began sketching our ideas and planning our strategy with flowcharts until we finally came to a design everyone could agree on, and began to build it.



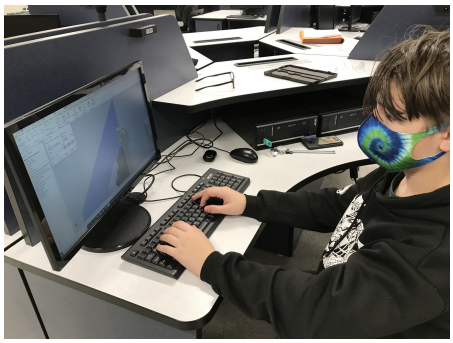
The robot consists of a conveyor belt mechanism that loads rings that can then be fired into the goals for points. The builders and CAD design manufactured 3D parts and designed them to give the perfect angle to hit the goal.

An additional part of the robot is used to move a "wobble" around the playing field to gain points. Overall, the programming of the robot and drivers have worked together to create a strategy to get the most points possible.

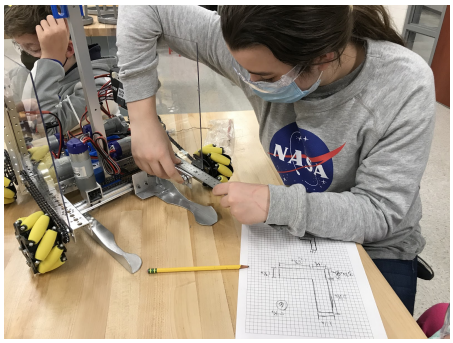


In the first three competitions, Green Machine started in second place, and stayed consistently there. Now after 5 remote competitions, the team is ranked 2nd in their League and 10th in the State. The team will compete in their first live competition Saturday April 17th at Center Grove High School.

Wired Woodmen Design

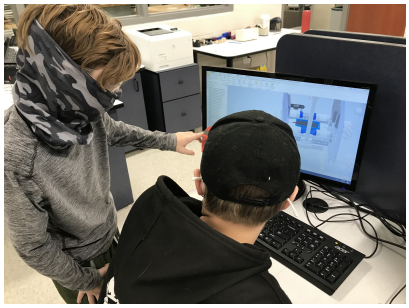


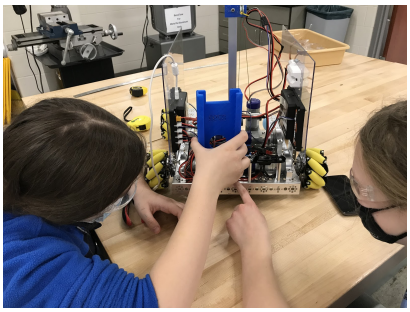
The Wired Woodmen Robot is designed to pick up and move the wobble goal, pick up and place rings in the lower bin, and park the robot. As the season has progressed, the team has added sensors to aid in autonomous driving, and is currently working on a shooter to increase their ability to score by shooting rings instead of merely placing them in the bin. If successful, the robot will greatly improve its potential to score points.



There are several custom designs on this year's robot. The team has built a custom lift and claw to pick up rings and wobbles. The lift helps to raise the wobble claw and rings, as well as lift them over the wall. CAD designers manufactured custom parts, including a phone case, a pulley director, and protective hub cabs that allow the claw to open and close without damaging the chassis.

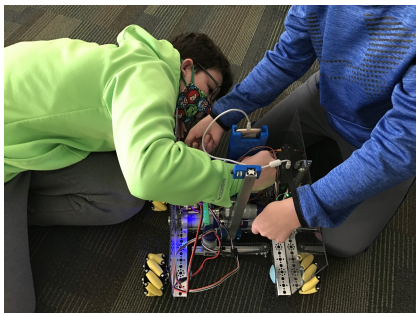
The team is ranked 6th in their league and 31st in the state. The best thing about this robot is that it is very consistent in its performance.



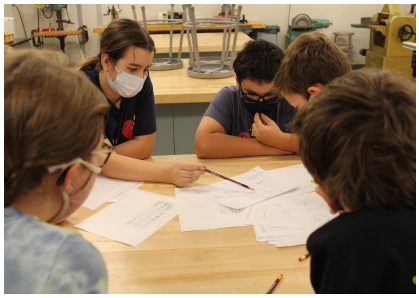


Thank You to our Sponsors

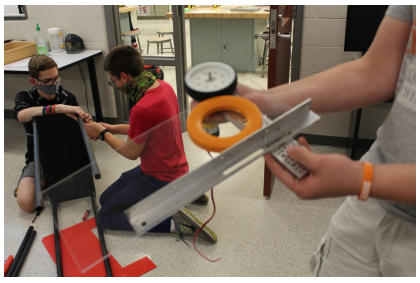
The Greenwood Robotics Program would like to thank our sponsors for their generosity. Their donations go directly to Green Machine and Wired Woodmen to build their robots and develop new skills.



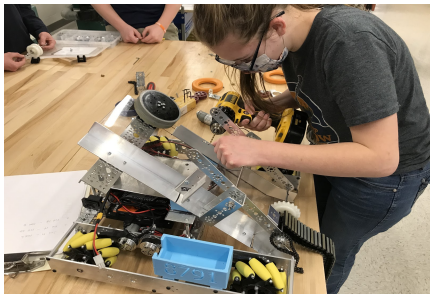
GREENWOOD Education Foundation

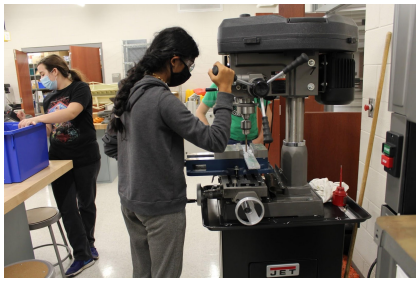


HONDA
Honda Manufacturing of Indiana, LLC.



Endress+Hauser
People for Process Automation



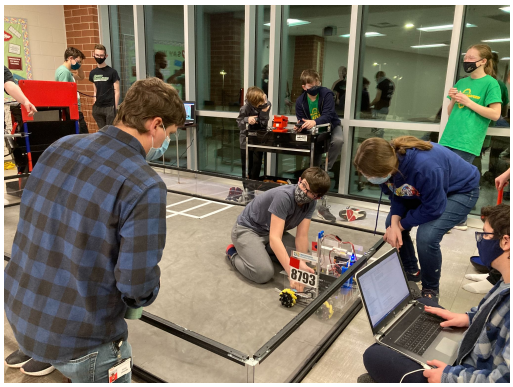


FIRST INDIANA ROBOTICS
Southeastern Team Support Grant

Live Competition

Both teams will compete in the Indy South League Tournament of Champions at Center Grove High School this Saturday (4-17-21). Two leagues are combining for a championship match that will qualify 7 teams for the state championship May 15th.

Our teams are excited to finally have some interaction with other teams. The most fun of robotics is the interaction students have with other teams. We enjoy talking and sharing ideas on building and programming our robots.



There is also the opportunity to plan and scout other teams. It is necessary to do this so that you don't crash your robots into each other when trying to move around on the field.

This year due to Covid restrictions parents and spectators will not be permitted in the building until 12:15, and everyone must properly wear their masks.

Here is a schedule for Saturday:

7:30 am	**Doors Open, Teams Load-in / Check-in**
8:00 - 9:30 am	**Robot & Field Inspections / Practice Match Sign-up**
8:30 - 9:30 am	**Practice Matches**
9:45 - 10:15 am	**Driver's Meeting**
10:15 - 10:45 am	**Opening Ceremonies, League Trophy Presentations**
10:45 am - 12:15 pm	**Qualification Matches**
12:15 - 12:45 pm	**Lunch for teams. No concessions stands Spectators may enter at this time.**
12:45 - 2:15 pm	**Qualifying Matches (continue)**
2:15 - 2:45 pm	**Alliance Selection, Awards**
3:00 - 4:00 pm	**Semi-Finals, Finals, Awards**
4:00 - 4:30 pm	**Tear down, Load-out, Doors close**

Watch From Home

You can watch livestream from home at the following: https://www.twitch.tv/firstinrobotics