

MOE 365 FTC: 2021-2022 Season Update

Nine Delaware FTC teams participated in the 2021-2022 FREIGHT FRENZY season, culminating in the Diamond State Championship on March 12, 2022.

The following summarizes MOE 365 FTC's accomplishments from May 2021 through March 2022.

Outreach Highlights:

MOE students have met 330 kids and parents at **7 in-person events** this year, including:

- Opening of the Wilmington Teen Warehouse (8/5/21)
- STEM Night at the Blue Rocks (8/26/21)
- Summer Camp, Halloween, and Science Saturday at Hagley Museum



Teaching kids to drive our robot at Halloween at Hagley.

MOE students have connected with the **STEM community** by:

- Hosting 3 virtual workshops for local FTC teams covering FTC programming, judging, and documentation
- Participating in the XEO Challenge by designing an ocean cleanup robot in collaboration with Team Alpha Lab from Quebec.
- Connecting with a total of 25 FTC teams via email, social media, and virtual events.



MOE students presenting to a new team about the basics of FTC programming.

Additional Outreach highlights:

- Started and mentored a **new FTC team, #19889 Robo-Sapiens**, by recruiting students and providing funding, meeting spaces, mechanical parts, and continued support.
- Donated the equivalent of 700+ meals to the **Food Bank of Delaware** through a donation drive and fundraiser at Chipotle Mexican Grill.

MOE students showing future members of #19889 Robo-Sapiens how to drive an FTC robot.



Engineering Highlights:

Students followed engineering design principles to build and program a robot for this year's game, FREIGHT FRENZY.

The main scoring objective of FREIGHT FRENZY is for robots to collect blocks and cubes and deliver them to multi-tiered 'shipping hubs' positioned around the field.

MOE students worked with mentors to brainstorm ideas, construct prototypes, make computer aided design (CAD) models, and construct the finished robot.



Our student-made computer aided design (CAD) model of our robot.

MOE students also programmed the robot to detect the position of a 'Team Shipping Element' using Open Computer Vision, to drive along pre-programmed Autonomous routes, and to alert drivers when blocks or cubes have entered the robot via signals on the controllers.



2 views of our completed robot.

To see our robot in action, watch our student-made Robot Reveal Trailer here:
<https://youtu.be/VuB6PP33oqs>

Competition Highlights:

The Diamond State Championship was organized into two major sections, the Judging Presentation and the Robot Game. The Judging Presentation, consisting of virtual interviews between teams and volunteer judges, is used to decide the winners of each FTC judged award, such as Motivate, Think, and Inspire. Teams prepare a presentation and answer judges' questions about robot design, professional connections, and community impact.

The Robot Game, hosted in-person at Tower Hill School, consisted of qualification matches followed by a knockout finals round. During qualification matches, teams are paired together randomly and two pairs face off against each other in each match. Scores are totalled to seed teams and determine the four highest scoring teams. For the finals round, the four top scoring teams are named "alliance captains" and each invites one other team to join their alliance for the finals rounds. A bracket of the four alliances is then assembled, with each alliance pair competing in a best-of-three format to determine advancement.

MOE 365 FTC was fourth seed after the end of the qualification round and our alliance with team #18739 Insert Team Name Here finished third overall. Captain #12880 Razor Steel and their Alliance Partner #14296 Hiller Instinct were the winning alliance.

MOE 365 FTC won the Inspire Award, the highest honor at each FTC competition, qualifying for FIRST World Championships held in Houston from April 20-23, 2022. Team #12880 Razor Steel also qualified based on outstanding performance in the Robot Game.

According to [FIRST](#), “The team that receives [the Inspire] award is a strong ambassador for FIRST programs and a role model FIRST team. This team is a top contender for many other judged awards and is a gracious competitor. The Inspire Award winner is an inspiration to other teams, acting with Gracious Professionalism® both on and off the playing field. This team shares their experiences, enthusiasm and knowledge with other teams, sponsors, their community, and the judges. Working as a unit, this team will have shown success in performing the task of designing and building a robot.”



Photos from the competition can be found here:

<https://drive.google.com/drive/folders/1o7Zvw816u87Z669rTPoO-l-9YtzZkmwS?usp=sharing>

Additional Information

MOE 365 FTC is sponsored by the following organizations and would like to graciously thank all sponsors for their mentorship and support. MOE’s parent organization is [FIRST State Robotics](#).



More information about MOE 365 FTC can be found on our website, www.moefc.org.

MOE 365 FTC's student-created Engineering Portfolio, a 15 page summary of our team's journey, can be found at www.moefc.org/notebook.

More information about the FIRST program can be found at www.firstinspires.org.

MOE 365 FTC can be contacted via email at moe365.ftc@gmail.com.