TEAM NEUTRINO #3928

2022 Pit Binder

For more information, visit

TEAMNEUTRINO.ORG @ FRC NEUTRINO

TEAM NEUTRINO

Team Mission

TRAINING FUTURE ENGINEERS

Team Neutrino's mission is to develop ourselves as leaders, engineers, and community partners, working every day to achieve more with our robots, in our community, and from ourselves than we did the day before.

Our program is designed to prepare students for a career in STEM and since 2011, **85% of Team Neutrino alumni have pursued a STEM career.** On our team, material learned in the classroom is practically applied in an environment that gives high school students the hands-on opportunity to solve real-world STEM problems. What began as 9 Ames High School students in 2011 has become a team of 43 Story County students who reach 20,000+ community members each year through countless events, demonstrations, camps, and more. Since 2014, we have mentored 75+ elementary and middle school robotics teams.

TEAM NEUTRINO

FIRST Mission

WHAT IS FIRST ROBOTICS?

FIRST is a non-profit organization that designs fun, motivational programs to help young people in grades K-12 discover and develop a passion for Science, Technology, Engineering, and Math through challenging robotics competitions.

The mission of *FIRST* to inspire youth to be the science and technology leaders of tomorrow by engaging them in exciting Mentor-based programs that build their skills, inspire innovation, and foster well rounded life capabilities including self confidence.

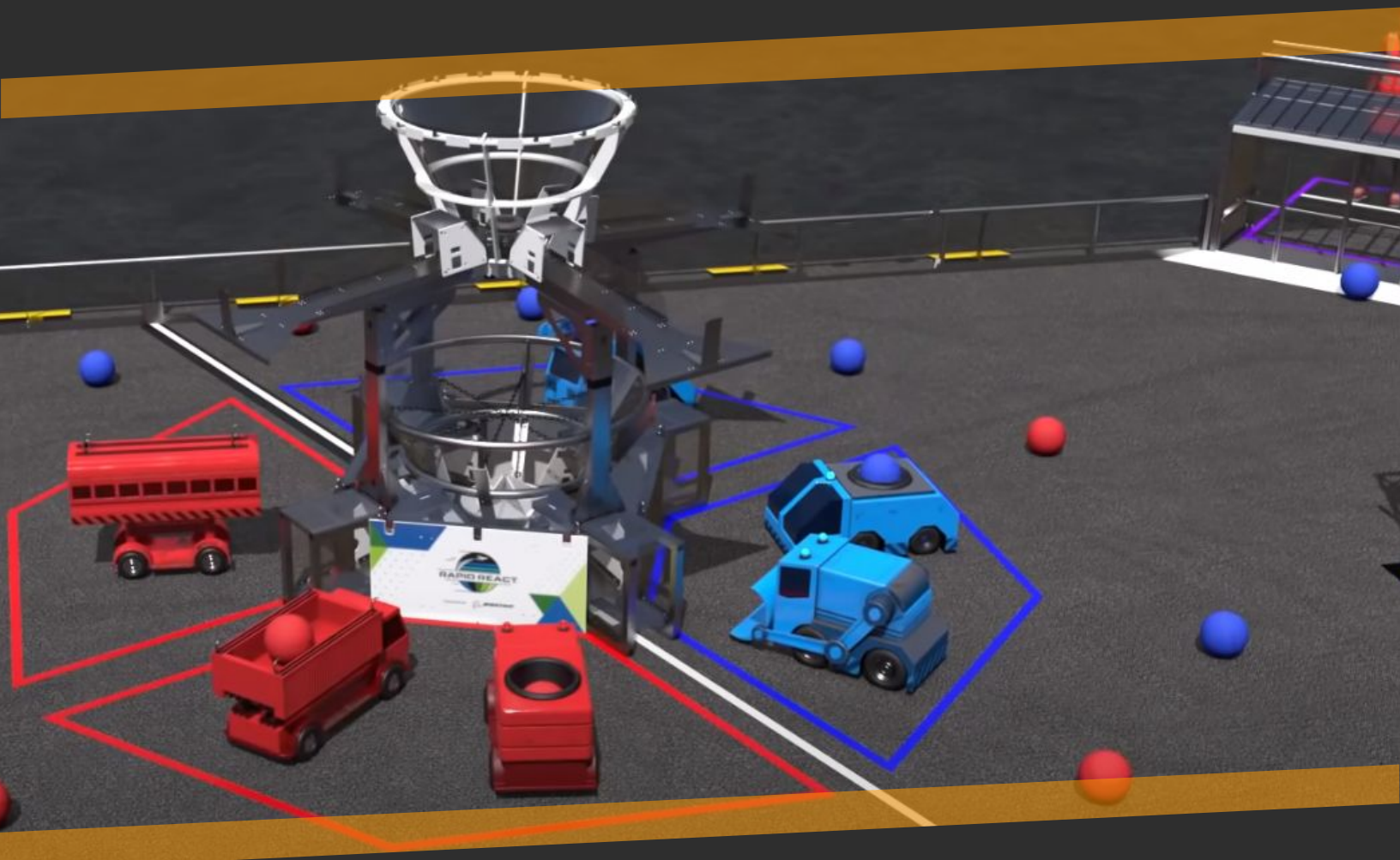
TEAM NEUTRINO

2022 RAPID REACT

PLAYING 2022'S RAPID REACT GAME

In RAPID REACT presented by The Boeing Company, two competing alliances are invited to process cargo for transportation. Each alliance is assigned a cargo color (red or blue, based on alliance affiliation) to process by retrieving their assigned cargo and scoring it into the hub. Human players assist the cargo retrieval and scoring efforts from within their terminals. In the final moments of each match, alliance robots race to engage with their hangar to prepare for transport!

RAPID REACT℠



TEAM NEUTRINO
Safety Overview

TEAM NEUTRINO SAFETY

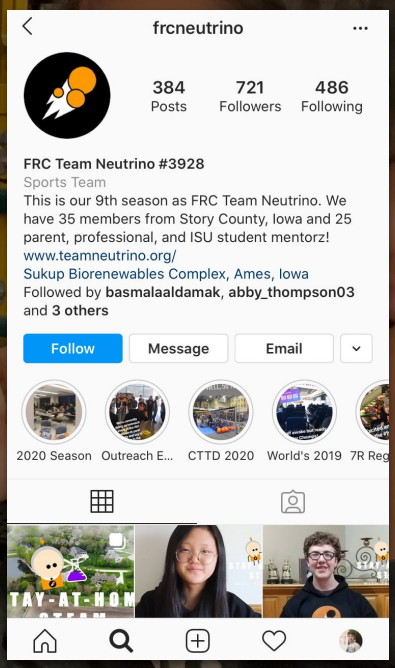
Promoting a culture of team safety is critical to all pillars of Team Neutrino. The team strictly enforces safety glasses and other appropriate PPE when in the lab or operating tools, and always has a well-stocked first aid and fire extinguisher in all areas. All members complete comprehensive Iowa State University Safety training, and all safety incidents are reported to the Safety Captain. A two mentor policy and sign-in sheet for our workspace ensures accountability.

TEAM NEUTRINO
Team Branding

BRANDING THROUGH SOCIAL MEDIA

As an extension of our apparel and in-person branding (including printed materials, such as this binder), Neutrino utilizes official Instagram, Twitter, Facebook, and YouTube outlets to promote team interests, communicate directly with sponsors and partners, supply basic *FIRST* recruitment information, and promote team events and digital outreach initiatives. Upholding our detailed branding elements (as detailed in our Identity Standards) has seen a drastic improvement in overall effectiveness.

The Identity Standards can be found printed separately in the pit— take a look!



@FRCNEUTRINO

#3928 Team Neutrino
TEAM HISTORY

TEAM NEUTRINO

History of Team Neutrino

FOUNDING A LEGACY

Team Neutrino began with one of our students being invited to attend the Minnesota North Star FRC Regional by her grandfather, a mentor on team 2977, Sir Lancer Bots. After being inspired by the mission, community, and the competition, she became part of the *FIRST* community by founding the first FRC team in her area. She was put in contact with a student at Iowa State University coincidentally looking to start a FRC team. It was a partnership made in heaven.

After establishing an ISU workspace and rookie funding via local grants, the team was ready for students who wanted to compete in 2012's Rebound Rumble. When the season was over, Neutrino was invited to join the Story County 4-H Program as Iowa's first 4-H FRC Team. 10 years, 2 Chairman's Awards, and 2 Regional Winner Awards later, Team Neutrino is thriving with 30+ members and a crew of dedicated mentors from local programs and businesses dedicated to competing at the highest level of Rapid React.

In 2012, the team competed at the Midwest Regional. At the Midwest Regional the team was ranked 8th, and learned a lot about competing in the *FIRST* Robotics Competition as a returning team in 2013.

2012

"It was a partnership *made in heaven*."

TEAM NEUTRINO
2013-2015

In 2013, the team competed at the North Star and Greater Kansas City regionals. At the Greater Kansas City Regional, the team was ranked 9th and received the Excellence in Engineering and Finalist awards. At the North Star Regional, the team finished as 1st seed and won the Innovation in Control and Finalist awards. The team was honored to participate in the Indiana Robotics Invitational with 68 of the top ranked teams in the world.

In 2014, the team competed at the North Star and Greater Kansas City regionals. At the North Star regional, the team was awarded Engineering Inspiration. At the St. Louis Championship, the team was picked to be the 4th robot on the 4th seed alliance (in the Newton division), and ended up ranking as semifinalists.

In 2015, the team went to the Central Illinois and North Star regionals. The team placed as quarterfinalists in both, and team member Dagney Paskach won the Dean's List Finalist Award at North Star. During the off-season event CowTown ThrowDown, the team won the event as a 1st pick on the alliance.

THROUGH THE YEARS

TEAM NEUTRINO
2016-2018

In 2016, Team Neutrino went to the Minnesota North Star regional and the Iowa regional! The team was a semifinalist at North Star and a quarterfinalist at Iowa. The team had the honor of winning the Judge's Award at the Iowa Regional.

In 2017, Team Neutrino went to the Minnesota North Star regional and the Iowa regional. The team was a quarter finalist at Iowa and a semifinalist North Star. At Iowa, team member Rucha Kelkar won the Dean's List Finalist Award. At North Star, Team Neutrino won the Chairman's Award. In the offseason, the team competed at the East Metro Cooperative Competition.

In 2018, Team Neutrino went to the Seven Rivers Regional and the Iowa Regional, where they were the 2nd seed alliance captains, finalists, and recipients of the Engineering Inspiration award. This qualified the team for the World Champs in Detroit, where they were the 7th seed alliance captains and quarterfinalists.

THROUGH THE YEARS

TEAM NEUTRINO
2019-2021

In 2019, Team Neutrino attended the Iowa Regional, Seven Rivers Regional, and the Detroit World Championships. At Iowa, the team was seeded 3rd, with Nitzan Friedberg named a Dean's List Finalist and the team winning the Quality Award. At the Seven Rivers Regional the team won the Engineering Inspiration Award.

In 2020, Team Neutrino attended the Greater Kansas City, and qualified for the cancelled World Championships (in addition to the Iowa Regional). At the Greater Kansas City Regional, the team ranked 3rd and captained the winning alliance, in addition to winning the Engineering Inspiration Award.

In the 2020 remote competition season, the team seeded 1st at the Midwestern Plains district and 17th globally. At the Midwestern Plains District, the team won the Regional Chairman's Award, the Autonomous Award, the Skills Competition Winner Award, semi-finalist in the Innovation Challenge Game Design Challenge (Designer's Award), with Quinn Margrett named a Dean's List Finalist.

THROUGH THE YEARS

#3928 Team Neutrino

MEET THE TEAM


Team Neutrino
Story County 4-H FRC Team #3928


Neutrino


AMS FLL
AMS FLL
Walmart
Walmart
Neutrino


FIRST ROBOTICS COMPETITION
CHAIRMAN'S AWARD
2021 MIDWESTERN PLAINS REGION
FIRST ROBOTICS COMPETITION
WINNER


Cheese Curds
Neutrino


Neutrino
Neutrino
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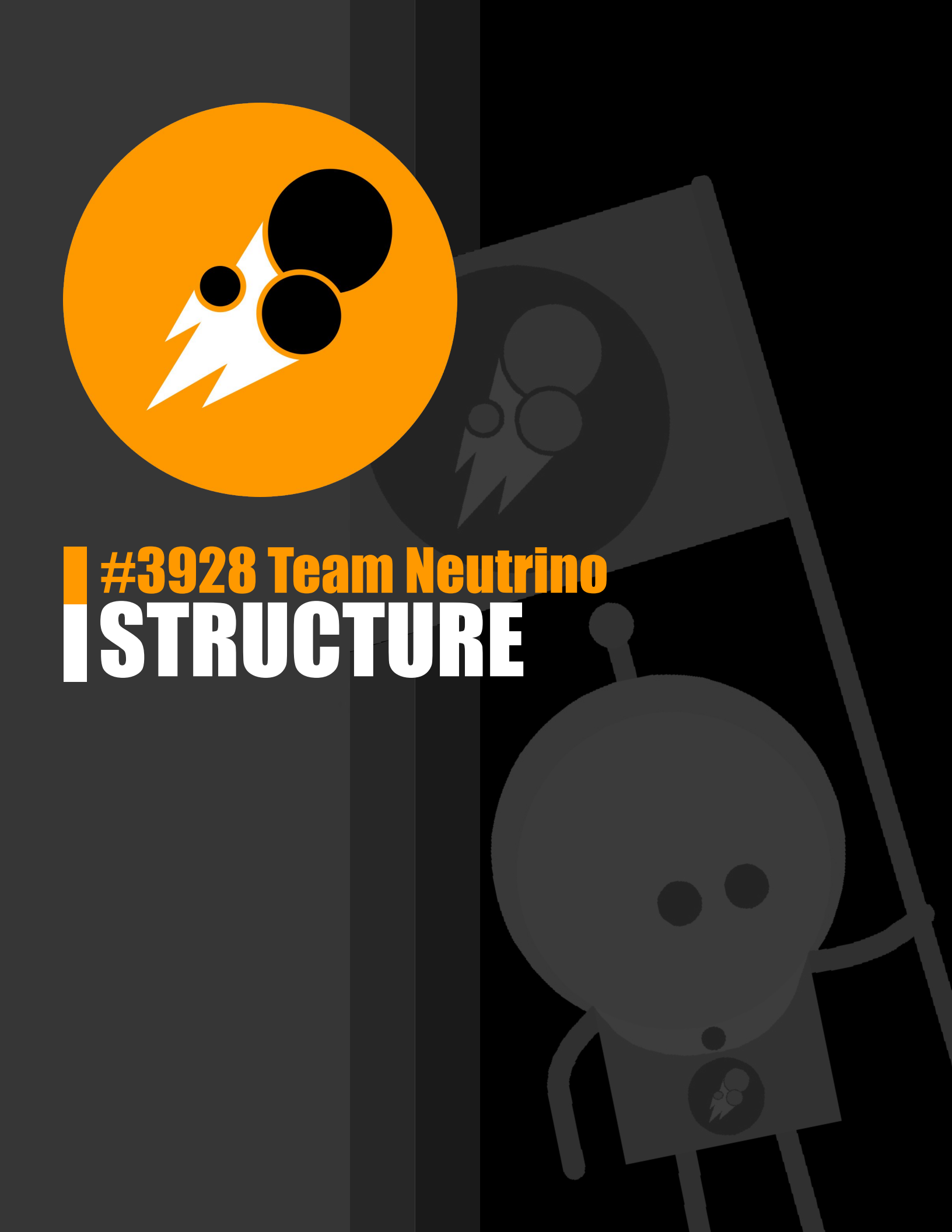
Neutrino
CELEBRATING 10 YEARS


Neutrino



#3928 Team Neutrino
STRUCTURE

TEAM NEUTRINO
Student Leaders

Captain *(tech)*

- Design Manager
- Manufacturing Manager
- Controls Manager
- Scouting Manager
- Safety Captain

Co-Captain *(non-tech)*

- Awards Manager
- Fundraising Manager
- Graphics Manager
- Outreach Manager
- Webmaster

STUDENT LEADERS

Captain Sam Kellen **Co-Captain** Quinn Margrett

The Team Captain oversees all the happenings on the team, focusing more on the technical subteams. Sam's responsibility is to focus, motivate, and keep the team on track towards goals. The Captain works with the technical subteams to make sure all students have the opportunity to work hands-on with the robot. Sam works closely with the Co-Captain to institute the values of *FIRST* and keep the team working.

The Co-Captain oversees all things non-technical, focusing more on award submissions, community outreach, and business activities. Quinn is in charge of making sure high-quality awards are submitted on time and that all non-technical projects are making headway. The Co-Captain needs to be organized and is in charge of making sure all non-technical activities are documented to ensure sustainability.

Safety Captain Abby Thompson

The Safety Captain makes sure that all team members and mentors are following *FIRST*'s safety guidelines, as well as safety guidelines outlined by 4-H, Boyd Lab and Iowa State University. Abby is the main representative to ensure machine training and safety for all members.

Design Manager Henry Kellen

The Design Manager oversees the CAD design, prototyping, and manufacturing of the team's robot. It is Henry's responsibility to help make design projects and decisions and delegate duties out to members, as well as reporting progress to the team Captain progress throughout the season.

Manufacturing Manager Mikayla Lauritsen

The Manufacturing Manager oversees the manufacturing of the robot. It is Mikayla's responsibility to ensure parts can be manufactured correctly and in a timely manner, and to train the underclassmen of the team on how to safely use manufacturing equipment.

Controls Manager Leslie Kim

The Controls Manager oversees programming and the wiring of the robot. It is Leslie's responsibility to lead coding projects, delegate tasks for programming and wiring of the robot, and to report progress to the team Captain progress throughout the season.

Scouting Manager Ryan Paskatch

The Scouting Manager is in charge of maintaining our scouting system, managing scouting data, providing the drive team with frequent updates about other teams, and making the alliance selection picklist. Ryan is responsible for overseeing strategy as a whole.

Awards Manager Claudia Murphy

The Awards Manager is responsible for overseeing all traditional award submissions, including the Chairman's Award. In addition to maintaining comprehensive awards documentation, Claudia manages award timelines and presentations, and trains underclassmen about the process.

Fundraising Manager David Lee

The Fundraising Manager is in charge of submitting grants, grant reports, managing incoming awarded grants, and maintaining sponsor relations. David also maintains the overall team budget and acts as the primary contact for sponsors and community partners.

STUDENT LEADERS

Graphics Manager Humza Maqsood

The Graphics Manager is in charge of the team's image and making sure that the team image is recognizable and consistent from year to year. Humza oversees the production of printed materials, video content, and social media publications.

Outreach Manager Rida Azam

The Outreach Manager is in charge of organization and documentation of all outreach events, and acts as an ambassador for new community events and connections. Rida maintains local relationships and establishes new community outreach opportunities for the team.

Webmaster Jacob Xing

The Webmaster ensures that the team's web presence is up-to-date by regularly adding posts on our website. Jacob's primary responsibility is to maintain, update, and revise the website to provide professional resources about the team (including managing public press releases).

STUDENT LEADERS

LEADERSHIP CORE

Leadership Core is a group of students, managers, and lead mentors who are heavily involved in the team's decision making. Team members become part of the Leadership Core through an application process and are appointed by the Captains. LC works to make full team organizational decisions in a transparent way, oversees team activities (e.g. recruiting efforts, fundraising efforts, sponsor communication, sustainability), and aims to encourage deeper student leadership and participation.









2021-2022 Members

#3928 Team Neutrino
MARKETING

SPONSOR LETTER

TEAM NEUTRINO
FIRST Robotics Team #3928

To our business community,

My name is __name__, and I am the fundraising manager of of *FIRST* Robotics Competition (FRC) Team Neutrino 4-H #3928. I received your contact information from __website/person__, and was hoping to connect with you and your business about a potential sponsorship. I've included a short introduction to the team below, and we would additionally love to send a few members to stop by __business name__ at your convenience to visit with you personally.

Team Neutrino is a 4-H 501(c) non-profit robotics program made up of high school students from all around Story County who learn hands-on STEM (Science, Technology, Engineering, and Mathematics) skills through the *FIRST* Robotics Competition— a challenge where students build a robot to complete tasks and compete against other teams at three-day competitions.

Team Neutrino is designed to prepare students for a career in STEM and since 2011, 85% of alumni have pursued a STEM career. In our program, material learned in the classroom is practically applied in an environment that gives the next-generation STEM workforce invaluable hands-on opportunities. Often, our alumni even engage with local STEM employers after graduation, utilizing their robotics education. We're also one of the driving volunteer organizations in the Ames community— each season, we reach 20,000+ individuals through our 1,700+ volunteer hours a year, including countless local demonstrations, conferences, annual STEM camps, and mentorship of partner programs. *Ultimately, our program can disseminate your brand to all pillars of our community.*

All contributions directly fund registration costs, travel expenses, mechanical parts and costs, tool replacement, and outreach supplies for our non-profit. If we reach our annual goal of $40,000, we will use it to cover the costs of registration ($8000 for two regionals), travel expenses ($14,600), robot parts and miscellaneous costs and preseason projects ($8400), and outreach funds and supplies ($4,000). We hope to qualify for the Championship Event in Detroit, which would require us to raise even more money ($5000 for Championship registration). We recognize sponsors in the following ways based upon donation levels:

Support Options
Champion Support ($10,000+) XL logo on robot, banner, pit, team shirts, and mention in team displays and literature, special mention in all social media, video, and other media releases
Diamond Support ($5,000+) Large logo on robot, banner, pit, team shirts, and mention in team displays and literature
Platinum Support ($2,500+) Medium logo on robot, banner, pit, team shirts, and mention in team displays and literature
Emerald Support ($2,000+) Small Logo on banner, pit, team shirts, and mention in team displays and literature
Gold Support ($1,000+) Small Logo on banner, pit, team shirts, and mention in team displays and literature
Silver Support ($500+) Small logo in pit, team shirts, and mention in team displays and literature
Bronze Support ($250+) Mention in team displays and literature
Special Mentions ($50+) Mention in team literature

Please let us know how we can best connect with you and answer your questions! We'd be more than happy to send students to speak with you personally.

__Name__
FRC Team Neutrino

Ames, Iowa **www.TEAMNEUTRINO.org**

A letterhead was designed and used on team documents. Above is a letter used to inform businesses about sponsoring Team Neutrino.

TRI FOLD PAMPHLET

FIRST ROBOTICS COMPETITION

For Inspiration and Recognition of Science and Technology.

The mission of FIRST is to inspire young people to be science and technology leaders, by engaging them in exciting mentor-based programs that build science, engineering and technology skills, that inspire innovation, and that foster well-rounded life capabilities including self-confidence, communication, and leadership.

Founded by Dean Kamen in 1989, *FIRST* develops accessible, innovative programs to motivate young people to pursue education and career opportunities in science, technology, engineering, and math, while building self-confidence, knowledge, and life skills.

For more information, visit
FIRSTINSPIRES.ORG

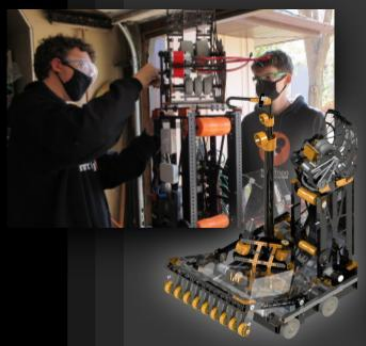
For more information, visit
TEAMNEUTRINO.ORG

CELEBRATING 10 YEARS
TEAM NEUTRINO
FIRST Robotics Team #3928

For more information, visit
TEAMNEUTRINO.ORG

INFINITE RECHARGE

The robot below was designed to play 2020 and 2021's Infinite Recharge game! In this challenge, teams must use their robot to navigate the field, deposit small foam balls, and balance their robot on a bar. For the 2021 season, Team Neutrino played Infinite Recharge At Home, an adaptation of the game that allowed teams to play remotely.



CELEBRATING 10 YEARS
TEAM NEUTRINO

Team Neutrino faces the exciting challenge of building a robot to compete in *FIRST* Robotics Competition events. The team is composed of high school students from Story County who design, build, and program a robot to complete each year's challenge (released in January).

While working alongside mentors at their build space at Iowa State University, students solve problems and learn about the field of engineering. Beyond the competition field, students are responsible for marketing the team, creating a positive team image, designing a website, fundraising, and hosting community events. Team Neutrino students volunteer their time to community events such as team-developed summer camps, robot demonstrations, and community service projects.

FIRST ROBOTICS COMPETITION

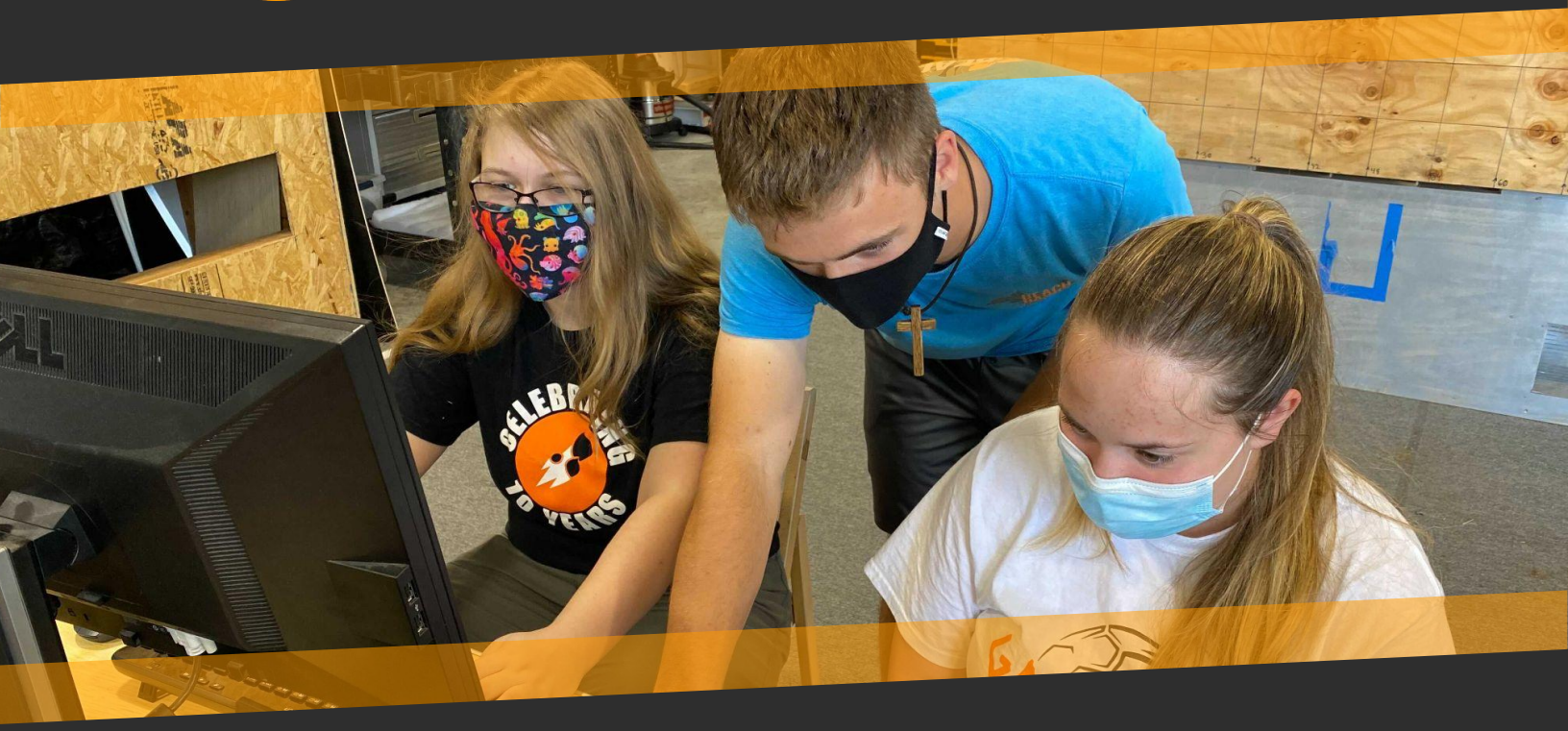
FRC is a unique varsity sport designed to help high schoolers discover how interesting and rewarding the lives of engineers and scientists can be. Students gain the technical skills, professionalism and self-confidence that all but guarantee them extraordinary career opportunities.

In addition to the robot game, Team Neutrino annually competes for the FRC Chairman's Award, which recognizes FRC teams who have the most widespread impact on thor community. We're proud to have been recognized as a Chairman's winner in 2021!

This brochure was developed as a way to educate the community about our team, FIRST Robotics, and the Mission of FIRST. It details out accomplishments of the now-completed 2021 season.

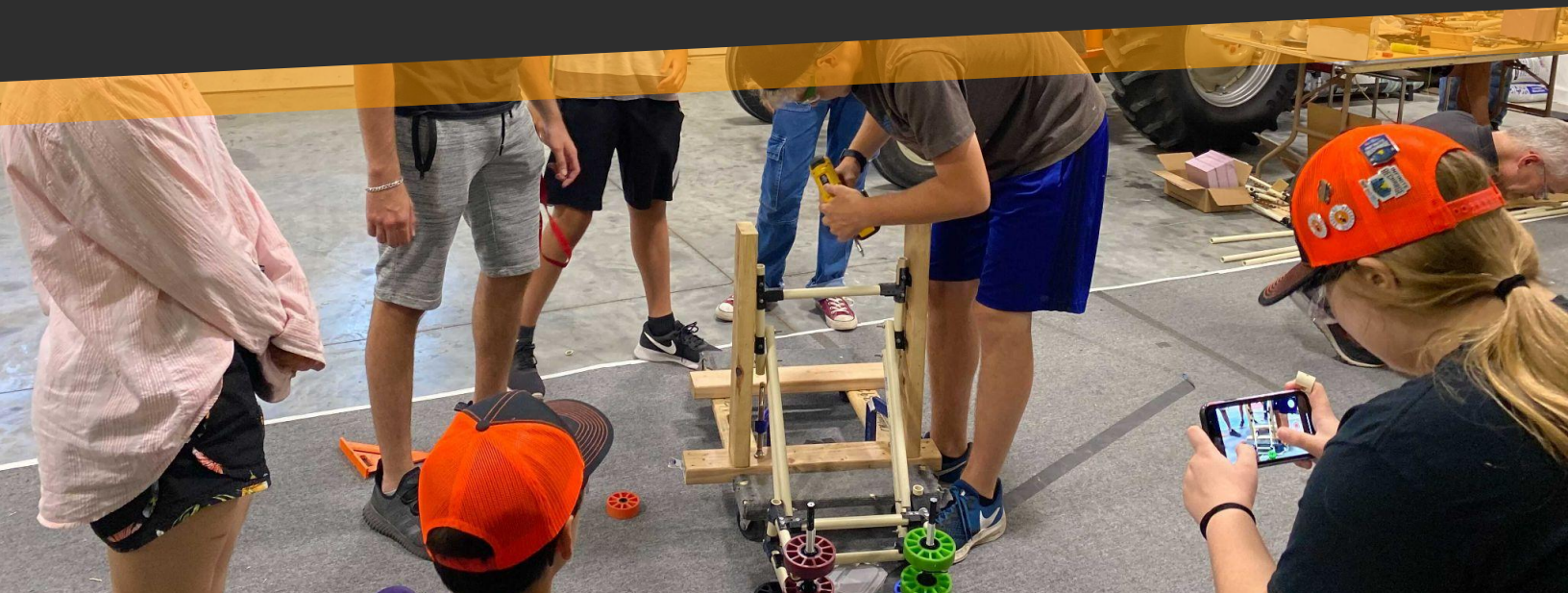
#3928 Team Neutrino
PRE-SEASON 2022

TEAM NEUTRINO
Training Camps



LEARNING NEW STEM SKILLS

Between the 2021 and 2022 seasons, Neutrino hosted training camps where new and existing members alike can deepen their knowledge and skills in various aspects of the team. These camps centered around teaching the basics of **graphic design**, **scouting**, **outreach planning**, **prototyping**, **CAD**, **manufacturing**, **programming**, and learning **electrical** and **pneumatic** systems. New members learned essential skills prior to the build season to get an invaluable head starr.

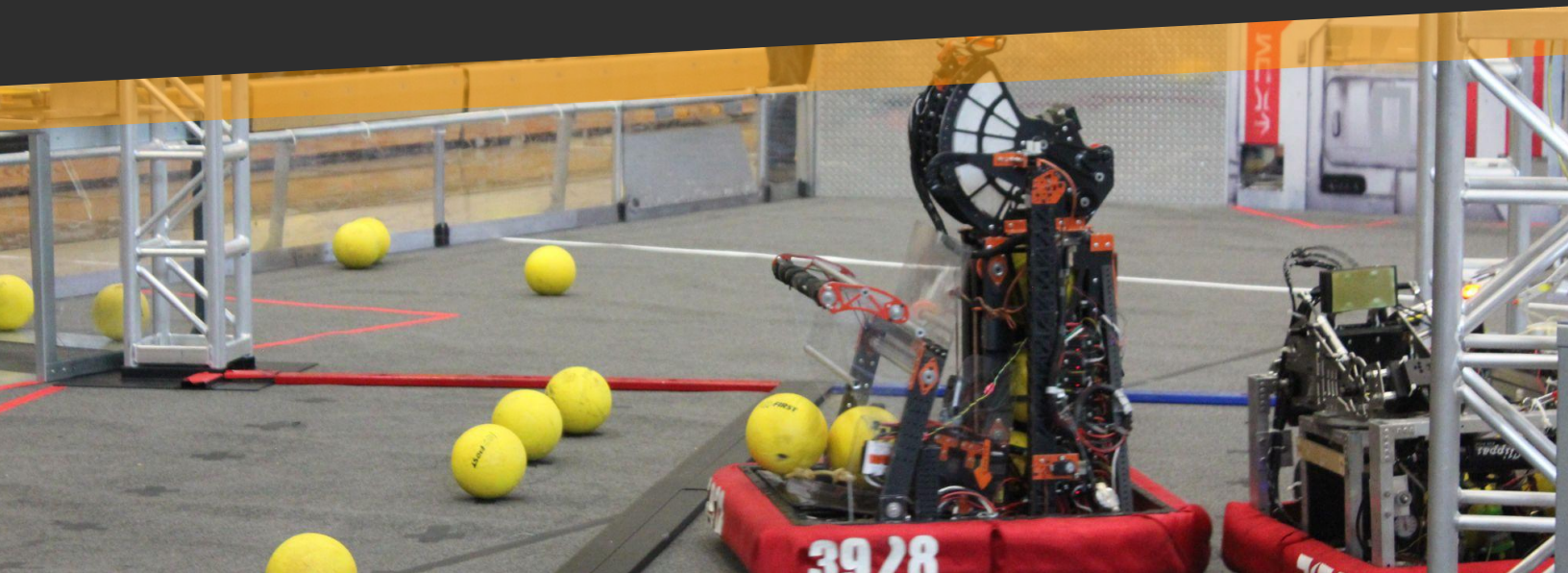


TEAM NEUTRINO

EMCC

EMCC OFFSEASON COMPETITION

The East Metro Cooperative Competition, a scrimmage which allowed the team to drive on a regulation field for the first time since 2020, was an irreplaceable introduction to competition life for over half the team. Our teams took their findings from EMCC to repair our robot and get it back in competitive shape for our next offseason competition (after some informative mechanical setbacks).



TEAM NEUTRINO

Cow Town ThrowDown

CTTD gave new Neutrino drivers a great way to get hands-on experience, as the team rebuilt our driveteam for 2022 from scratch.

CTTD OFFSEASON COMPETITION

Returning after a year of COVID cancellations, Neutrino experienced the first in-person competition in 2 full years. CowTown Throwdown gave underclassmen their first look at how Neutrino competes at a competition, and allowed our mechanical and design teams to evaluate how to improve our design for 2022's game (e.g. durability, drivability, etc etc). Strategy had a great time connecting with other teams, as Neutrino worked its way up to a semifinalist ranking.

TEAM NEUTRINO
Mock Kickoff

MOCK 2022 KICKOFF

To simulate how kickoff operates every January, Neutrino hosted a mock kickoff for all of its members and mentors. Using 2017's *FIRST* Steamworks as a demonstration, new members learned how to strategically evaluate new FRC games, as well as how to facilitate helpful full-team discussions. After brainstorming our strategy for 2017's Steamworks, comparing our findings to elite level gameplay from 2017 gave us insight into how gameplay evolves and how to best predict the most effective way to play and design a competitive robot.

#3928 Team Neutrino
BUILD SEASON 2022

TEAM NEUTRINO
Kickoff

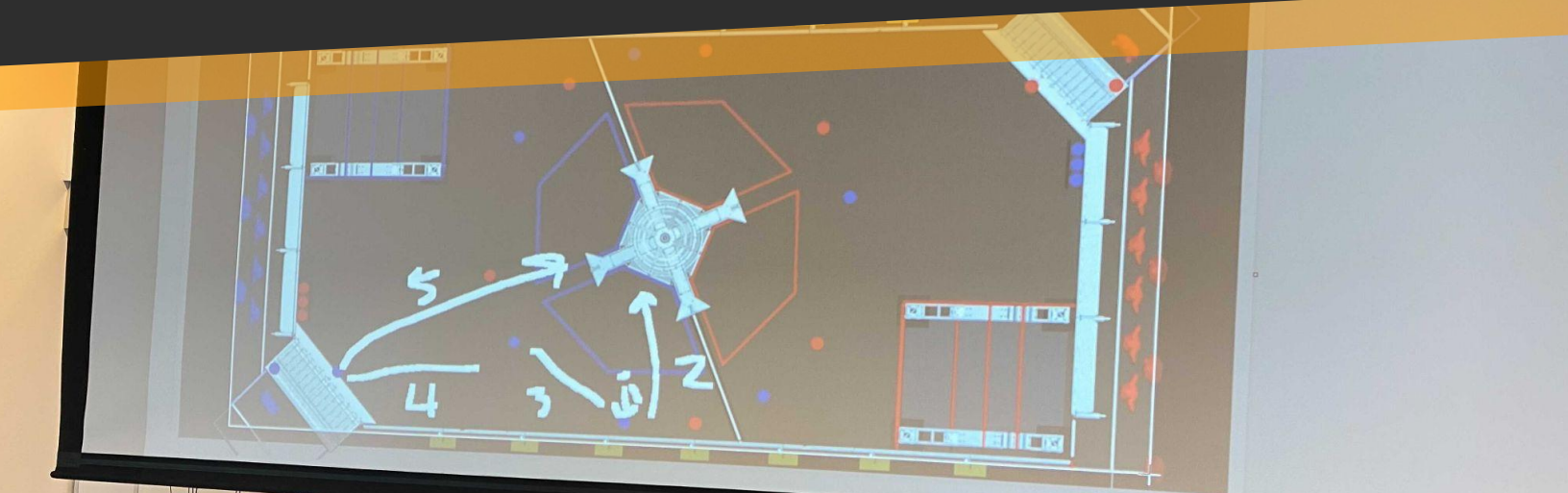
2022 KICKOFF EVENT

Kickoff marks the start of the six-week build season, when the team watches the live stream game announcement, reads the game manual and begins planning for the new FRC game (2022's RAPID REACT). This year we mapped out the Rapid React field, brainstormed robot archetypes as a group, and applied our new understanding of gameplay from the mock kickoff.

TEAM NEUTRINO
Subteams

STRATEGY SUBTEAM

Immediately after kickoff, the strategy team got to work simulating matches, discussing scoring strategies, and analyzing the Rapid React manual and robot rules. The strategy/scouting team has developed an app-based scouting system to make scouring opposing robots more intuitive and efficient at regional competitions. This date will directly influence our pick list.



TEAM NEUTRINO
Subteams

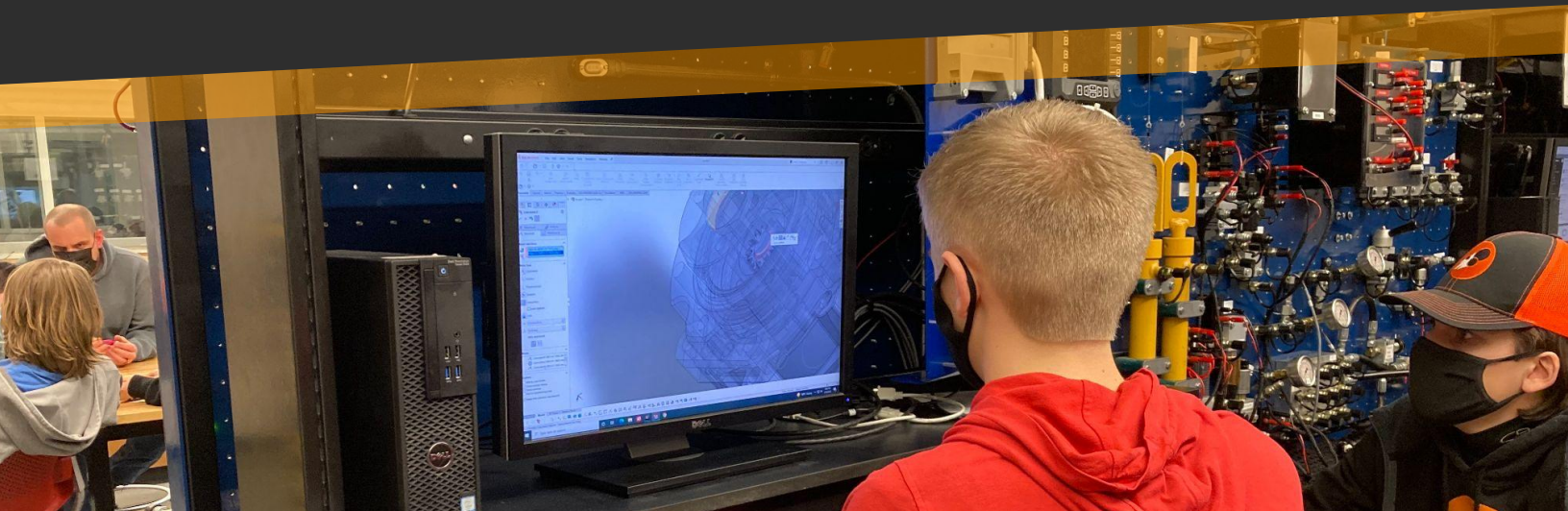
PROTOTYPING SUBTEAM

Once our strategy team determines what our best route to success is with our given resources, prototyping tests and refines potential mechanism through prototyping before final production. Based on their findings, CAD begins work on whatever archetype proofs the most functional.

TEAM NEUTRINO
Subteams

CAD SUBTEAM

Students design this year's Rapid React robot in Solidworks, a 3D computer modeling program. Once our design is finalized by the prototyping team, the CAD team gets to work turning it into a manufacturable design and ensuring it's geometry works (e.g. how it balances during climb and what angle the shooter has to be at).



TEAM NEUTRINO
Subteams

MANUFACTURING SUBTEAM

After Neutrino's robot CAD is assembled and functioning, the subteam passes their files off to the manufacturing team to turn to reality. The team uses everything from Neutrino's CNC machine to our Fortus 250MC 3D printer to manufacture specific custom parts. The subteam primarily works out of Iowa State University's Boyd lab alongside experienced ISU mentors.

TEAM NEUTRINO
Subteams

ASSEMBLY SUBTEAM

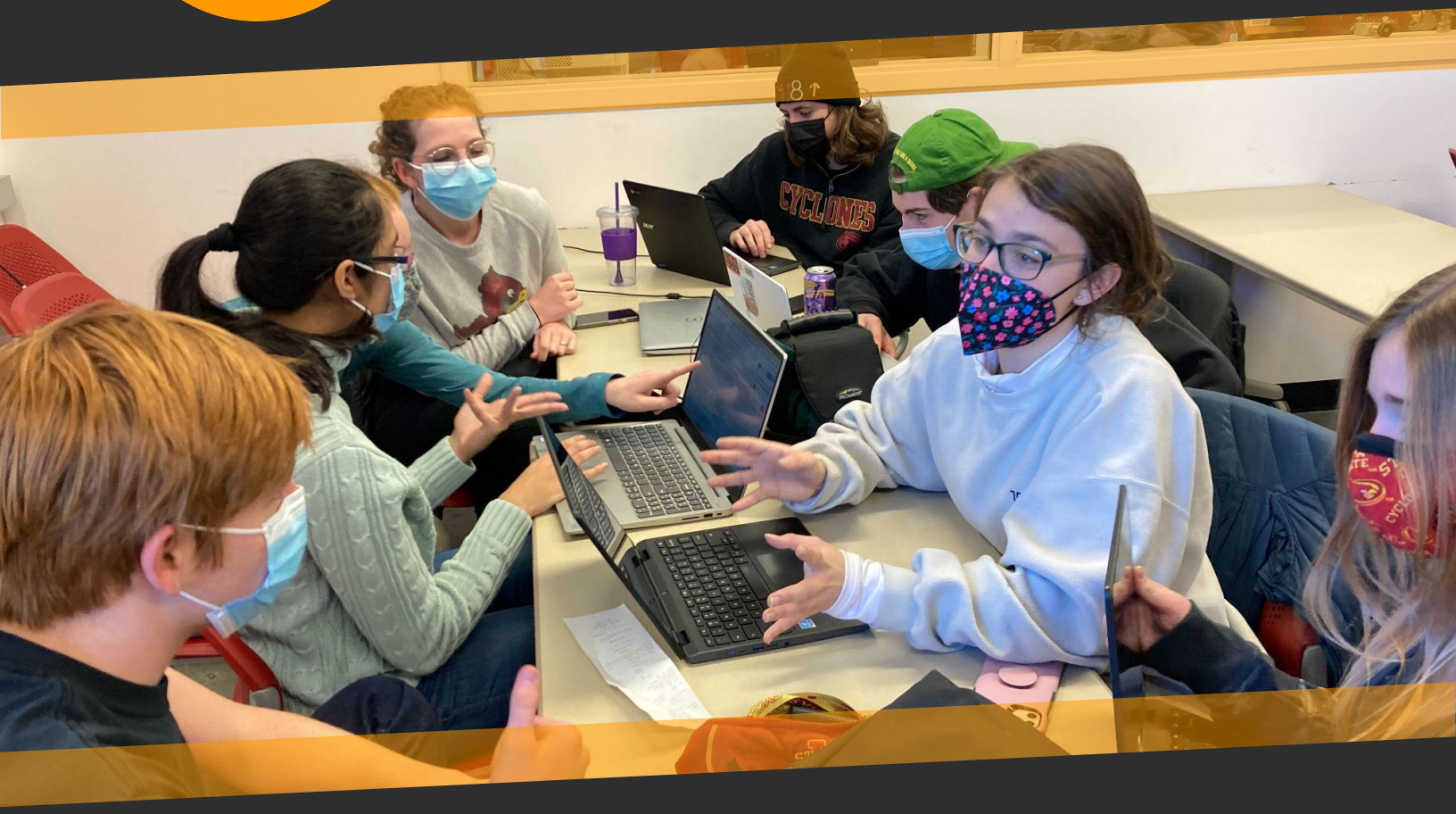
With the completed set of robot parts in-hand (plus backups!) the assembly subteam works to produce a robot which is durable and full wired for competition use. Assembling the robot involves frequent testing, revising, and retesting.

TEAM NEUTRINO
Subteams

CONTROLS SUBTEAM

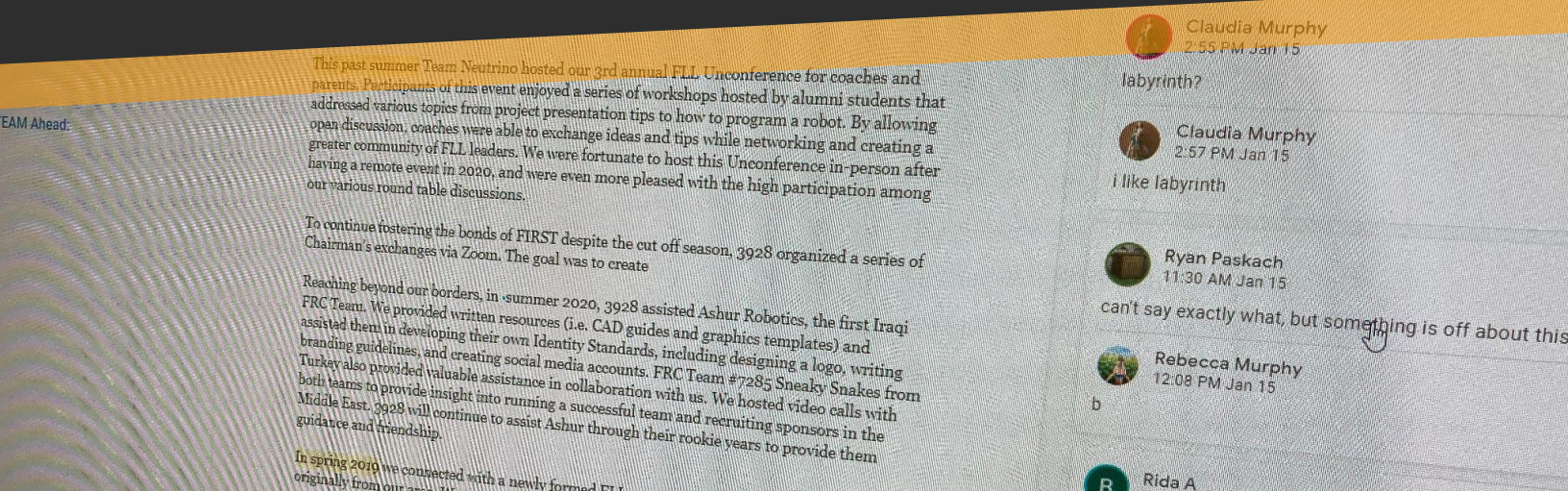
As Neutrino practiced driving our Rapid React robot, the controls team was hard at work programming and testing our autonomous scoring ability. Beyond autonomous, controls assists in Java automated tasks such as our hub aiming, and ensures the robot's systems are tested and working smoothly by competitions.

TEAM NEUTRINO
Subteams



AWARDS SUBTEAM

Beyond our competition robot, our (Chairman's) Award team is hard a work writing our essay submission (Cycle of Inspiration) and training underclassmen to give our awards presentation at regionals. The graphics team worked closely with the awards team to craft a complimentary video submission that highlighted our theme of inspiration.



TEAM NEUTRINO
Subteams

GRAPHICS SUBTEAM

The graphics subteam was responsible for all of our Rapid React season printer materials (like this beautiful binder), newsletters, video productions, and social media initiatives. They uphold our image through apparel and logo usage.

TEAM NEUTRINO
Subteams

WEBSITE SUBTEAM

TeamNeutrino.org, the primary interface our team and our community, is maintained by our exceptional website team. They keep the site current throughout the build season, manage press releases and online engagement, and maintain our archive of build season newsletters.

TEAM NEUTRINO
Subteams

OUTREACH SUBTEAM

Team Neutrino takes pride in its plethora of outreach events in the Story Country community (many of which are detailed later in this binder). The team behind them is constantly at work all year long establishing new connections where Neutrinos can create new events or volunteer for existing initiatives.

TEAM NEUTRINO
Subteams

FUNDRAISING SUBTEAM

Due to the pandemic, out fundraising team lost a significant portion of our local supporters. To supplement this loss of income, Neutrino fortified a full-team culture of fundraising to generate new ideas and connections. Fundraising made short work of these new connections, blowing past our fundraising goal and establishing strong new relationships with local (in addition to a successful fundraiser pictured above).

TEAM NEUTRINO
Robot Reveal

2022 ROBOT REVEAL

To end the 2022 build season, Neutrino hosted our annual “robot reveal” event, where Neutrino family, friends, and the community attended a demonstration of our Rapid React logo. For the first time the public got a view of our robot, our game strategy, and a walkthrough of all the subteam work that went into making it possible. This event always motivates Neutrino and the community alike!

#3928 Team Neutrino
NEWSLETTERS

RAPID REACT

TEAM NEUTRINO

2022 Week 1 Newsletter

Kickoff!

For the first time in 2 years, Team Neutrino was thrilled to host our traditional in-person kickoff! Freshmen and Sophomores alike experienced their first kickoff, and everyone was eager to learn more about the new FRC game. Groups strategized, analyzed the game manual, and debated pros and cons in lively full team discussions.

Strategy Decisions

Introducing this season's game, RAPID REACT! Robots compete to deliver 9 1/2' cargo balls into the hub and climb to the highest rung during Hanger Protection. Our strategy team deliberated, ran simulations, calculated potential match scores, and recommended the strategy Neutrino will utilize this year to be successful.

Prototyping Mechanisms

With our preliminary strategy set, Neutrinos began to prototype and test various mechanisms we could use to score cargo and climb. Using a hands-on approach to designing helped us spark new ideas and refine our existing ideas for Rapid React.

Chairman's Award Preparation

Our awards subteam wasted no time finalizing our Chairman's theme—"Cycle of Inspiration"— and completing an early first draft of the essay. It's always a great experience to look back on all of our community successes and plan on future growth. For the next several weeks we'll continue to write and plan our presentation!

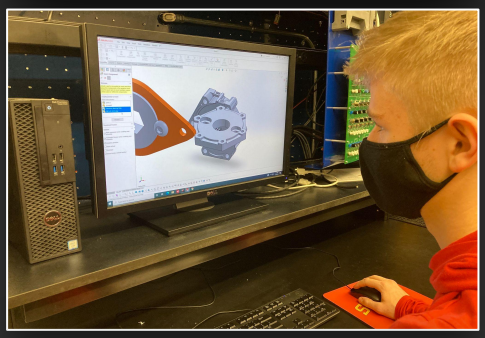
RAPID REACT

TEAM NEUTRINO

2022 Week 2 Newsletter

Prototyping

This week, Team Neutrino continued to work on prototyping different mechanisms, and we finalized what types of intake and shooter mechanisms we want to use on our 2022 robot. The prototype of our scoring mechanism showed promise in terms of range and accuracy as it moves to the manufacturing stage.



CAD

The team made some key decisions regarding the geometry of the intake, climber, and shooter which they continued to CAD. We have made incredible progress thus far and Neutrino hopes to finalize our design soon in order to start manufacturing in week #3.

Graphics

This week, Graphics focused on finishing the 2022 pit binder. This binder, judged at competitions, contains info of events we have attended, sponsors we have met, the history of the team, and more. Members on the graphics team have been working on it for the past week and have been getting several freshmen involved in the process.

Chairman's

The chairman's team have continued working on the essay and executive summary. Awards has decided to shift the organization of the essay to be more effective and hope to have it finalized early week #3. They have been getting more underclassmen involved to promote sustainability.

FIRST · Iowa State University College of Engineering · Workiva · Danfoss · NASA · John Deere · Bayer Fund · Alliant Energy

RAPID REACT

TEAM NEUTRINO

2022 Week 3 Newsletter

Iowa FLL State Championship

This past weekend three *FIRST* LEGO League teams mentored by Team Neutrino attended the state competition at ISU. A team from St Cecilia Elementary School, Treehouse Dé Cafe Mostaza, won third place robot design. Moreover, Dagney, a Team Neutrino mentor and alumni, won the Volunteer Award!

Manufacturing

Recently, Team Neutrino has been manufacturing different parts for the drivetrain using CNC. Students have been going to the Iowa State Boyd Lab in order to lathe hex shafts. As more parts arrive, the team hopes to begin to assemble the robot in the upcoming weeks.

Chairman's Video

The Chairman's and the graphics subteams have been working together in order to create the Chairman's video. We set up an outline and chose our speakers. This past week, we have been looking at some options for the music and plan to start filming next week. On Wednesday, the Chairman's team made pancakes for the entire team!

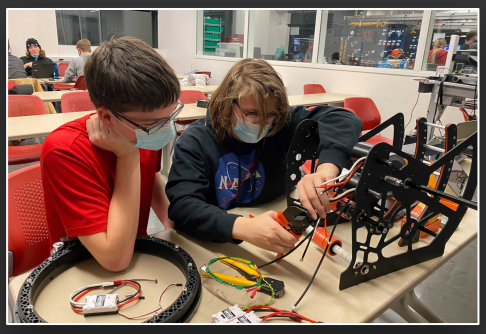
Scouting

Scouting has finished modifying the app we will use at competitions for analyzing potential alliance partners. We plan on creating an algorithm which will automatically determine the top 10 possible alliance partners for us so that we don't have to sift through all the information we collected.

RAPID REACT

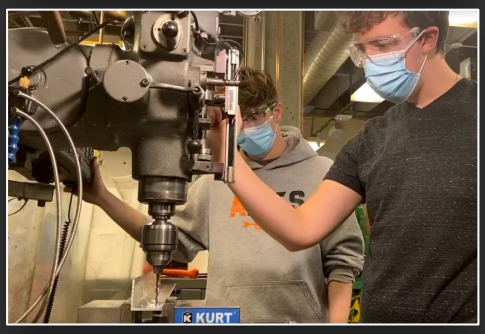
TEAM NEUTRINO

2022 Week 4 Newsletter



Controls

This past week the controls sub-team has been working hard on various projects as we get closer to competitions. They have continued working on the shooter distance calculator and have finished and merged a workable version of the climber. In the next few days they will continue to work on the auton trajectory generation setup.



Manufacturing

The manufacturing team accomplished a lot this past week! They have successfully cut the intake on the CNC and have used the lathe machine to complete several parts for the climber and shooter.

Design

As more parts are being manufactured everyday, the design subteam have been working non-stop. They finalized the climber gearbox and started assembling the shooter. The Design team is planning to have a driving robot base soon with at least one finalized sub-system.

Competition Preparations

As we get closer to competitions the team has begun preparing for competitions by hosting an informational parents meeting this past Thursday. Team leaders talked to students and parents about what to expect in competitions. In addition, this past week team members have begun filling out competition applications!

RAPID REACT

TEAM NEUTRINO

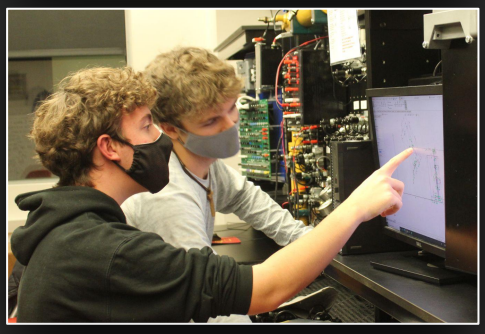
2022 Week 5 Newsletter

Chairman's Video

This past week, the Chairman's and Graphics subteams have been working on completing the team's 2020 Chairman's Video (a showcase of the team's outreach and impact). They have finished writing and revising a script, and have started recording parts of the video!

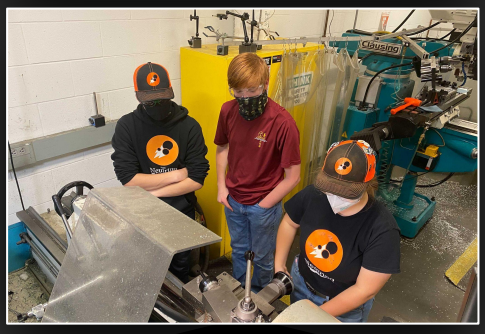
Testing the Shooter

The team got a morale boost this week when the Controls subteam started testing the shooter. They tested the button imports on the turret, and used Limelight to test auto-aim. Using this information to change the parameters, the team was able to match the encoder value and RPM.



Almost Done with CAD

This week the team got a lot done in CAD! They worked on revising parts of the climber, and made further revisions to other areas of the robot. As we get closer to Robot Reveal the team is finalizing all their CAD as they continue assembling the robot.



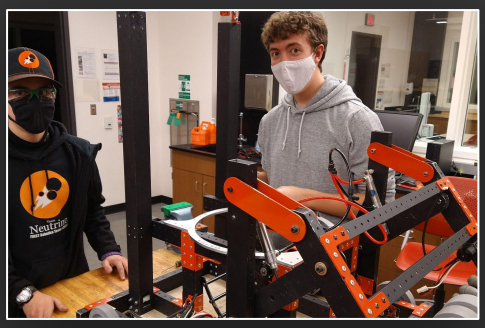
Manufacturing

It is peak manufacturing time for our team. Manufacturing made hex shafts in the Boyd Lab, as well as getting more work done on the sponsor polycarb. They have also made tubes for various areas of the robot using CNC, and have started manufacturing gussets.

RAPID REACT

TEAM NEUTRINO

2022 Week 6 Newsletter

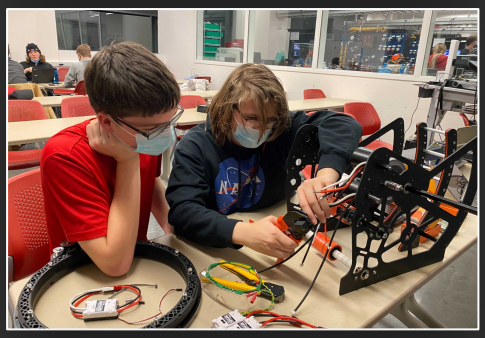


Assembly

This week Team Neutrino made incredible progress on the robot—we completely assembled the the intake, climber, and shooter! The team has finalized assembling the robot this week in order for the controls sub-team to work on wiring the robot and finish programing it into week #7.

Chairman's

Chairman's worked hard on revising submissions, and this week they finally submitted the Chairman's essay and executive summary. Next week the chairman's presenters will be practicing for their presentation and working on the chairman's prop, which they've spent this weekend preparing and updating.



Controls

The Controls sub-team members have been testing the shooter, turret, and intake as well as the autonomous mode for the robot. The controls sub-team has begun wiring the robot, getting 3928 one step closer to having a robot ready for the competition field.

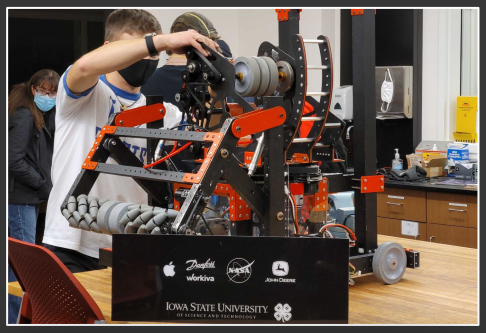
Drive Practice

After taking the drive test last week, seven students have been practicing to become drivers for this year's robot. In the upcoming week they plan to continue practicing, and final drive team selections will be made in the coming days to maximize the time our drivers will have to prepare.

RAPID REACT

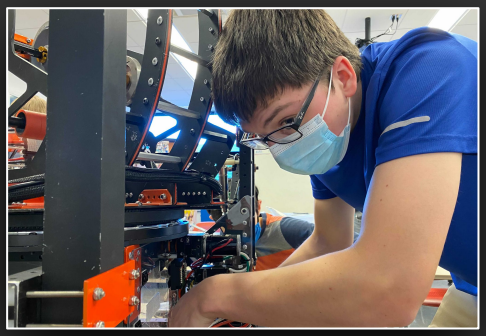
TEAM NEUTRINO

2022 Week 7 Newsletter



Robot Reveal

Team Neutrino's Robot Reveal is this upcoming Sunday, February 27! A lot of progress has been made in the past few weeks to finish assembling and wiring the robot. As we approach the Reveal date, team members are excited to finally share the robot with the community!



Controls

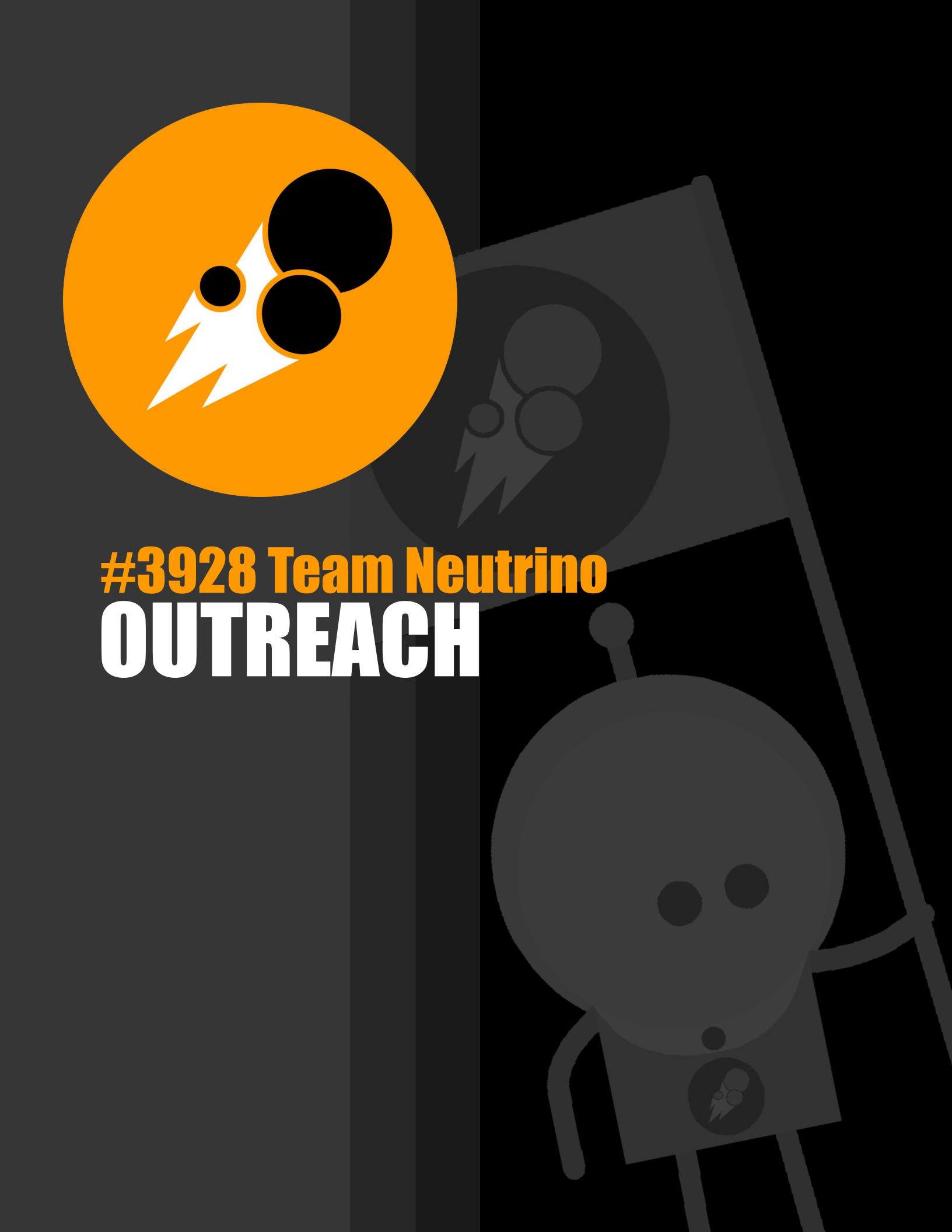
The controls sub-team has been hard at work wiring and programming the robot. Controls has achieved a lot after robot assembly was mostly completed this past week. We hope to focus on drive practices with our new and fully wired robot in the upcoming weeks.

Sponsor Recognition

Team Neutrino updates its sponsor logos on its apparel and robot to recognize our new sponsors every year. This week the team attached the sponsor polycarbonate onto the robot and have finished designing this year's team shirts. We received our apparel order this week!

Drive Team

This past weekend, five students were selected for this year's drive team, along with two students selected as substitutes. Using last year's robot, drive team members have gotten the opportunity to practice some driving techniques. The drive team plans to practice more frequently in the upcoming weeks once this year's robot is fully functional.



#3928 Team Neutrino
OUTREACH

TEAM NEUTRINO
4th of July Parade

JULY 2021

2,000+ PEOPLE REACHED

CITY OF AMES 4TH OF JULY PARADE

Team Neutrino was proud or march in the 2022 4th of July Parade, hosted by the City of Ames, after a year in hiatus due to COVID-19 concerns. The community was thrilled to be back at the event, and Neutrino was excited to once again show off our 2020/2021 competition robot.

TEAM NEUTRINO
FLL Unconference

FIRST LEGO LEAGUE UNCONFERENCE

For the third annual year, Neutrinos hosted our Iowa FLL Unconference! At this event, members lead discussion groups for new coaches where FLL alumni gave advice and insider tricks to motivate these new coaches and promote sustainable programs. We're happy to maintain such strong with our state's FLL program! Sports Iowa, a local venue, generously donated their facility for the day of the conference (seen below).

JULY 2021

~15 COACHES TAUGHT

TEAM NEUTRINO

EEE Summer Camp

JULY 2021

80+ STUDENTS TAUGHT

EEE SUMMER STEM CAMP

During our outreach training camp, Neutrinos divided into 3 groups to develop, test, and implement original STEM curriculum for grades K-5 at Enrich Empower Excel, a program at a local elementary school which was ecstatic to receive Neutrino help over the course of 3 weeks. Neutrinos conducted surveys to ensure the kids learned the core ideas from the lessons and documented feedback for next year via comment cards.

TEAM NEUTRINO
Summer Learning Event

JULY 2021

100+ PEOPLE REACHED

FURMAN AQUATIC LEARNING CELEBRATION

At the Furman Aquatic Center's Summer Learning Celebration, in collaboration with the Ames Public Library, Neutrino ran a booth of fun STEM activities, handed out information to local elementary students interested in FLL, and even distributed free story books for children to take home. The event even resulted in multiple new FLL contacts and students.

TEAM NEUTRINO

Governor's STEM Day

AUG 2021

1,000+ PEOPLE REACHED

STEM AT THE IOWA STATE FAIR

At this year's Iowa State Fair, Neutrino participated in both a Iowa 4-H and Iowa *FIRST* demonstration, exhibiting our 2020/2021 robot's functionality to elementary school kids and showcasing Snap Circuit activities to explore the basics of electrical systems.

TEAM NEUTRINO
Mini Maker Faire

SEP 2021

600+ PEOPLE REACHED

SCIENCE CENTER'S MINI MAKER FAIRE

At the Science Center of Iowa's Mini Maker Faire, Neutrinos returned for another year of running STEM activity stations for guests and demonstrating our current competition robot. Local kids were fascinated by the program, and our students handed out many handouts with FLL information for the 2021-2022 season.

TEAM NEUTRINO
Pack 150 Presentation

NOV 2021

~50 PEOPLE REACHED

PRESENTATION TO CUB SCOUT PACK 150

Neutrino presented to Scout Pack 150 of Saint Cecilia Elementary School about our paths through *FIRST* in middle and in an effort to promote the program. The presenting panel was made up of alumni of this very pack, which served as a great connection.

TEAM NEUTRINO

United Way Trunk or Treat

OCT 2021

~150 PEOPLE REACHED

UNITED WAY TRUNK OR TREAT

In collaboration with United Way, Neutrino made and handed out halloween-themed oobleck to local kids at the event, and handed out informational pamphlets discussing the science behind this unique giveaway. The oobleck proved more popular than expected, and Neutrino ran out before the night even ended.

TEAM NEUTRINO

Ames FLL Scrimmage

DEC 2021

300+ PEOPLE REACHED

FIRST LEGO LEAGUE SCRIMMAGE

To prepare new FLL teams for their regional competitions (in addition to FLL teams who took a year hiatus during the local height of COVID), Neutrinos volunteered for the Ames Middle School FLL Scrimmage. Our members hosted mock interviews to prepare students for project, robot design, and core values questions, in addition to running practice matches. Neutrino promoted continuing with *FIRST* in middle and high school.

TEAM NEUTRINO

Webster City FLL Regional

DEC 2021

300+ PEOPLE REACHED

WEBSTER CITY FLL REGIONAL

Neutrino Students, many of whom served as FLL mentors themselves, attended the Webster City FLL Regional both as mentors of attending teams and event volunteers. Mentors promoted *FIRST* programs among their teams and event volunteers helps keep the event running throughout the day.

TEAM NEUTRINO
Fellows FLL Celebration

DEC 2021

60+ PEOPLE REACHED

FELLOWS FLL CELEBRATION

In conjunction with Team Photon, Neutrino volunteered at Fellows Elementary School, where they watched presentations from 2 local FLL teams. After the mock presentations, Neutrinos showcased our 2017 minibot to students at our booth.

TEAM NEUTRINO

Ames FTC League Meet

DEC 2021

200+
PEOPLE
REACHED

AMES FTC LEAGUE MEET

Students from Neutrino attended the local FTC league meet as event volunteers, where they served to inspect robots, score matches, and reset field elements between matches. Neutrino was excited to meet so many local FTC teams, among them FTC Team Photon (founded in 2020 by Neutrino).

FIRST®

TEAM NEUTRINO

Ames FLL Explore Exposition

DEC 2021

100+
PEOPLE
REACHED

AMES FLL EXPLORE EXPOSITION

At the Ames Middle School FLL Explore Exposition, Neutrinos walked around the event and interacted with 7 teams, giving them valuable feedback and encouragement about their LEGO builds and research projects. At the end of judging, students wrote unique award certificates about the strengths of each time, and became part of a high-five line for the first time since their 2020 regional!

FIRST®

TEAM NEUTRINO

Nevada FTC League

JAN 2022

300+ PEOPLE REACHED

NEVADA FTC LEAGUE TOURNAMENT

After the FRC League Meet that Neutrino volunteered for the previous month, Neutrinos stepped up again to serve as field resets and match scorers at the next level of competition, the FTC League Tournament. Here, our members were able to connect with a much larger network of Iowa FTC teams and learn about the program.

#3928 Team Neutrino
MENTORING

TEAM NEUTRINO
Mentored Teams

EDWARDS FLL EXPLORE

This season, Neutrino assisted in the rebuilding the previously-discontinued FLL program at local Edwards Elementary following a 5 year hiatus by the district. Although the Explore team only consisted of 6 students, Neutrinos laid the foundation for a sustainable program in future years. Team mentors were key in helping the students and coaches alike become familiar with coding in FLL's MINDSTORMS software.

TEAM NEUTRINO
Mentored Teams

AMES MIDDLE SCHOOL FLL CHALLENGE

Ames Middle School, through our mentor of student mentors, facilitated 4 Challenge teams totaling 40 students. This massive program has grown over the past 4 years of Neutrino involvement, and this season it saw 2 Championship qualifying teams and 1 Champions Award winner. These teams serve as our most powerful source of exposure to high school *FIRST* at the middle school.

TEAM NEUTRINO
Mentored Teams

FELLOWS FLL EXPLORE & CHALLENGE

At local Fellows elementary, Neutrino mentors taught 2 Challenge teams (above and below) and Explore team (not pictured). Mentors taught Explore Students how to engage with basic LEGO models, teaching the basics of transportation and project research. Mentors identified this program as exceptionally energetic!

TEAM NEUTRINO
Mentored Teams

SAINT CECILIA FLL EXPLORE & CHALLENGE

Neutrino student mentors ran both an FLL Explore (below) and Challenge team (above) at local Saint Cecilia Elementary, promoting community service as well as STEM. Mentors taught Challenge students how to connect the dots between STEM and charitable service, taking them on a field trip to a local farm and food pantry to inspire their water-saving (Champions Award winning) research project.

TEAM NEUTRINO
Mentored Teams

INDEPENDENT FLL EXPLORE

Neutrino mentors assisted and provided resources for an independent Fellows Elementary FLL Explore program. The program, founded by a group of first-year *FIRST* families, provided opportunities for Fellow students below 2nd grade. With neutrino's assistance, the program quickly grew to 2 Explore teams to accommodate the high volume of interested students.

TEAM NEUTRINO
Mentored Teams

EDDYVILLE HIGH FRC PROGRAM

Through Neutrino's Iowa FRC Slack Network, the team connected with a startup school-based FRC team out of Eddyville Iowa. Neutrino students from all subteams called the team throughout the season to give feedback to mechanical systems, recommend suppliers and online resources, and provide inside tips for starting a sustainable FRC program. The team consists of mainly freshmen and, with Neutrino's help, has begun to build valuable institutional knowledge about *FIRST*.

FIRST®

#3928 Team Neutrino
SPONSOR VISITS

TEAM NEUTRINO
Sponsor Visits

VISIT WITH STORY COUNTY 4-H

Neutrino was invited to attend the opening of Story County 4-H's new local offices, and was able to show off our 2020/2021 robot to attendees. Neutrino was thankful to have the chance to present to members who assisted Neutrino in fundraising for our CNC machine, a critical part of our manufacturing process.

TEAM NEUTRINO
Sponsor Visits

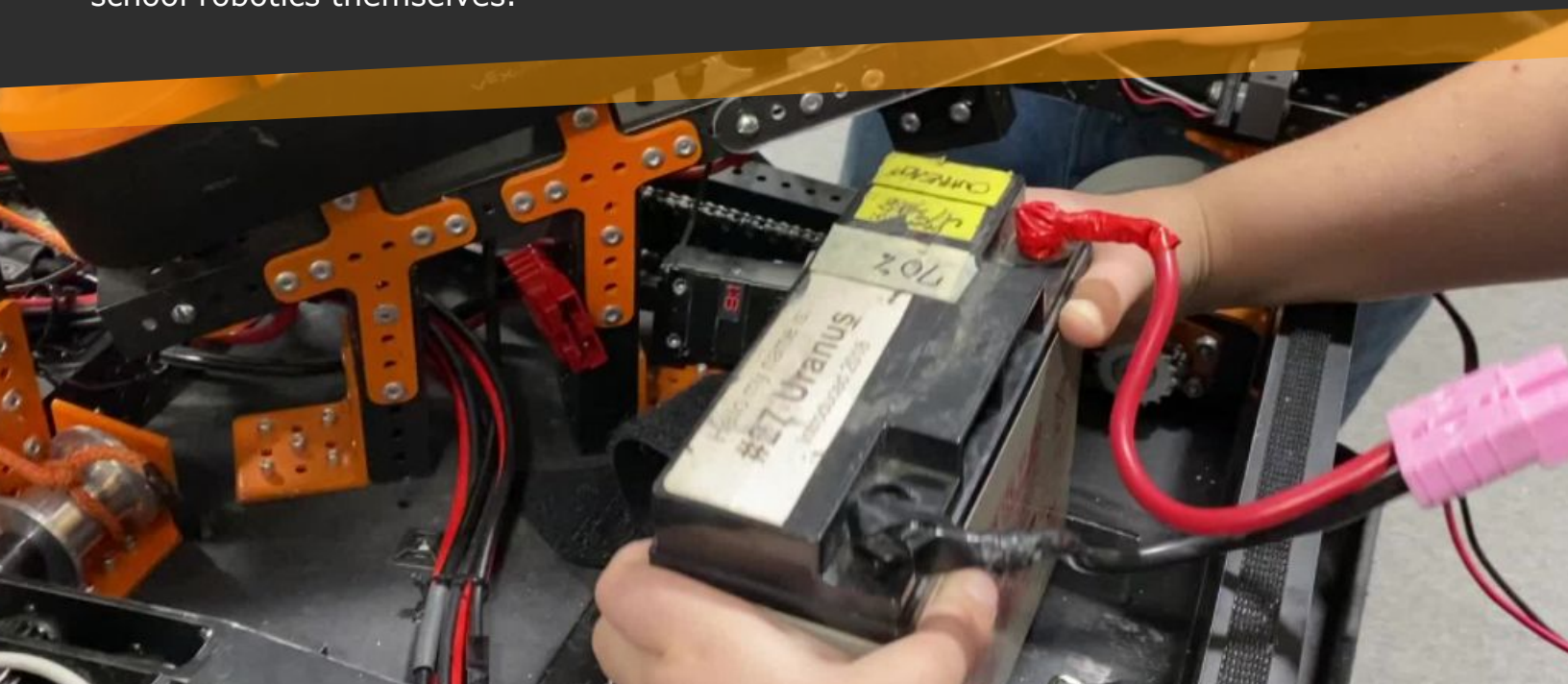
VISIT WITH FRONTLINE BIOENERGY

While touring Frontline Bioenergy's facility, Neutrinos were able to explain the components of our 2020/2021 robot to much fascination and prase from Frontline staff. We're excited to continue working with the company and show off our 2022 robot at future visits.

TEAM NEUTRINO
Sponsor Visits

VISIT WITH INTERSTATE BATTERY

Neutrino was happy to visit Interstate Battery for the first time since 2020, and to test the capacity of our existing competition batteries. Drivers demonstrated the 2020/2021 robot's capabilities in Interstate Battery's garage workspace, and even connected more directly with members of the staff who were previously a part of high school robotics themselves.



TEAM NEUTRINO
Sponsor Visits

VISIT WITH NITRO ICE CREAM

The team took the opportunity to visit Nitro Ice Cream at the Iowa State Fair. We connected with their staff and introduced our new members to their business. Nitro Ice Cream gave our members a tour, answered questions about their organization, and asked questions about ours.

TEAM NEUTRINO
Sponsor Visits

VISIT WITH VARSITY CAR WASH

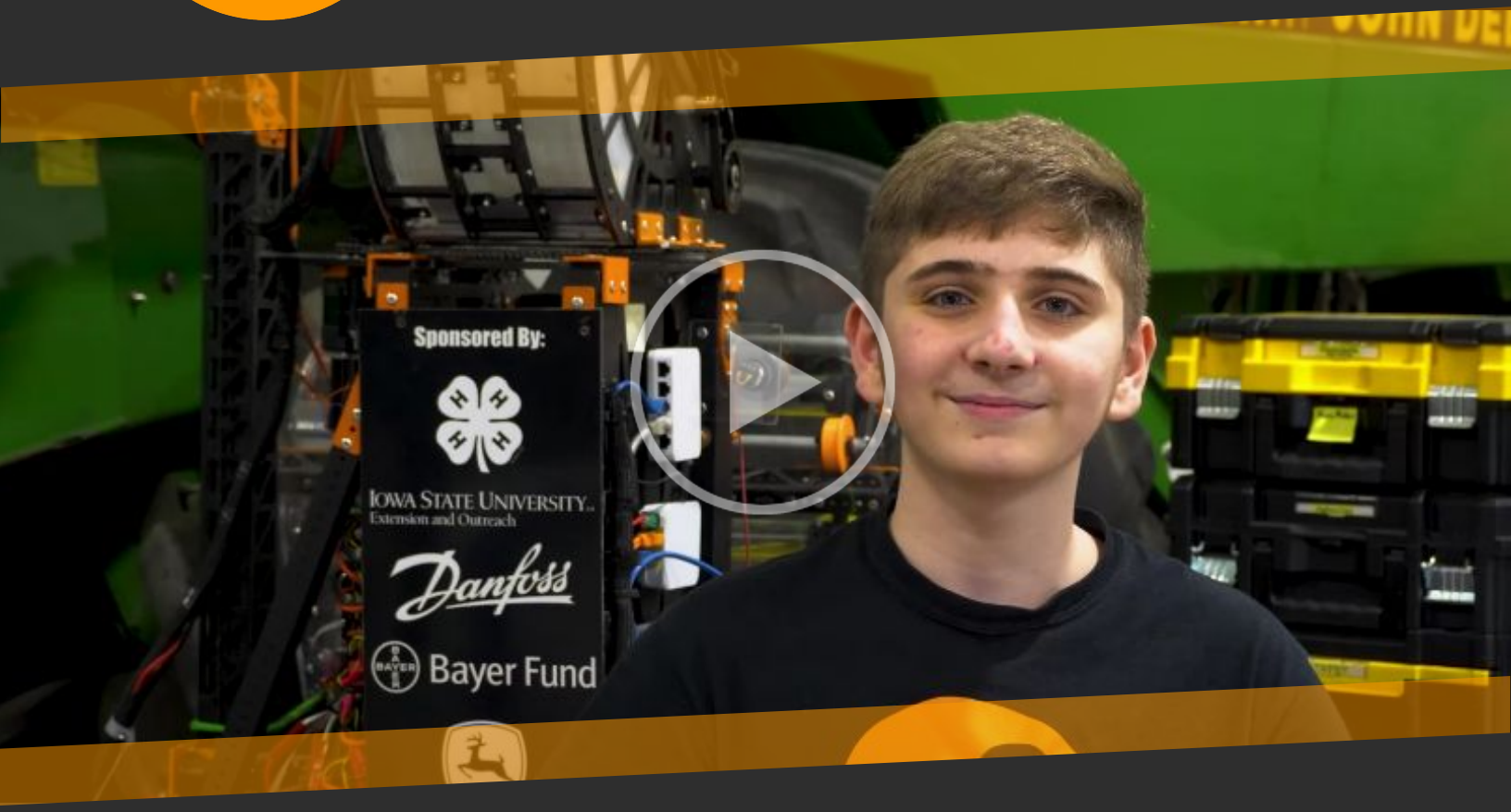
Varsity Car Wash is among one of Neutrino's many new local supporters for 2022, and our visit to the car was the perfect way to begin a sustainable relationship. Members were fascinated to see the inner workings of their facility, and staff was eager to speak with the robotics program they'd heard so much about.

TEAM NEUTRINO
Sponsor Visits

VISIT WITH CIT TRANSPORTATION

Neutrino's fundraising leadership visited CIT Signature Transportation's owners to gift them 2021 10-year anniversary apparel as a thank-you for their years of contributions to the team. Pandemic challenges have severely limited CIT, and although they were unable to make a contribution for the 2022 season, we wanted to show our support and sustain this long standing relationship into future years.

TEAM NEUTRINO
Sponsor Visits



REMOTE VISIT WITH DANFOSS

Due to corporate COVID-19 policy that prevented Neutrino from attending our usual visit with Danfoss, the team instead crafted a video message and letter for distribution among staff that explored the impact and success of the team during the 2021 season. The staff loved the messaged and wished us well for the 2022 season.

TEAM NEUTRINO
FIRST Robotics Team #3928

Danfoss,

My name is Quinn Margrett, and I'm the Co-Captain of FRC Team Neutrino. My role means that I oversee things like team sustainability, student growth, recruitment, and community outreach in our program. Danfoss has long been an incredible supporter of Neutrino, and your contributions have had a lasting impact on our ability to compete at the highest level of

TEAM NEUTRINO - 2022 SEASON

For more information, visit

TEAMNEUTRINO.ORG @ FRC NEUTRINO