2019

Team

Neutrino

FIRST Robotics Team #3928

DESTINATION:

DEEP SPACE

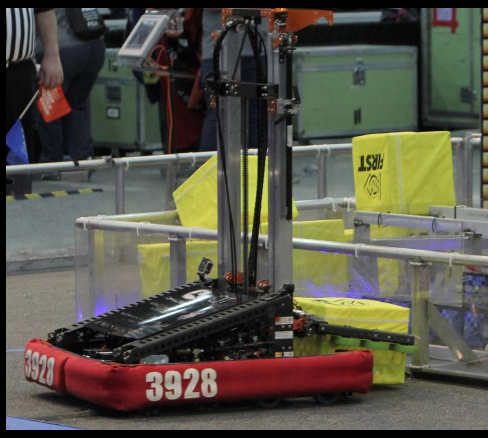
Presented By BOEING

What's FIRST®?

FIRST® is a not-for-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®

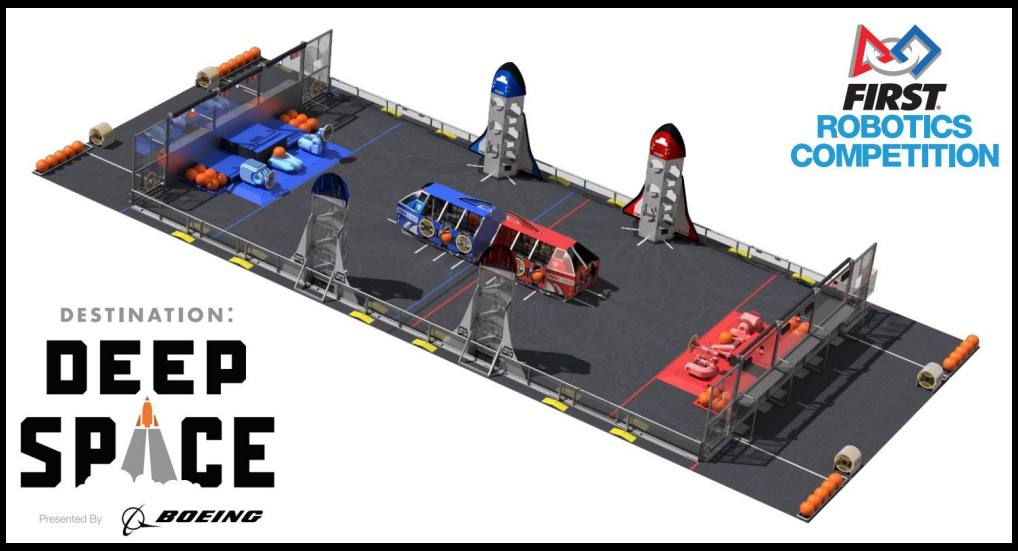
to inspire youth to be the science and technology leaders of tomorrow by engaging them in exciting Mentor-based programs that build their skills, inspire innovation, and foster well rounded life capabilities including self confidence.



DESTINATION: DEEP SPACE

Presented By BOEING

In **DESTINATION: DEEP SPACE**, Presented by The Boeing Company, we join two competing alliances collecting samples on planet Primus. Unpredictable terrain and weather patterns make remote robot operation essential to their mission on the planet. With only 2:30 until liftoff, the alliances must gather as many cargo pods as possible and prepare their spaceships before the next sandstorm arrives.



Team History

Team Neutrino started 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 decided it would be great to have an FRC team in her area. She began with her school's engineering club and wrote a proposal to the principal. After gaining permission to be a club, it became apparent that the team needed a coach, mentors, and LOTS of funding. With the help of her mother, the team applied for JCPenney's grant for rookie teams. After contacting the regional director for this information, they connected with a student at Iowa State University looking to start a FRC team. It was a match made in heaven. The team then started having meetings to work out details such as how the team would run, space issues, and funding issues. After this, the team was ready to add students. They spread the news that Ames, Iowa had brought back a *FIRST* Robotics Competition team. Team Neutrino then gained the dedicated mentors, students and coach of the 2012 season.

After the 2012 season was over, the team's main workspace at Ames High School was disbanded so alternative plans were needed. Fortunately enough for the team, they were invited to join the Story County 4-H Program as Iowa's first 4-H FRC Team! The team was excited to partner up with ISU Extension and Outreach for that year, as well as all future years.

2013 Team

At the Kansas City Regional the team was ranked 9th, chosen to play with the 2nd seeded alliance, and recipients of the Excellence in Engineering and Finalist awards. At the North Star Regional the team was undefeated during the qualifying matches, 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. At the end of the 2013 season Team Neutrino was ranked in the top 3% of teams worldwide.

2014 Team

At the North Star regional, the team was awarded Engineering Inspiration, which is given to the team with outstanding success in advancing respect and appreciation for engineering within their community. This award earned Team Neutrino a paid trip to the World Championships in St. Louis! In St. Louis we had a win-loss record of 6-4, and during alliance selection we were picked to be the 4th robot on the 4th seed alliance (in the Newton division)! We ended up being semifinalists on the Newton field (similar to the Sweet 16 in March Madness).

2015 Team

For our 2015 season, Team Neutrino 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, Team Neutrino was chosen by the 2nd seeded alliance and won the event.

2016 Team

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 competition.

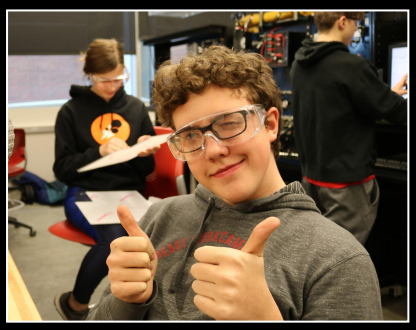
2017 Team

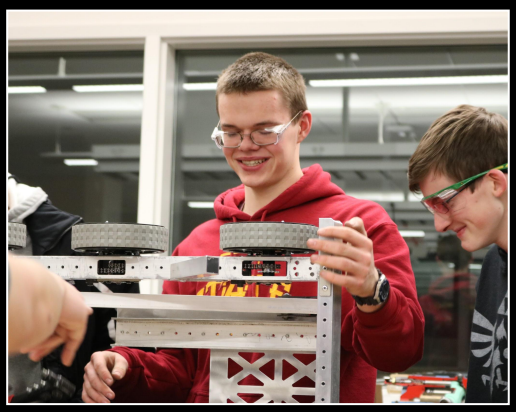
In 2017, Team Neutrino went to the Minnesota North Star regional and the Iowa regional. The team was a quarter finalists at Iowa and a semifinalist North Star. At Iowa, team member Rucha Kelkar won the Dean's List Finalist Award. At North Star, Team Neutrino won the Chairman's award, sending the team to the world championships! In the offseason, the team built a minibot to compete in the East Metro Cooperative Competition.

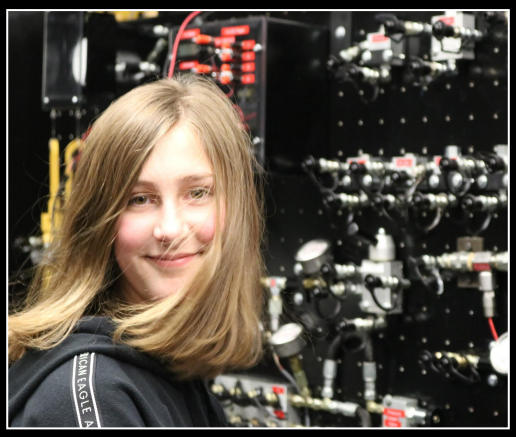
2018 Team

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.

Meet the Team!



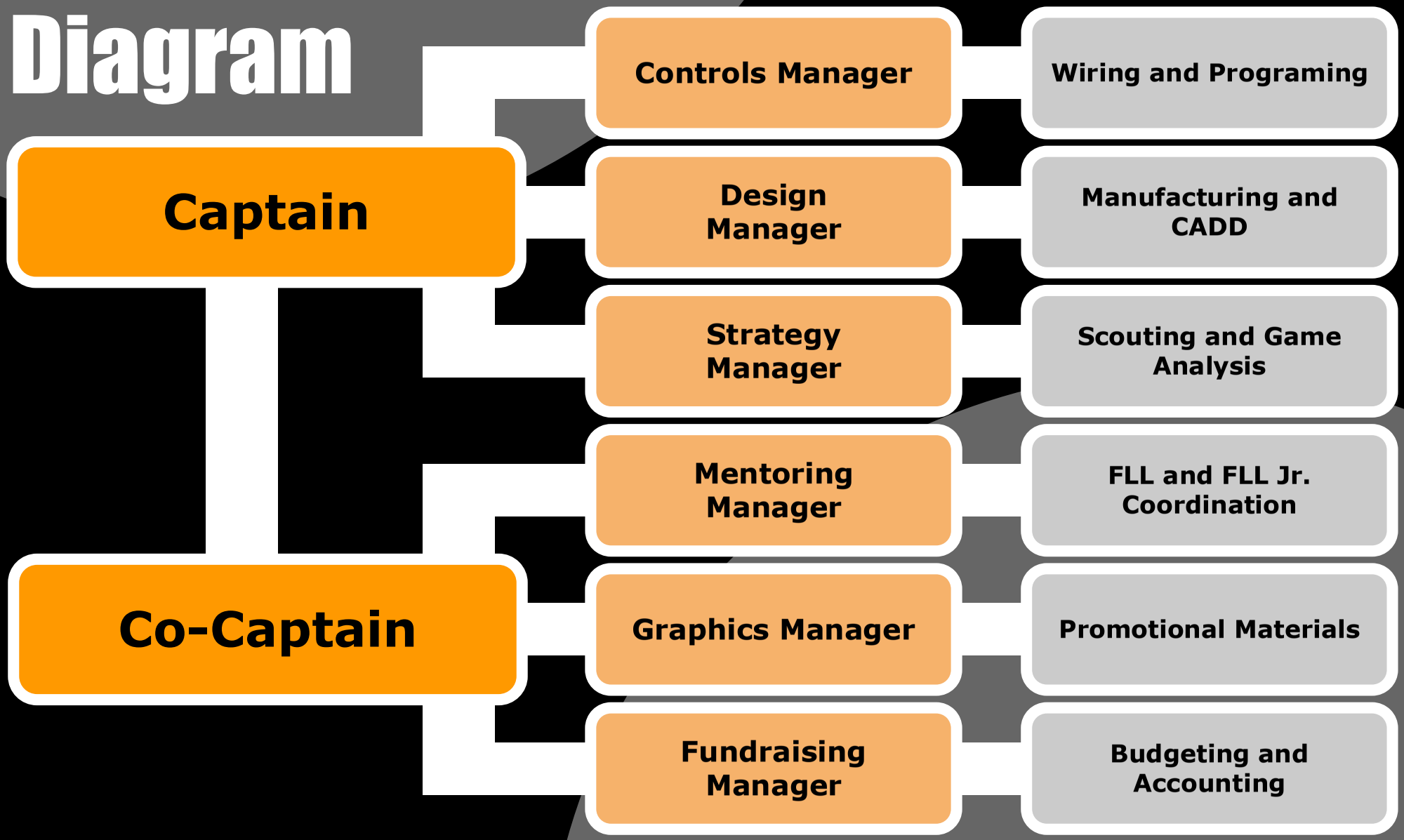




Team Management

2019

Team Organizational Structure Diagram



Captain
Sayre Satterwhite

The Team Captain oversees all happenings on the team, focusing more on the technical subteams. It is their goal to focus, motivate, and keep the team on track towards goals. The Team Captain works closely with the Co-Captain to institute the values of FIRST and keep the team working as a whole.

Captain & Co-Captain

Co-Captain
Moriah Conner

The Co-Captain oversees all things non-technical. They are in charge of making sure 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.

Design
Nitzan Friedberg

The Design Manager oversees the CAD design, prototyping, and manufacturing of the robot. It is their duty to help make design decisions and delegate duties out to members, as well as reporting to the team Captain progress during the season.

Design and Controls

Controls
Joel Neppel

The Controls Manager oversees programming and the wiring of the robot. It is their duty to help make design decisions and delegate duties out to members, as well as reporting to the team Captain progress during the season.

Graphics
Lauralee Thatch

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. They help organize the tasks that graphics does, including videos, newsletters, annual report, and pit binder.

Graphics and Fundraising

Fundraising
Dane Pinkerton

The fundraising manager is in charge of raising money for the team and maintaining contact with sponsors. They also maintain the overall team budget and acts as the primary contact for sponsors.

Strategy
Steve Frana

The strategy manager is the lead scout at competitions. It is their job to create the team's scouting system, train the scouting team, and lead strategy discussions.

Strategy and Mentoring

Mentoring
Claudia Murphy

The mentoring manager coordinates Team Neutrino's FLL and FLL Jr. teams. It is their job to oversee all of the student mentors and ensure the FLL and FLL Jr. teams are running smoothly.

Marketing

2019

Sponsorship Letter

Team Neutrino

First Robotics Team #3928

To our business community,

I'm a student from *FIRST* Robotics Competition team, 4-H Team Neutrino #3928. *FIRST* stands for "For Inspiration and Recognition of Science and Technology". *FIRST* aims to inspire and motivate students to pursue education and careers in science, technology, engineering, and math through robotic competitions. At the beginning of each year, a new game is introduced and FRC teams have 6 weeks to build a robot that weighs 120 pounds. If you would like to know more about *FIRST*, please visit www.firstinspires.org.

Team Neutrino is an eighth season high school community robotics team located in Story County, Iowa. We are also affiliated with 4-H and ISU College of Engineering. After our six week build season, the team will attend two three-day regional competitions. Teams that place in regional competitions attend the World Championship hosted in Detroit. For more information about our team, visit www.teamneutrino.org.

If we reach our annual goal of $55,450, we plan on using it to cover the costs of registration ($9000 for two regionals), robot parts ($6600), and miscellaneous costs and preseason projects, such as practice and training robots, and outreach funds and supplies ($34,850). We hope to qualify for the Championship Event in Detroit, which would require us to raise even more money ($5000 for registration).

We appreciate any contribution to the team. Not only does the team need monetary support, we are in need of marketing materials, tools, mentors, fabrication of parts for the robot, and community support. Any contribution is greatly appreciated, and to say thank you we advertise your support wherever we go through our levels of sponsorship:

Diamond ($5000+) – Large logo on robot, banner, pit, t-shirt; mention on team displays and website
Platinum ($2500+) – Small logo on robot, banner, pit, t-shirt; mention on team displays and website
Gold ($1000+) – Logo on banner, pit, and t-shirt; mention on team displays and website
Silver ($500+) – Logo in pit and t-shirt; mention on team displays and website
Bronze ($250+) – Mention on team displays and website
Honorable Mentions ($50+) – Mention on team website

We appreciate your time and consideration in supporting our team!
Please respond to:

Moriah Conner
Co-Captain
880150con@ames.k12.ia.us
(515)-509-0620

Dane Pinkerton
Fundraising Manager
earthd6p@gmail.com
(479)-445-0145

Thank you!
Signed,

Students of Team Neutrino

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

Tri Fold Brochure

What is FIRST ROBOTICS COMPETITION?

FIRST®
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 info on *FIRST*
www.firstinspires.org

Team Neutrino 2019

For more information about our team visit our website at:

www.teamneutrino.org

Team
Neutrino
FIRST Robotics Team #3928

www.teamneutrino.org

About Team Neutrino

The robot above was designed to play FIRST DESTINATION: DEEP SPACE! The challenge is to move power cubes to your team's side of the scales! Every second you control a scale you gain points for your alliance of three teams!

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. Each year a new game is released in the first week of January. The students have six weeks to design, build, and program the robot. While working alongside mentors at their build space at Iowa State University, students solve problems and learn about the field of engineering. They are also responsible for marketing the team, creating a positive team image, designing a website, and fundraising. Team Neutrino students volunteer their time to community events such as team developed summer camps, robot demonstrations, and community service projects.

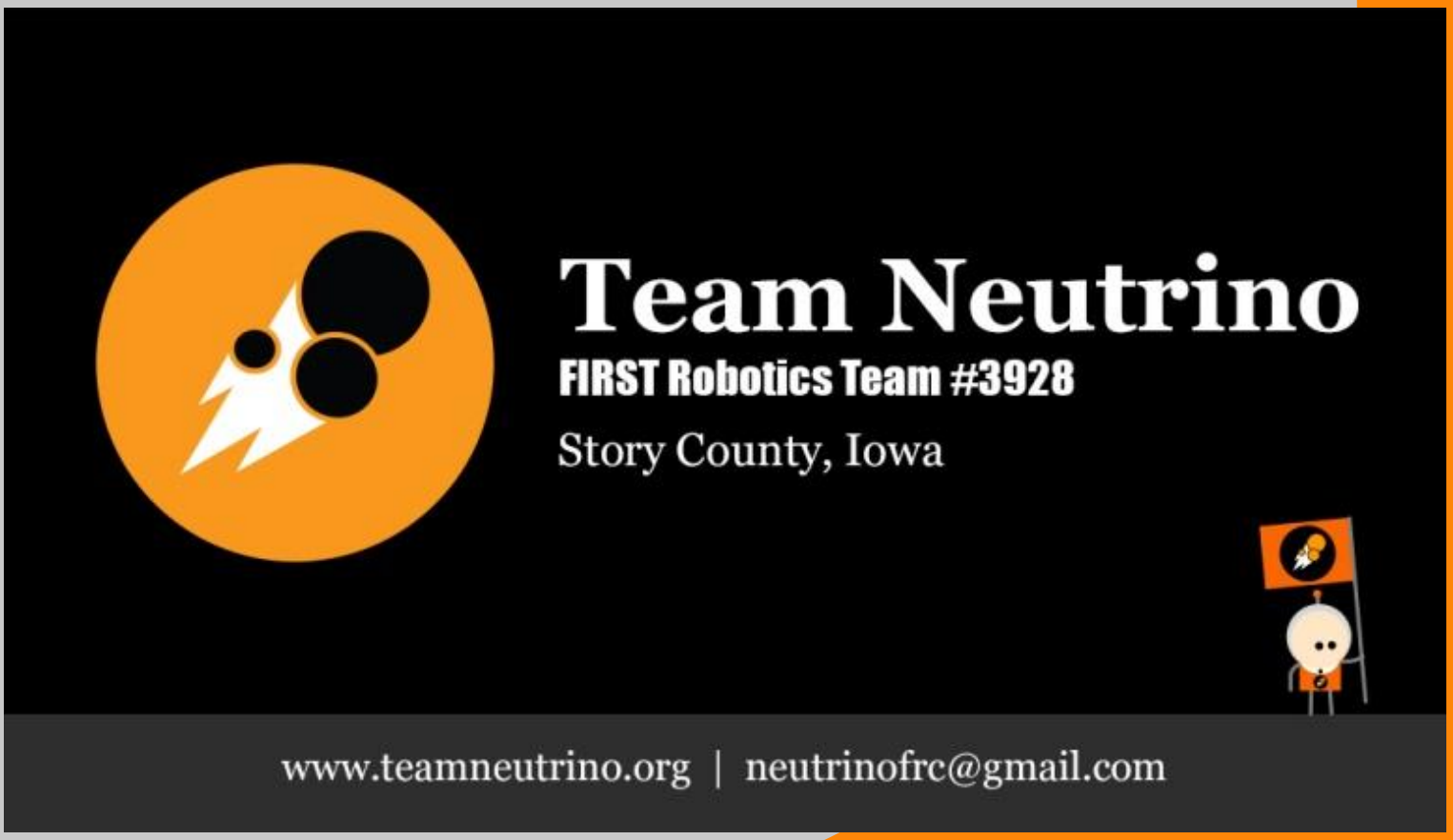
FRC is a unique varsity Sport for the Mind™ designed to help high schoolers discover how interesting and rewarding the lives of engineers and scientists can be. Students gain the technical skills, professionalism and self-confidence that all but guarantee them extraordinary career opportunities.

Team Neutrino works hard to inspire students to pursue STEM. The team mentors 16 FIRST teams, runs eight summer camps, and volunteers for over 2,000 hours each year. Team Neutrino is well known in the community as being a cohesive, spirited group of high schoolers committed to spreading the mission of FIRST.

This brochure was developed as a way to educate the community about our team, FIRST Robotics, and the Mission of FIRST.

Business Card

A business card was designed to direct people to the website to learn more about the team. The front has the logo, name, and number, and the back is plain white for use of writing on and other information if needed.



Battery Plug Project

Team Neutrino worked with its ISU club partner SME Chapter S132 to learn about injection molding and metal 3D printing. They created battery plugs to be given out as handouts.

Team
Neutrino
FIRST Robotics Team #3928

The front of the shirt remains the same from year to year, and the back is updated with the sponsors for each year.

FRONT

BACK

Shirt Design

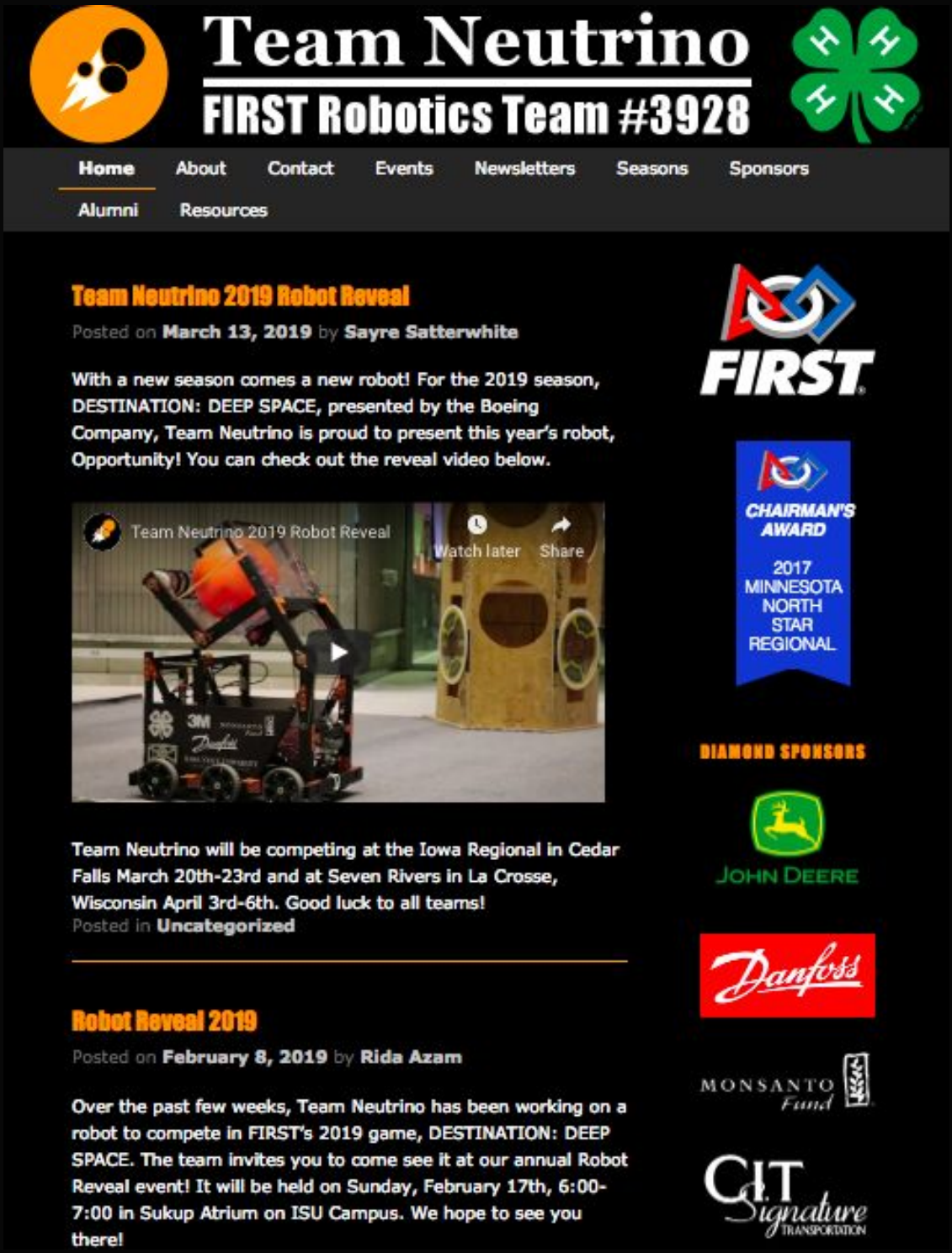
3928

Thanks to our sponsors:

John Deere
CIT Signature Transportation
3M
Danfoss
Monsanto Fund
Alliant Energy
Interstate All Battery Center
REG Renewable Energy Group
Ludicrous Creations www.ludicrouscreations.com
City of Ames
Iowa State University of Science and Technology

The Website

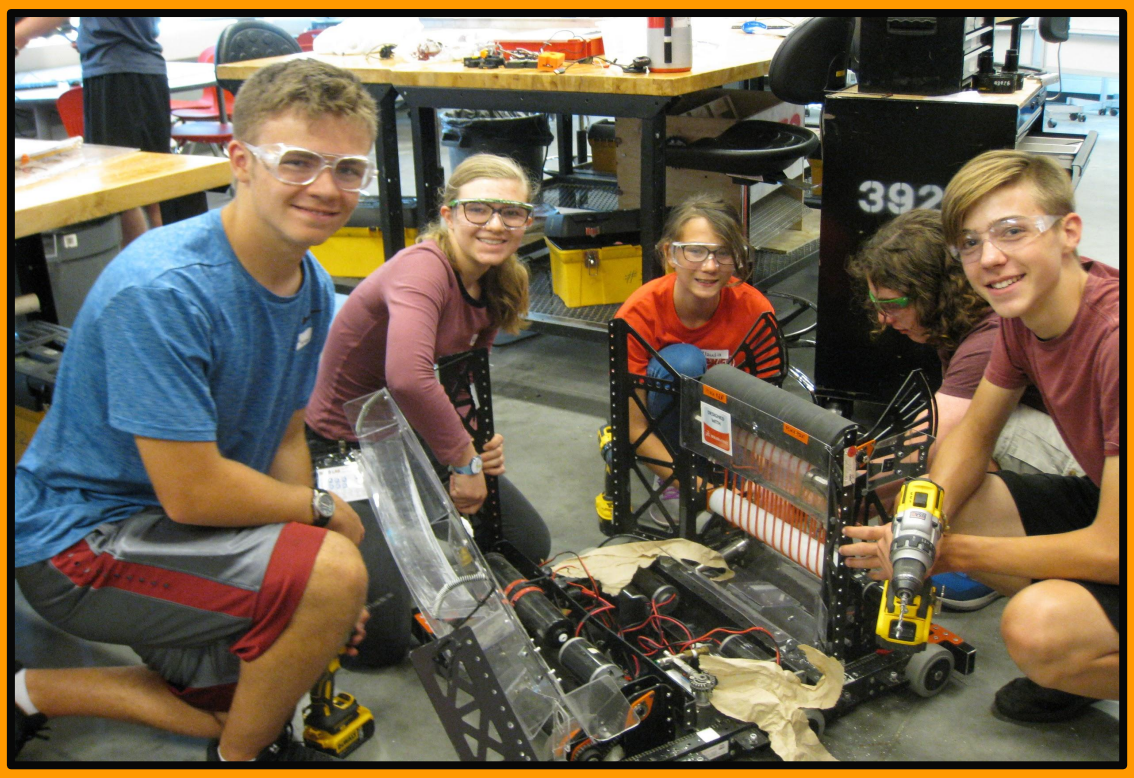
The website offers information about the team and has resources the team has developed through our outreach. Some of our resources include FLL Jr. lesson plans, FLL team ideas, robotics class resources, fundraising resources, and more!



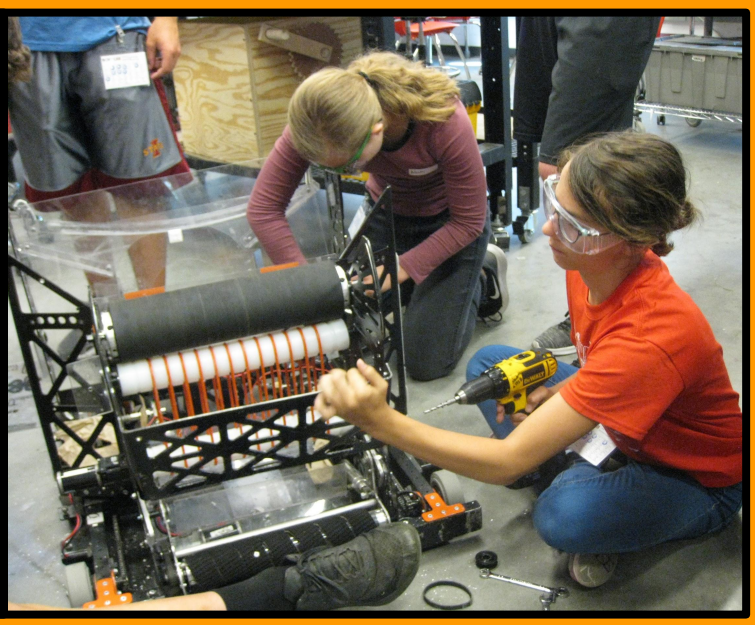
Pre-Season

2019

Training Camps

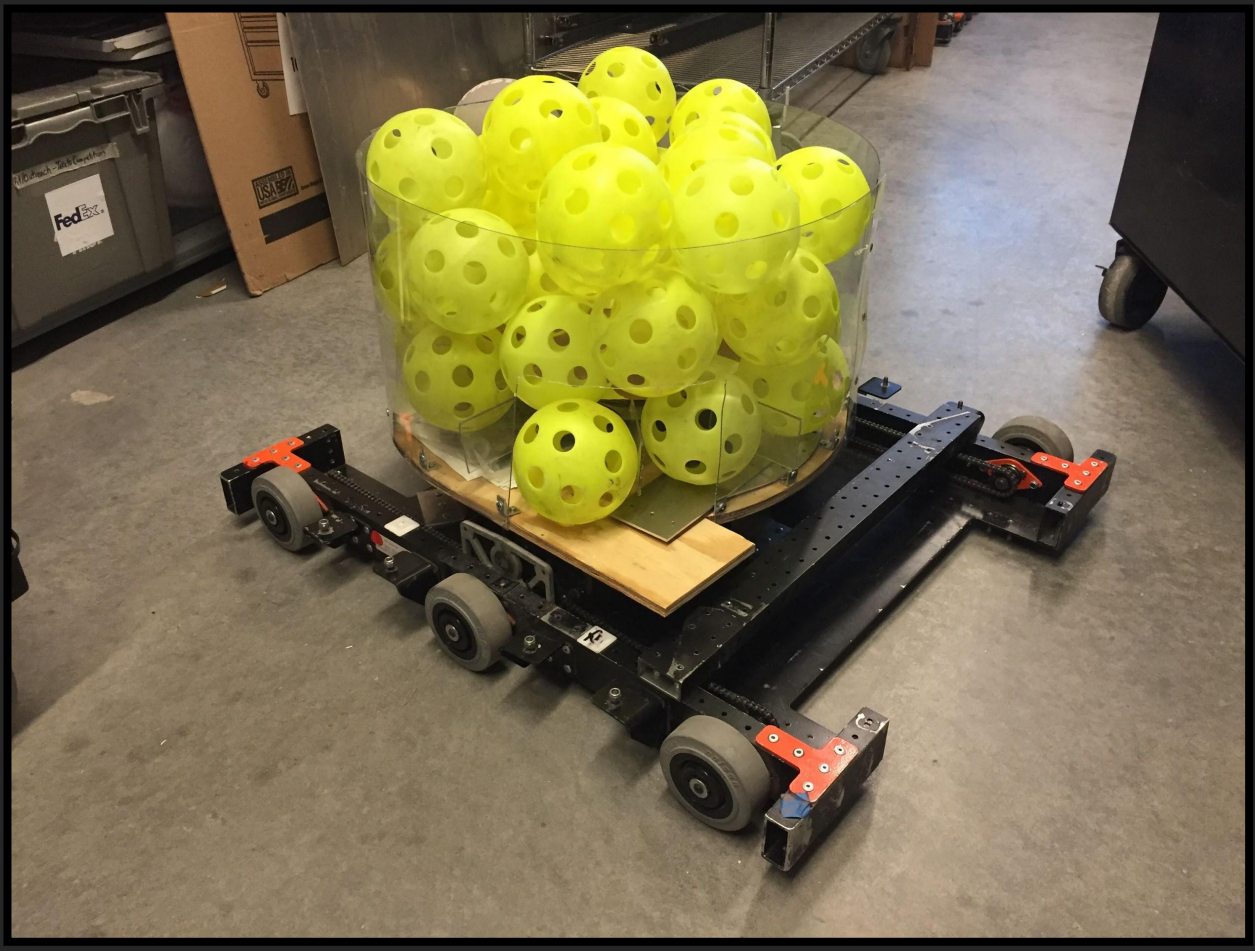


Training camps are held over the summer and are used to teach members about all of the different subteam responsibilities and skills.



Ball-Shooter Project

This offseason, we designed a robot based on the 2017 FRC game. This ball-shooter project prepared members for build season with work in CAD, prototyping, and manufacturing.



Cow Town ThrowDown

Team Neutrino attends the CowTown Throwdown offseason competition every year. It gives new members the chance to see how they want to contribute to the team lets them see what competitions are like.

Students get the opportunity to become closer with their teammates.

Mock Kickoff

We held a mock kickoff as an opportunity for new members to get a feeling for what the actual kick off would be like. They watched one of the old game animations and came up with ideas and strategies for what they would want a robot for that game to do.

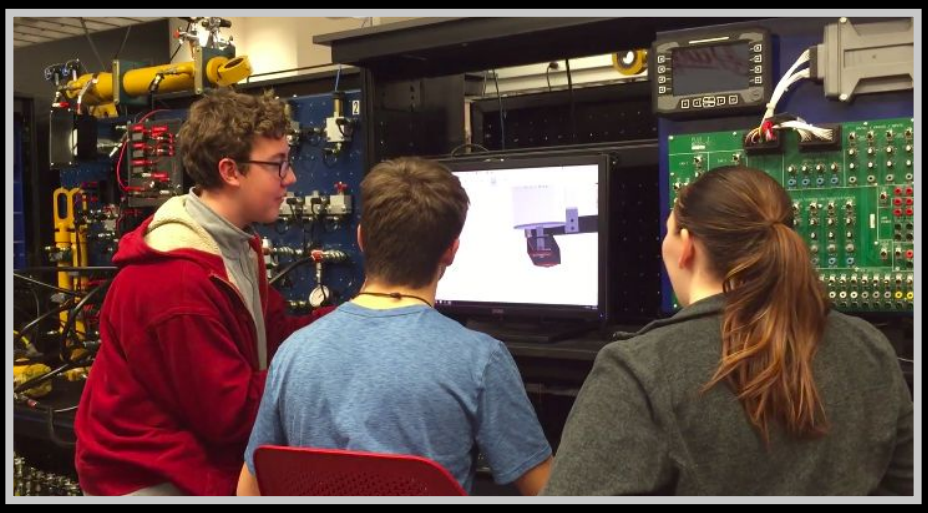
Build Season

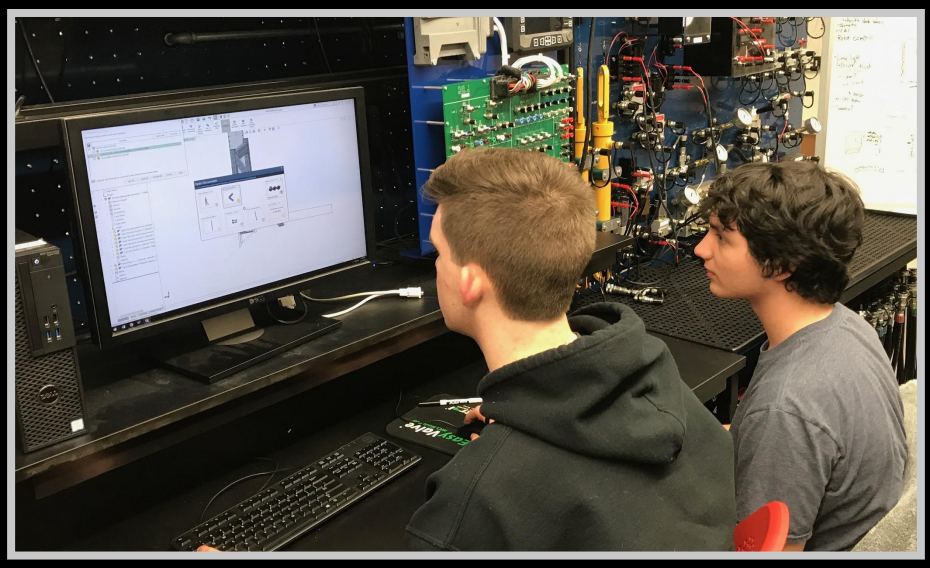
2019

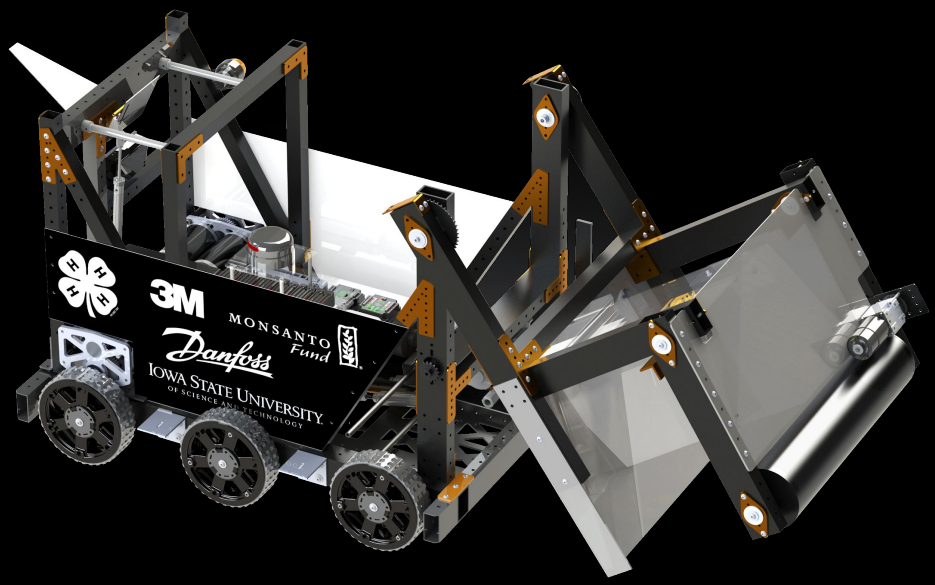
2018 Kickoff

DESTINATION:
DEEP SPACE
Presented By BOEING

Kickoff marks the start of the six-week build season. The team watched the live stream, read the game manual and began planning for this year's game, DESTINATION: Deep Space. We mapped out the field and played the game to get an understanding of what it's like.

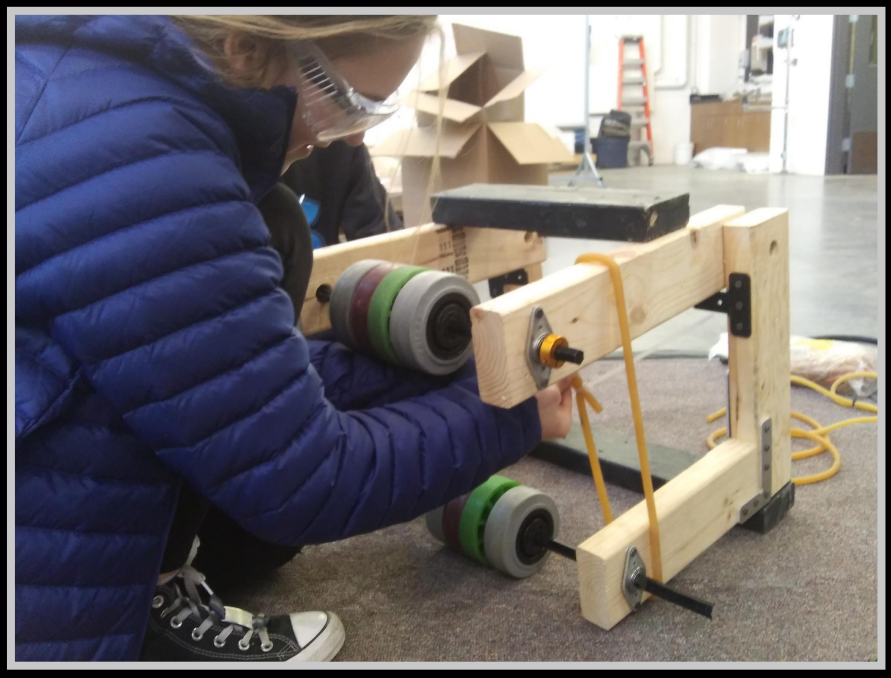


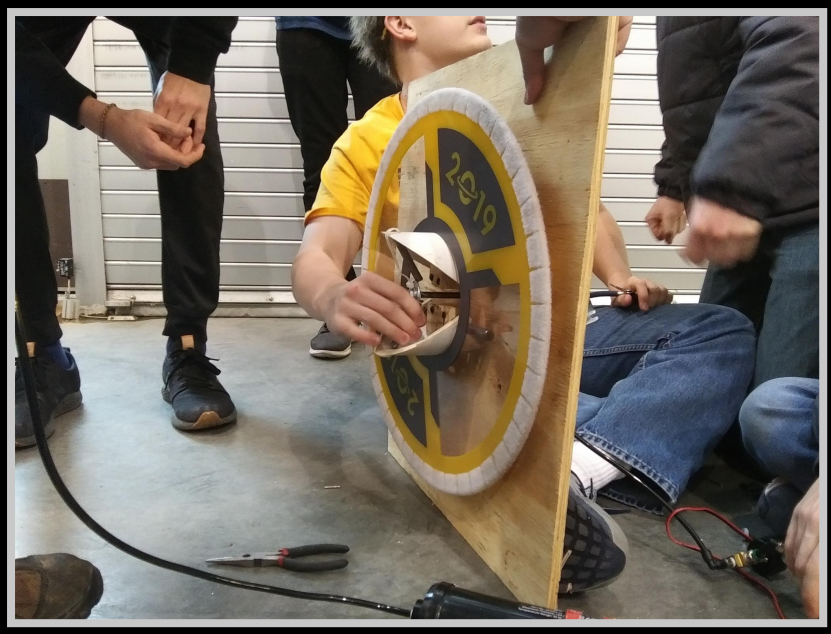




Students design the robot in Solidworks, a 3D computer modeling program

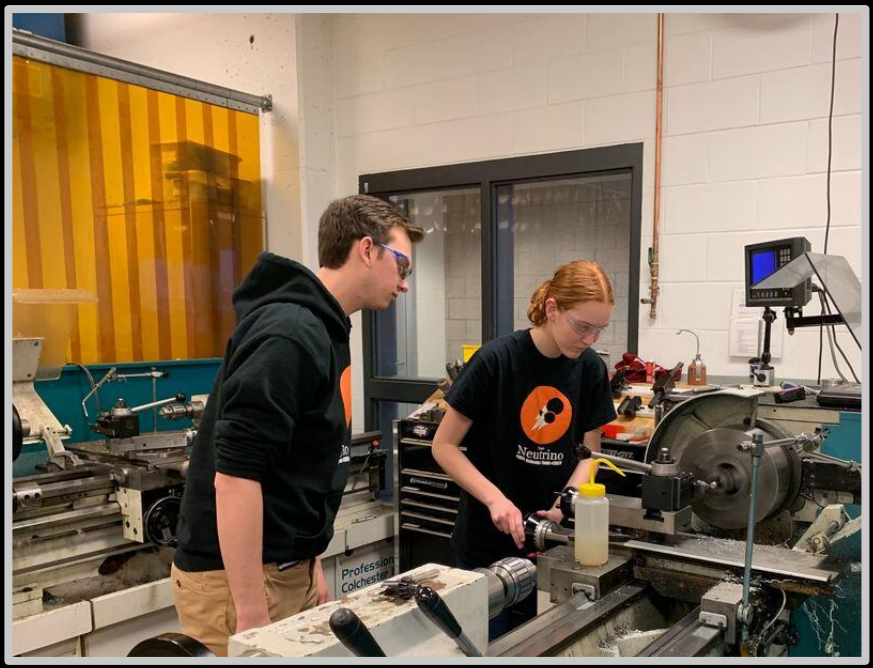
CAD





Ideas are tested and refined through prototyping before final production

Prototyping

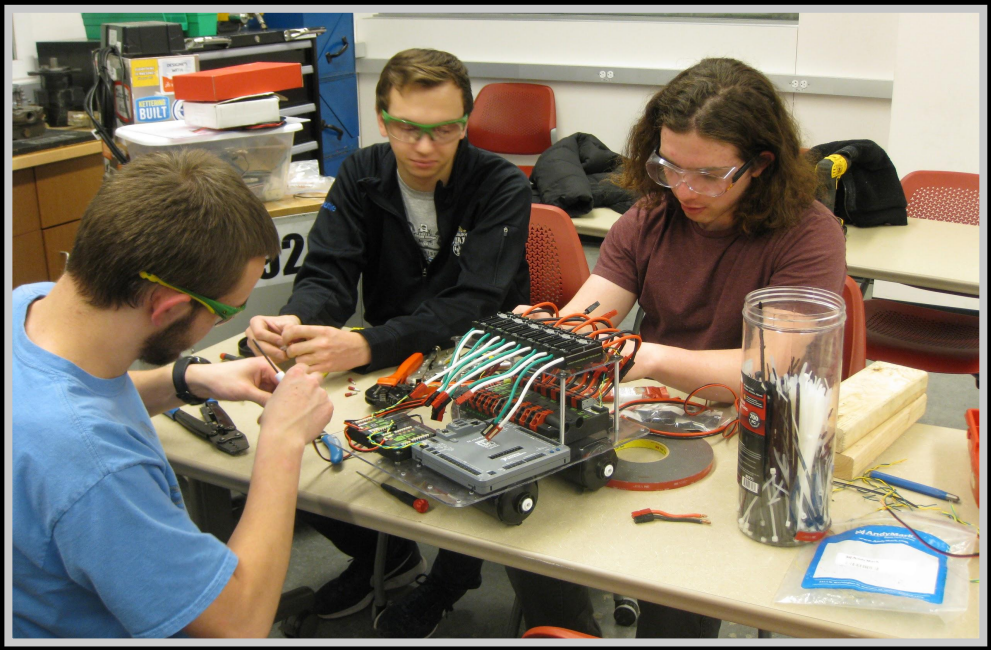


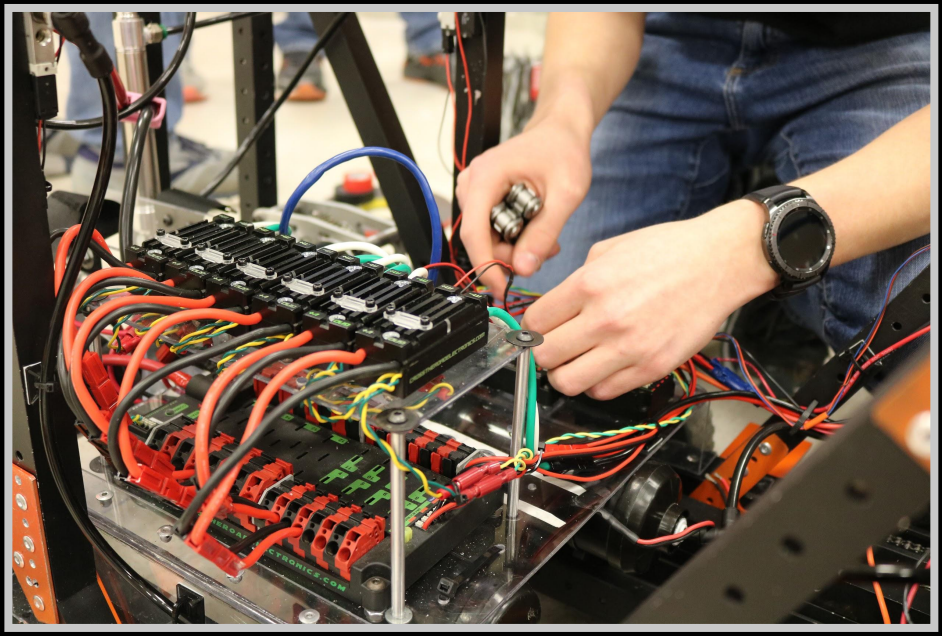
Students guided by mentors machine parts for the robot at Iowa State University's Boyd Lab

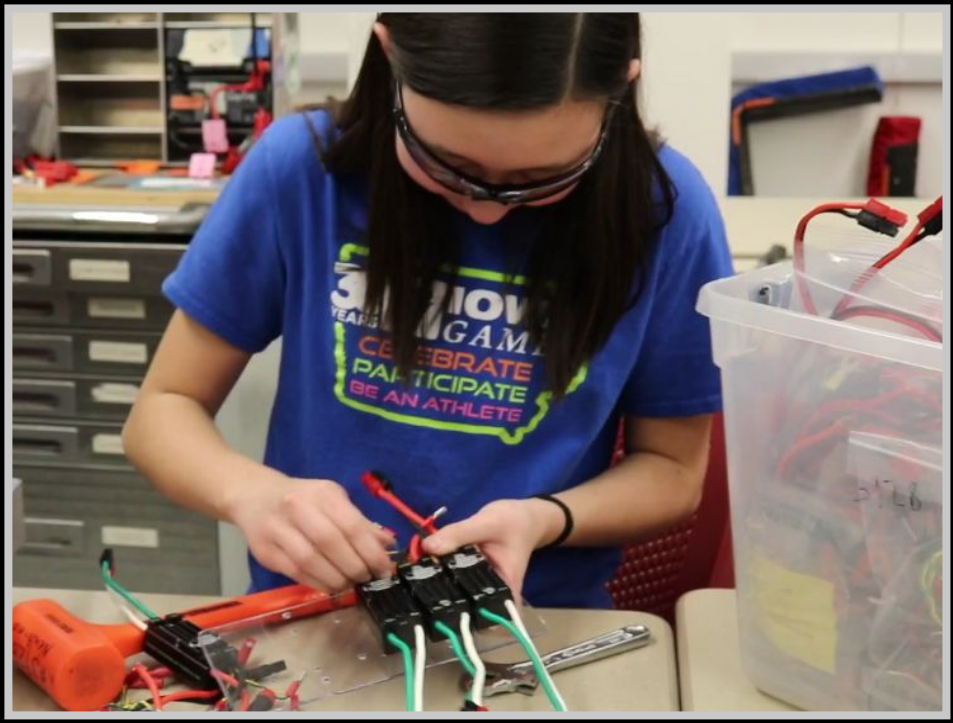
Manufacturing

Robot comes together with student assembly and guidance from mentors

Assembly

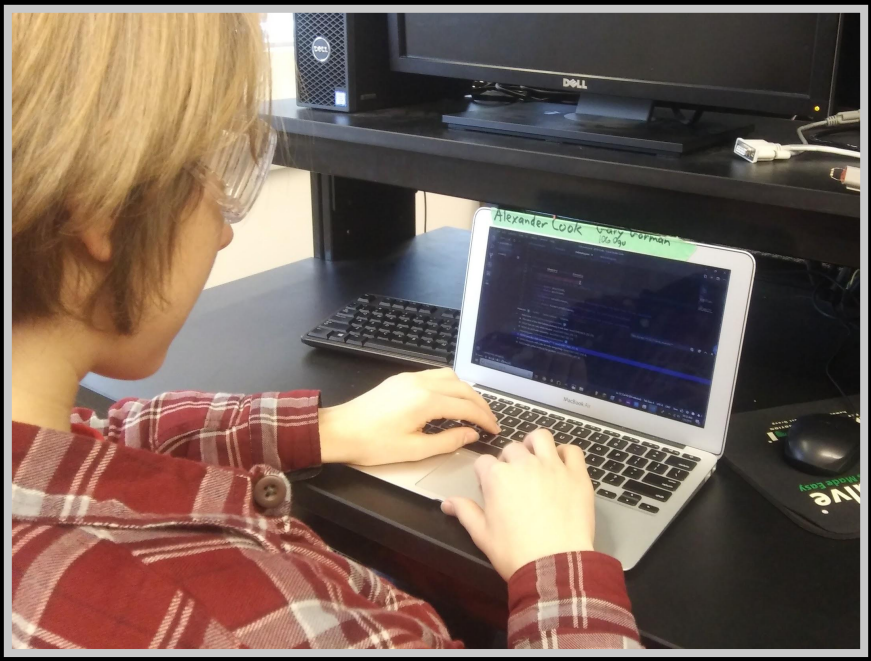


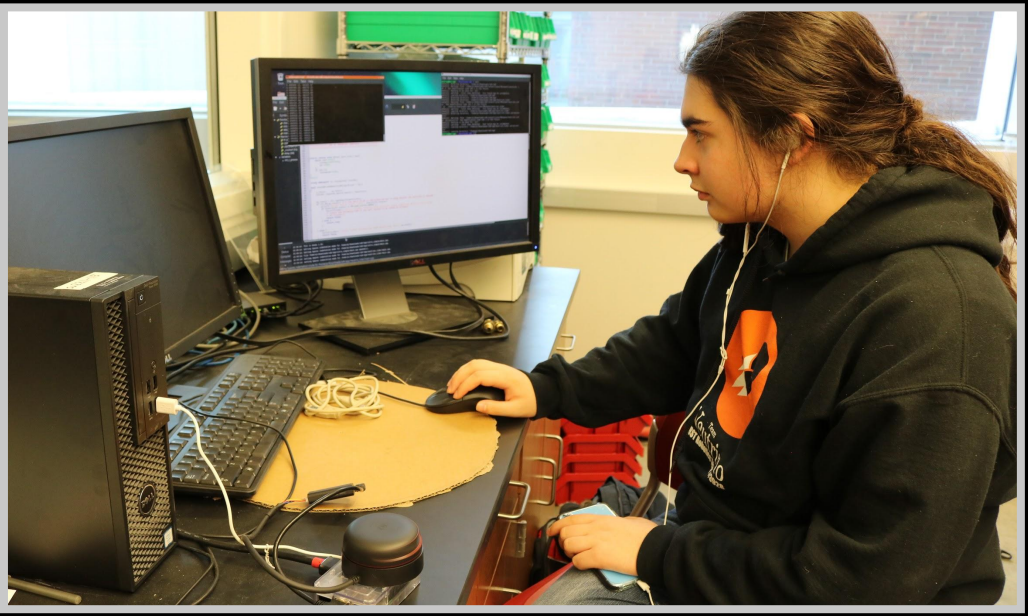




Electronics, batteries, and wires are installed and tested by students

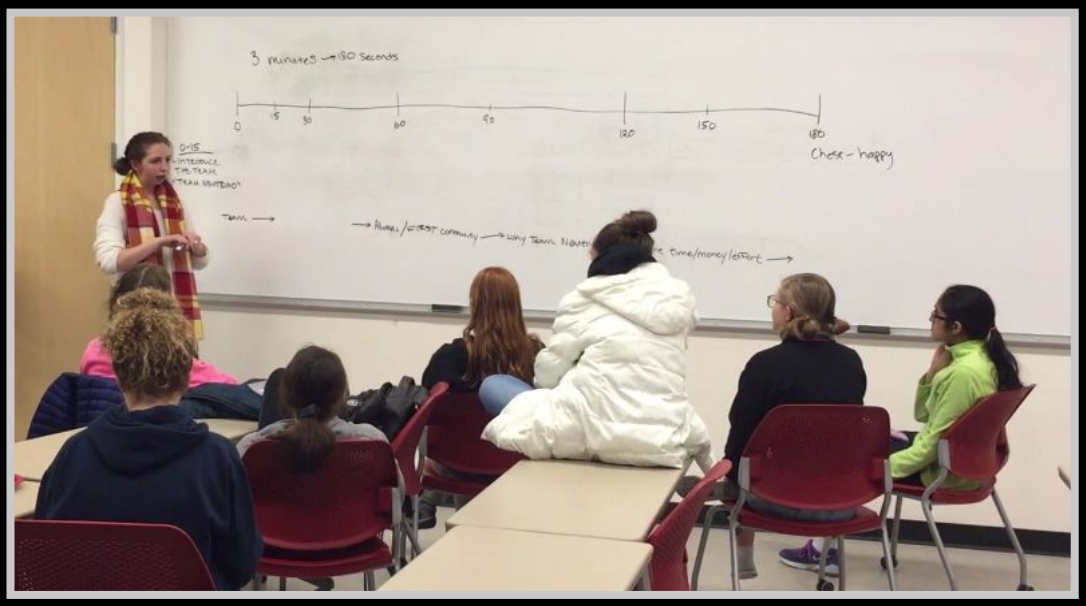
Electrical





Controls team programs the robot with Java as well as testing and refining vision controls.

Programming



Students spend time working on the Chairman's essay, executive summary, and presentation

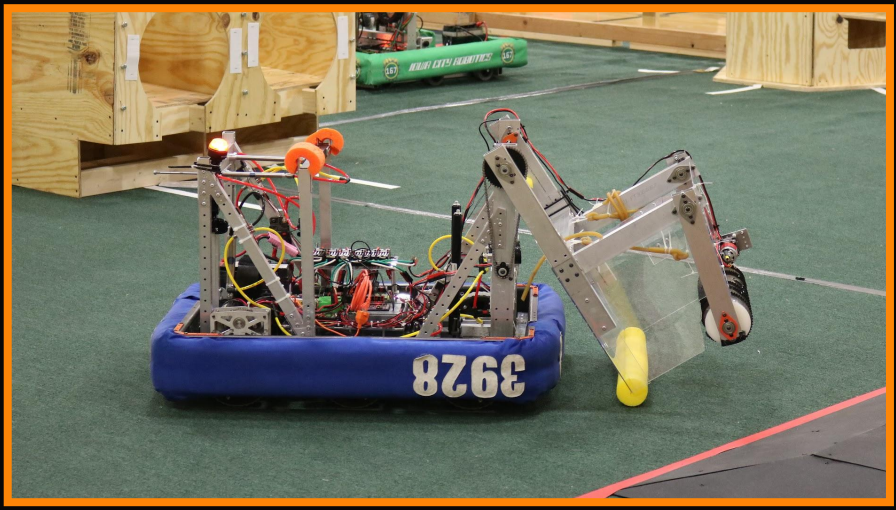
Chairman's Team

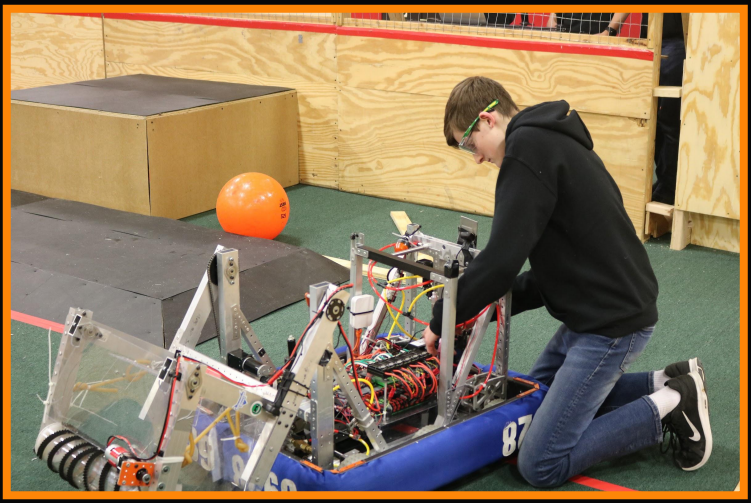
Graphics's team works on media related tasks such as newsletters and videos

Graphics Team

Corndog Classic Scrimmage

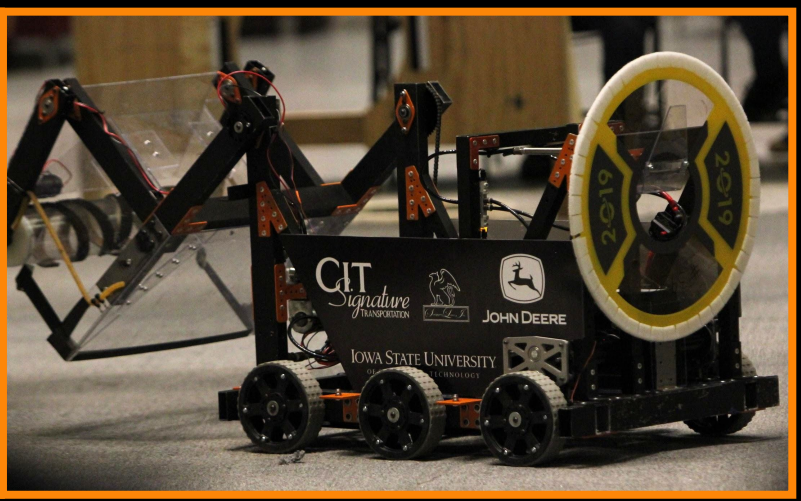
The Corndog Classic Scrimmage is an event for all Iowa teams to come and test their robot before competition on a full field





Robot Reveal

Near the end of build season, we revealed our robot to the public. Families and community members got a



Newsletters

2019

Outreach

2019

4th of July Parade

Team Neutrino participated in the city of Ames' 4th of July parade, tossing candy and demonstrating the previous year's robot.

Iowa State Fair

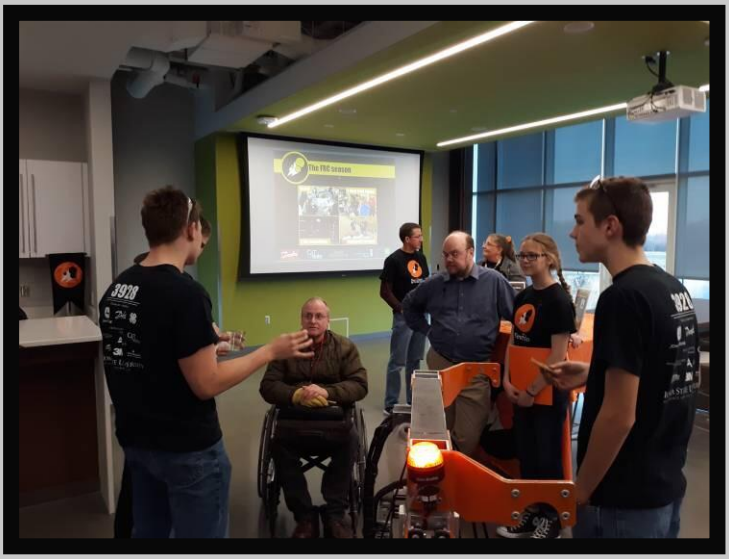
During the 2019 offseason, Team Neutrino got the opportunity to talk with many people about STEM and FRC at the Iowa State Fair. The team also demoed the robot at the event.

Edwards Elementary Science Night

Team Neutrino was invited to demo at the Edwards Science Night. There, we got to talk to many young kids and their parents about FIRST and how they and their children could get involved.

ISU Research Park Visit

Potential sponsors came to our demo at the ISU Research Park. The people who worked in the building were able to come down and learn about what we do and how they could get involved.



Cub Scouts Visit

Team members worked with a group of Cub Scouts to build a "5-minute Robot." They assembled and programed LEGO NXT robots to do simple tasks on a homemade tape track.

Science Center of Iowa

3928 has volunteered and demonstrated at four separate SCI events: the Mini Maker Faire, Girls in Science, and an FLL regional competition.

Mentoring

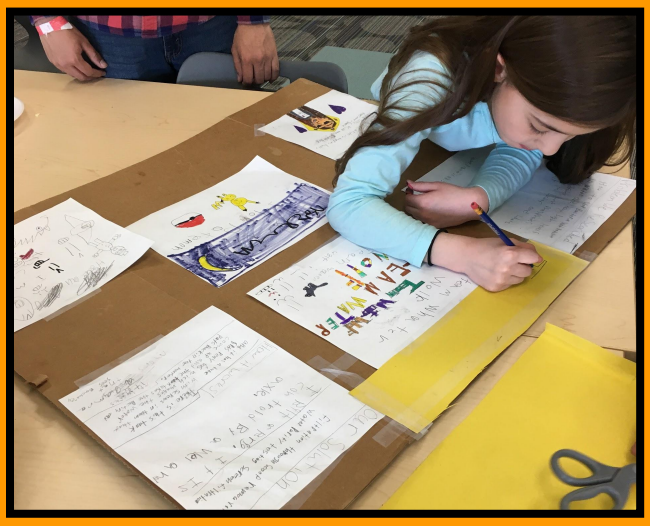
2019

In the 2018-2019 season, 3928 mentored 7 FLL Jr. teams

Fellows Elementary
(3 teams)

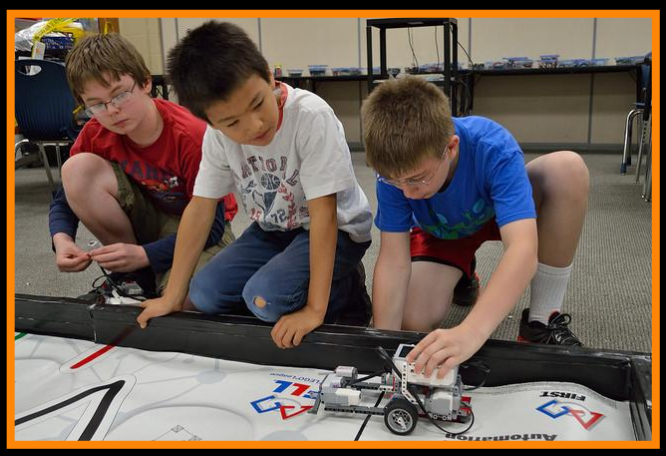
Sawyer Elementary
(1 team)

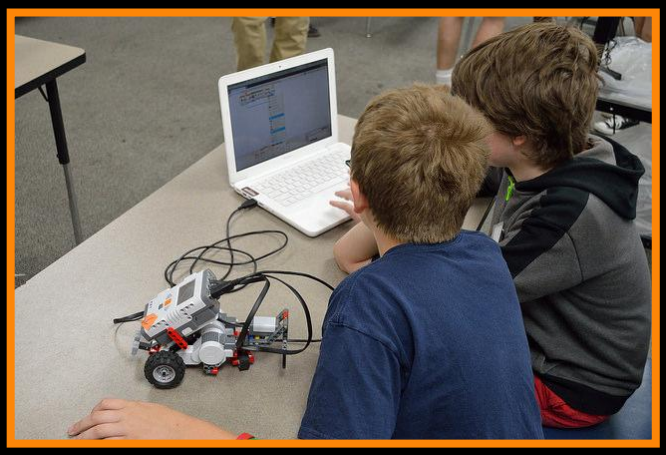
Meeker Elementary
(3 teams)



FLL Jr.

Robot Basics teaches 4th-8th grade students how to program EV3 and NXT robots like the ones used in FLL.





Edwards Elementary Robot Basics

Intergalactic Star Force

- Project 1st place at Webster City FLL Regional

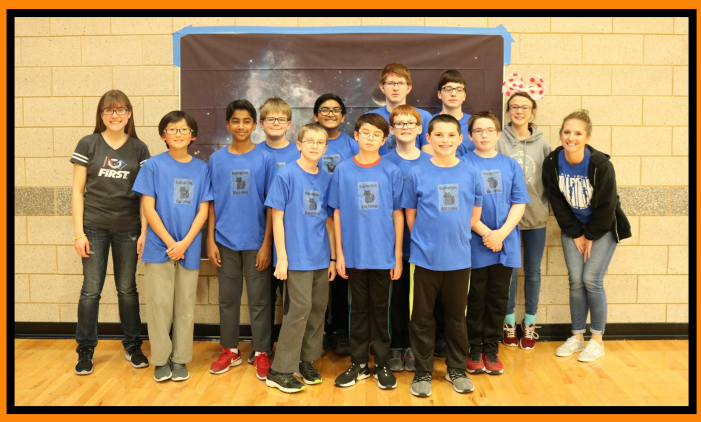
spAAAAAAAAAAce

- State Advancing Award
- Honorable Mention in Robot Design and Strategy at Iowa FLL State Championship
- Grace Murray Hopper Award

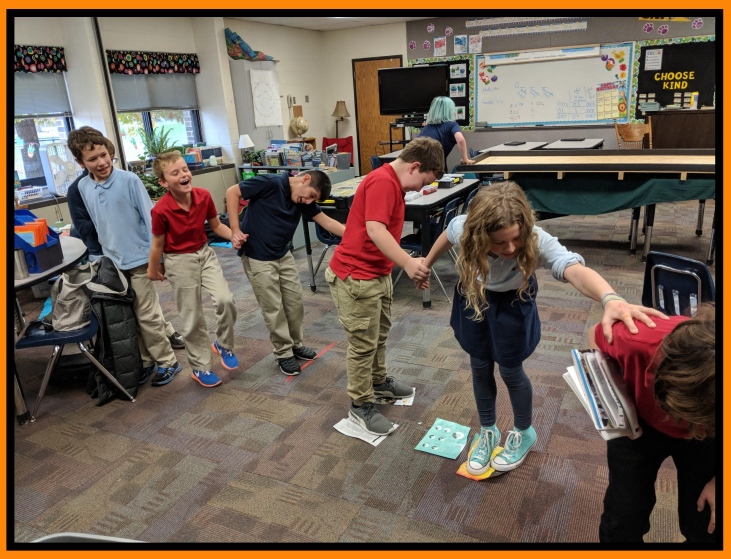
Radioactive Raccoons

- Champions' Award at Webster City FLL Regional
- Project Research 2nd place at Iowa FLL State Championship

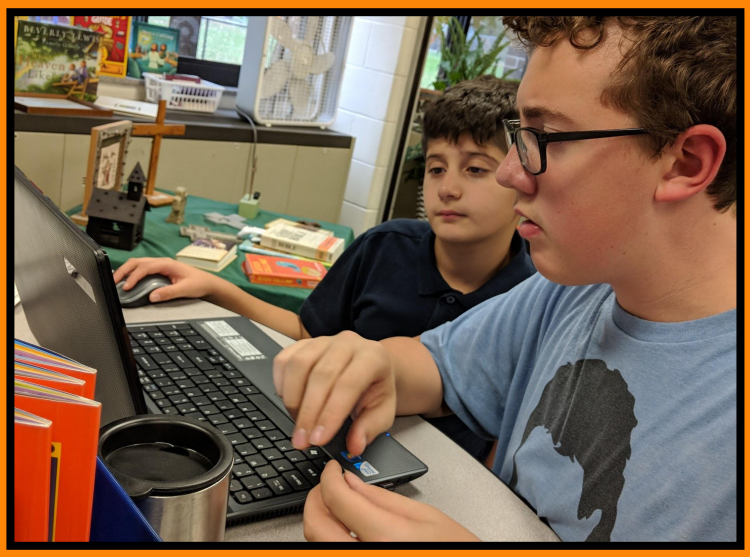
Newton's Law of Universal Gravitation



Ames Middle School FLL



Sawyer Elementary FLL
Space Pancakes



Fellows Elementary FLL
LEGO Masters
- *State Advancer*

Galactic Ping Pong Balls

St. Cecilia FLL
Super Peeps 2.0

Galactic Labradoodles
- Global Innovation Nomination

Sawyer, Fellows, and St. Cecilia FLL

Team Neutrino hosts and organizes an FLL scrimmage every year since 2011 where teams from around Ames practice competing before regionals.

At the regional we have practice matches, project presentations, and robot interviews. We also do a robot demo of our robot from last year.

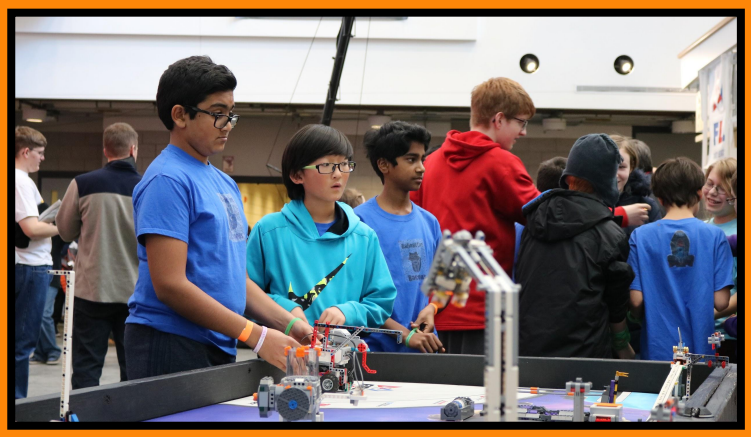
Ames FLL Scrimmage

At the Webster City regional, we mentored four teams and had many of our team members volunteer.

At the Des Moines regional, some of our team members volunteered for this event, helping with scoring matches and judging core values.

Webster City FLL Regional
Des Moines FLL Regional

At the Iowa State FLL Championship Team Neutrino mentored 4 FLL teams and volunteered for the event.



Iowa FLL State Championship

Each year, Team Neutrino teaches three Super Summer classes based around STEM, the oldest of which is the LEGO Mindstorms class.

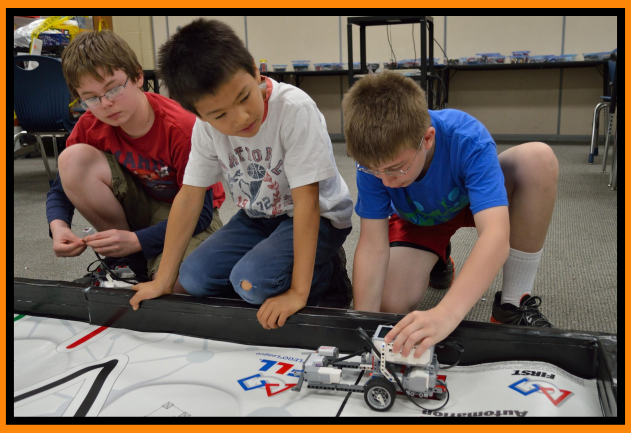
In this class, we teach kids of grades 4-8 to program robots to navigate through tape mazes and to follow black lines.

This program introduces the kids to *FIRST* and the FLL program. Our goal with this camp is to get more kids involved in STEM and *FIRST*.

Super Summer: LEGO Mindstorms

In this class for 1st-8th graders, we covered an introduction to scientific research and the engineering design process.

Students began with projects such as the floating test tube bottles and creating simple circuits.



Later we took apart discarded electronic equipment to learn how they worked. There was a focus on safety during the disassembly and construction of materials.

Super Summer: Engineering 0.101

Created specifically for 1st-3rd graders, Mini Makers engaged students in several small projects related to the STEM fields.

With a focus on learning by doing, students explored and made paper circuits, 3D printed objects, stomp rockets, and much more.

This class is all hands-on and lets kids experiment and use their creativity. The students also put together a showcase in the classroom on the last day of camp.

Super Summer: Mini Makers

Kids grades 2 through 5 participate in projects such as snap circuits, programming, and soldering. By doing this they learn modern day skills to use in day to day life.

Edwards Elementary MakerTech Camp

Award Submissions

2019

SHARE

INSPIRE

CREATE

DESIGN

FIRST Robotics Team #3928
2019 Season