

# **OPERATION P.E.A.C.C.E.**

## **ROBOTICS**

**4-H FIRST ROBOTICS TEAM 3461**



**OUTREACH REPORT**

**2022 - 2023**

# OPENING STATEMENT

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## PREFACE

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The purpose of this document is to guide new generations with an up-to-date, focused, and organized document for Operation P.E.A.C.C.E. Robotics' outreach history, including events we have done in the past and our reach numbers.

This document contains information regarding FIRST teams we have founded, our demonstrations with sponsors, and much more. This document is split into 5 separate sections: our history, community outreach, STEM outreach, workshop classes, and FIRST outreach. It will also have a subsection dedicated to the numbers of people attending each event, updated to the best of our sources and abilities.

This intends to serve as a guide to re-establish our unique outreach, and to show ourselves as a pioneer within our community. But most importantly, we intend this document to showcase why we do outreach, and what it means to the team.

This documentation is highly encouraged to be referenced upon for future team members, sponsors, and fellow robotics teams. Parties cannot forge or copy our documentation without the consent of the team.





# ABOUT US

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## WHO WE ARE

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Operation P.E.A.C.C.E. (Practicing Engineering and Competitive Cooperative Excellence) Robotics was established in 2010 to excite students to pursue STEAM through competitive robotics within our world. As a 4-H team our mission is to assist youth in gaining knowledge and experience in leadership and life skills. Being a 4-H team allows us to maintain our independence from any one school. Furthermore, we accept anyone regardless of background and skill level to join our team so they can learn the necessary skills to become the next generation of innovators.

We strongly believe that the heart of our team is our community, and so we strive to give back every year through outreach. Throughout the years, we do outreach events at our local fairs, mentor local teams, and come up with ideas for future projects that better everyone. We also look to create documentation that describes our processes to help pass knowledge down to future students. This includes creating a technical report of our robot, our business plan that describes our finances, and more.

## HISTORY

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Originally starting in a storefront in Torrington, we had big dreams, and it was fueled further through winning the Highest Rookie Seed award that year. We met in Thomaston High School for our second year until we found our current sponsor's home (Arthur G. Russell), where they let us use their shop machinery and workspace. Our steam continued after this, winning two events in 2016, Engineering Inspiration in 2018, attending the World Championships in both 2018 and 2022, and winning more awards over the years.

Every year, we strive to compete at the highest level as our students gain more experience in STEAM to outperform previous year achievements. Today, the team is a strong player in the FIRST community, competing not only at the New England District Championships, but also the World Championships in Houston, TX in our 2022 season.

## OUR MISSION

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Our mission at Operation P.E.A.C.C.E. Robotics #3461 is to teach students to explore and appreciate STEAM, encourage students to realize their capabilities, and to inspire others to learn and improve skills.

By the time a member graduates from the team, they will have gained skills such as:

- How to apply engineering principles via the designing and construction of the robot
- Obtained fluency in industry standard engineering software (SolidWorks, Java, etc.)
- Created a network with many engineering companies
- Developed business skills in fields such as marketing and graphic design
- Refined their public speaking and presentation skills

*The impact FIRST has had on me for the past several years is an experience I will carry with me for the rest of my life. I know I never would have done anything with engineering if it weren't for FIRST. I've learned so much more than just how to build a robot. I've learned problem solving, teamwork, and public relation while having a blast with the new people I get to meet. But most importantly, FIRST helps push me outside my comfort zone and supports and encourages me as I strive to learn new and valuable things.*

- Deva Trotta-Smith



## WHY DO WE DO OUTREACH?

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At the start of our team's inception, many of our goals could not be achieved without the unwavering support of our community. Thirteen years later, central Connecticut regards us as one of the staples of their towns. Many people who have seen our demonstrations at local fairs, participated in our LEGO league teams, and more are now students on our team, sponsors of our mission, and our biggest supporters throughout the years. Our outreach is the embodiment of this, and we wish to give back in the same way they accepted us in 2011. We also look to spread our mission: creating accessible STEAM for everyone regardless of their background.

This document will cover both past current, and future outreach in our area. These initiatives allow Operation P.E.A.C.C.E. to give back to the community by educating people on STEAM and FIRST.

# MEET THE ROBOTS

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## WE HAVEN'T FIGURED IT OUT YET - 2022

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For the 2022 Game "Rapid React", our team presents "We Haven't Figured It Out Yet". This robot collected, aimed, and shot cargo into the hubs in the center of the field. At the end of the game, the robot used its hooks to climb rungs of the hangar.

This robot was ranked 5th at the Houston World Championships (Newton) and won the quality award.



## HAGILE - 2020 - 2021

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For the 2020-2021 game "Infinite Recharge", our team presents "Hagile". Hagile collected, aimed, and shot power cells into the higher goal of the field, and was small enough to maneuver under the control panel in the middle of the field.

This robot did not partake in any official competitions due to the COVID-19 Pandemic

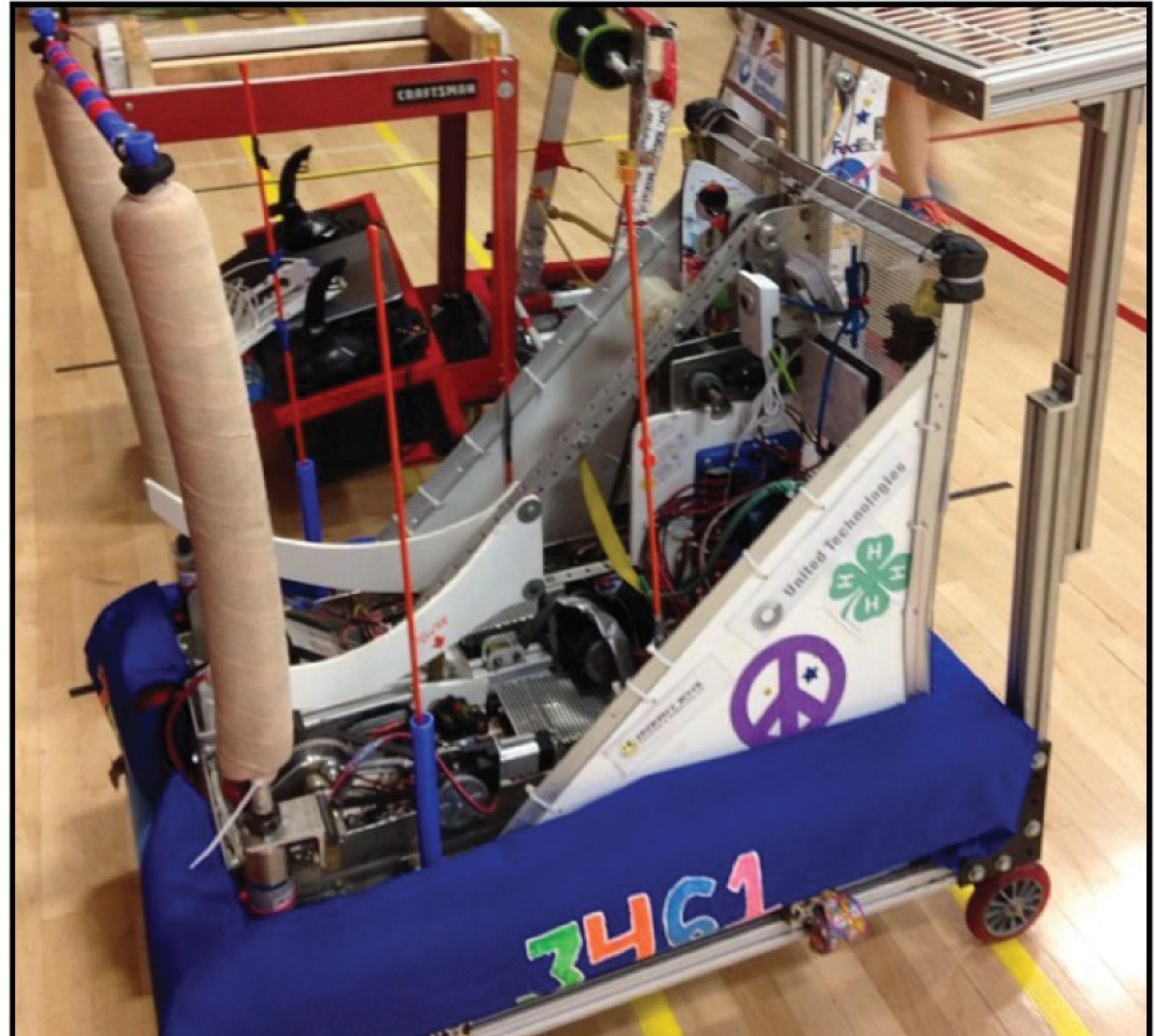
## CHUCK - 2014

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For the 2014 game "Aerial Assist", our team presents "Chuck". Chuck is a small robot who could pick up large yoga balls, and throw them using the catapult in the middle of the robot.

Chuck won the Quality Award at the Pine Tree event.

In 2022, Chuck received up-keeping and was put into working condition again, now being demonstrated consistently at fairs starting in 2022.



A large, green, multi-eyed alien head dominates the right side of the frame. In front of it, a smaller alien in a blue and white spacesuit is seen from behind, looking towards the camera. The background shows a dark room with a banner on the left that reads "BING WINGS" and a star symbol.

# COMMUNITY OUTREACH

# WE ARE COMMUNITY

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To our team, the first step to spreading our mission and giving back is to make our presence known. We do this by attending various community outreaches, fundraisers, activities, and even debuting on a TV show to get the word out!

By getting the word out, this allows members of our community to become involved with us. We look for outreach events that are in our local area, have people of all ages, and adequate space for us to demonstrate our robot.

## PLANNED OUTREACH FOR 2023

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- A Minimum of Two Live Streamed District Competitions
- The Live Streamed New England Championship upon Qualification.
- The Televised World Championship in Houston upon Qualification.
- At least 6 fairs/community events such as the Harwinton Fair, the Wolcott Fair, the Terryville Fair, the Hartford County 4-H fair, and the Bristol Mum Festival.
- Several Off Season Events Including "Bash At The Beach", "Summer Heat", "Where Is Wolcott Invitational" and WPI's " Battlecry".
- Various Service Projects Including demonstrations at libraries and collaborations with local FIRST teams
- Various fundraising events, Pie sales, Restaurant partnerships, and Shake-The-Can.
- Free and open-to-the-public workshop classes involving programming and manufacturing
- Mentoring local FLL teams
- Explore partnerships with local manufacturing companies to expand our knowledge



# HARWINTON FAIR

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Harwinton Fair, originally known as Harwinton Cattle Show and Fair, is a yearly event held by the Harwinton Agricultural Society. The first written record of the fair, according to members, is in the Secretary's Record Book dated 1853.



We've attended the Harwinton Fair since 2011, and had the honor of attending during the 165th anniversary in 2022. At the event, we have a designated booth with a custom Operation P.E.A.C.C.E. sign displayed on top.

Ever since our first time attending, we run a booth every day where we demonstrate our robots, and even encourage children to interact with it as well. One year, this could mean driving the robot around the fair grounds, while the next could be catching balls that the robot throws. In 2022, we re-demonstrated our 2014 robot, "Chuck." Chuck is fitted to hold and launch the 2014 yoga balls, all while decorated with our signature tie-dye look.

When the robot is charging, we allow everyone to get hands-on and see our engineering prowess up close. At this event, we also sell an assortment of PEACCE taffy to help fundraise for the next year's season.

## STATISTICS

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YEARS ATTENDED	2011-2022
DATES OF LAST ATTENDANCE	2022
PEOPLE IMPACTED AT LAST ATTENDANCE	1,000



# 4-H FAIR

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Every year, 4-H hosts a fair to showcase the amazing talent within young people involved in their program, a youth development program offered through the UConn Extension system. Activities at these fairs range from children's activities, entertainment, food and merchandise vendors, livestock and agriculture competition, and much more.

Prior to 2023, we have been part of Litchfield County 4-H and participated in their fairs yearly. 4-H is a national program with six million youths participating in various project areas to learn life skills, and they're supervised by more than 500,000 volunteer leaders. In Litchfield County, there are more than 25 clubs. The Litchfield County 4-H Fair hosts a two-day fair, which has been held since the 1930s, has been a staple in encouraging those of all different backgrounds to witness our STEM club.



At these fairs, we run a small table every day where we demonstrate our robots, and even encourage children to interact with it as well. In 2021, we brought our Infinite Recharge robot Hagile to the competition grounds, and many people of all ages lined up to catch power cells and watch the robot interact with a wooden-replica of the 2020 challenge.

In 2023, we will continue this long tradition by participating in the Hartford County 4-H Fair!

## STATISTICS

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YEARS ATTENDED	2017-2021
DATES OF LAST ATTENDANCE	2021
PEOPLE IMPACTED AT LAST ATTENDANCE	1,000





# MUM FESTIVAL

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The Bristol Mum Festival is an annual festival held in Bristol, CT which includes the Mum Parade. The festival celebrates chrysanthemums, formerly a major product of the town, and was first held on Sunday, October 7, 1962. Today, the festival brings together people of all ages from across the state of Connecticut, which reflects the true community interest of the city of Bristol. Activities at this festival include the Mum Parade, the Miss Mum Pageant, Art & Jazz Gala, car shows, horse and hay rides, and many more.

For the last ten years, the team was honored to take part in the Bristol Mum Festival by demonstrating the robot, representing the importance of manufacturing within the town's history. Next to the Soldier's Monument on Memorial Boulevard, we showcased our robot by playing a game of catch with whoever stopped by. We utilized our 2022 Robot, "We Haven't Figured it Out Yet", to deploy the balls and catch the balls as they were bowled into the intake.



Our set-up also included a second booth to sell our famous PEACCE taffy, which directly supports the team and our next season.

## STATISTICS

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YEARS ATTENDED	2012-2022
DATES OF LAST ATTENDANCE	2022
PEOPLE IMPACTED AT LAST ATTENDANCE	10,000





# TERRYVILLE FAIR

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The Terryville Lions County Fair, or shortened to the Terryville Fair, is an annual fair hosted in central Connecticut every August. According to Terryville Lions Club President Martin Sandshaw, "The Lions Club began in 1917 with Melvin Jones' vision of community service and has grown to encompass over 1 million members worldwide. The fair allows our local chapter to be able to adhere to the founder's mission." Many activities take place such as demolition derby, skillet throwing, motor cross, and general fanfare for the public to participate in.

Operation P.E.A.C.C.E. Robotics took part in the fair during the 2021 season, showcasing our 2020 robot. We also sold our taffy to fundraise for the next robotics season.

## STATISTICS

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YEARS ATTENDED	2021
DATES OF LAST ATTENDANCE	2021
PEOPLE IMPACTED AT LAST ATTENDANCE	500

# NUTMEGTV SHOWCASE

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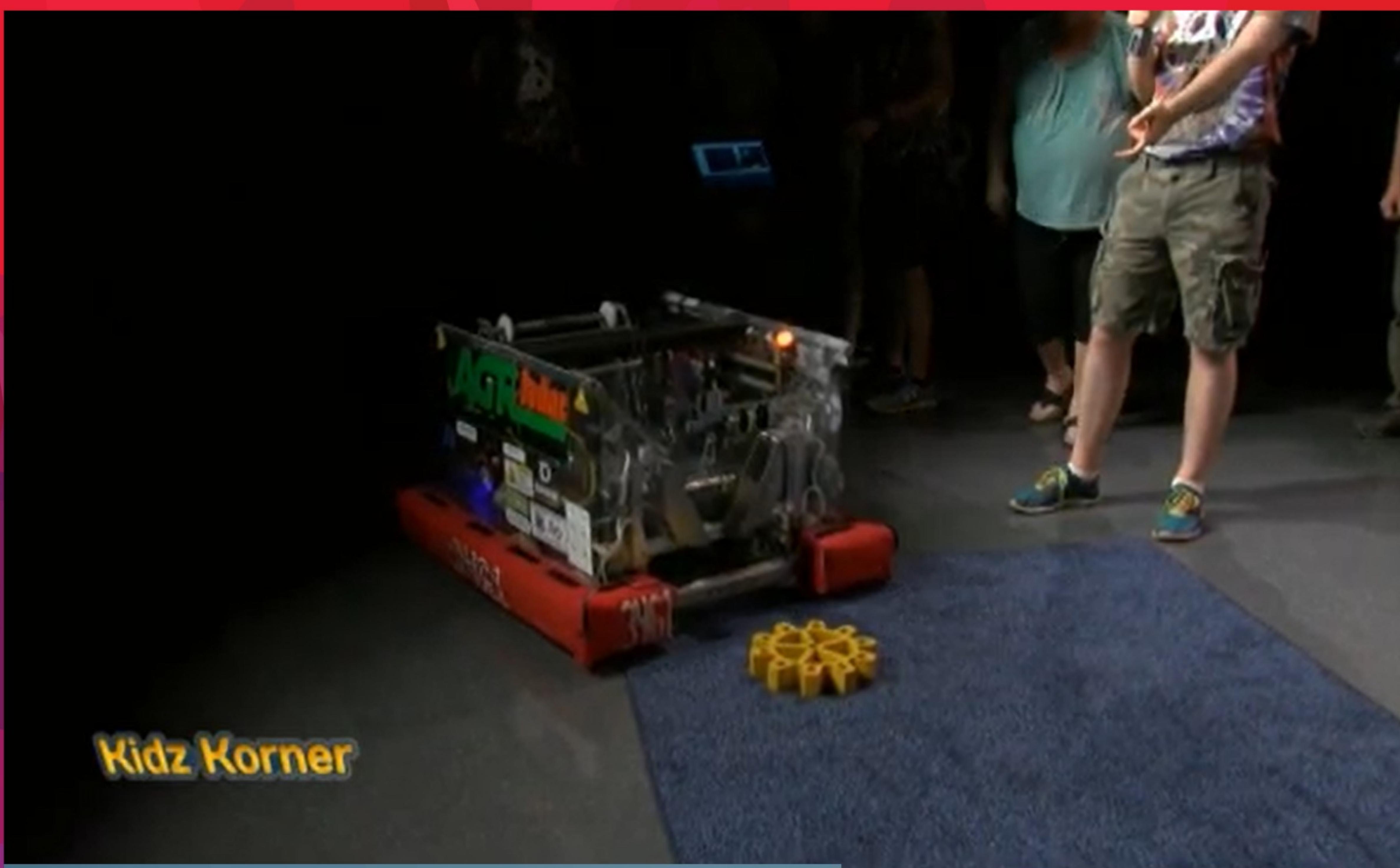
NutmegTV is a local broadcasting company located in Farmington, CT. For the past thirty years, they have provided award-winning media production for a variety of companies within their 1,400 sqft space.

In 2017, the team was offered to do a thirty-minute segment on NutmegTV. This segment highlighted our 2017 robot "Hailstorm", as well as the skills students can learn when they partake in a FIRST Robotics Competition team.

## STATISTICS

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YEARS PERFORMED	2017
STUDENT ATTENDANCE	10
LENGTH OF SEGMENT	29:42



# FARMER'S MARKET

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The Bristol Farmers Market is a local market run at the heart of the city near the Bristol Health Medical Center. The season runs from mid-June to the end of October each year, reoccurring every Saturday for people to come, buy local produce and products, all in the name of supporting their local farmers.

For the past three years, Operation P.E.A.C.C.E. Robotics hosts a booth at the market to showcase the robot to the local community, and to sell our famous taffy. We let people interact and even get hands-on with the robot, throwing balls back to it as well as showcasing its capabilities for competition.



## STATISTICS

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YEARS ATTENDED	2019 - 2022
DATES OF LAST ATTENDANCE	2022
PEOPLE IMPACTED AT LAST ATTENDANCE	750 per day (1,500 total)

# ELECTRONIC RECYCLE

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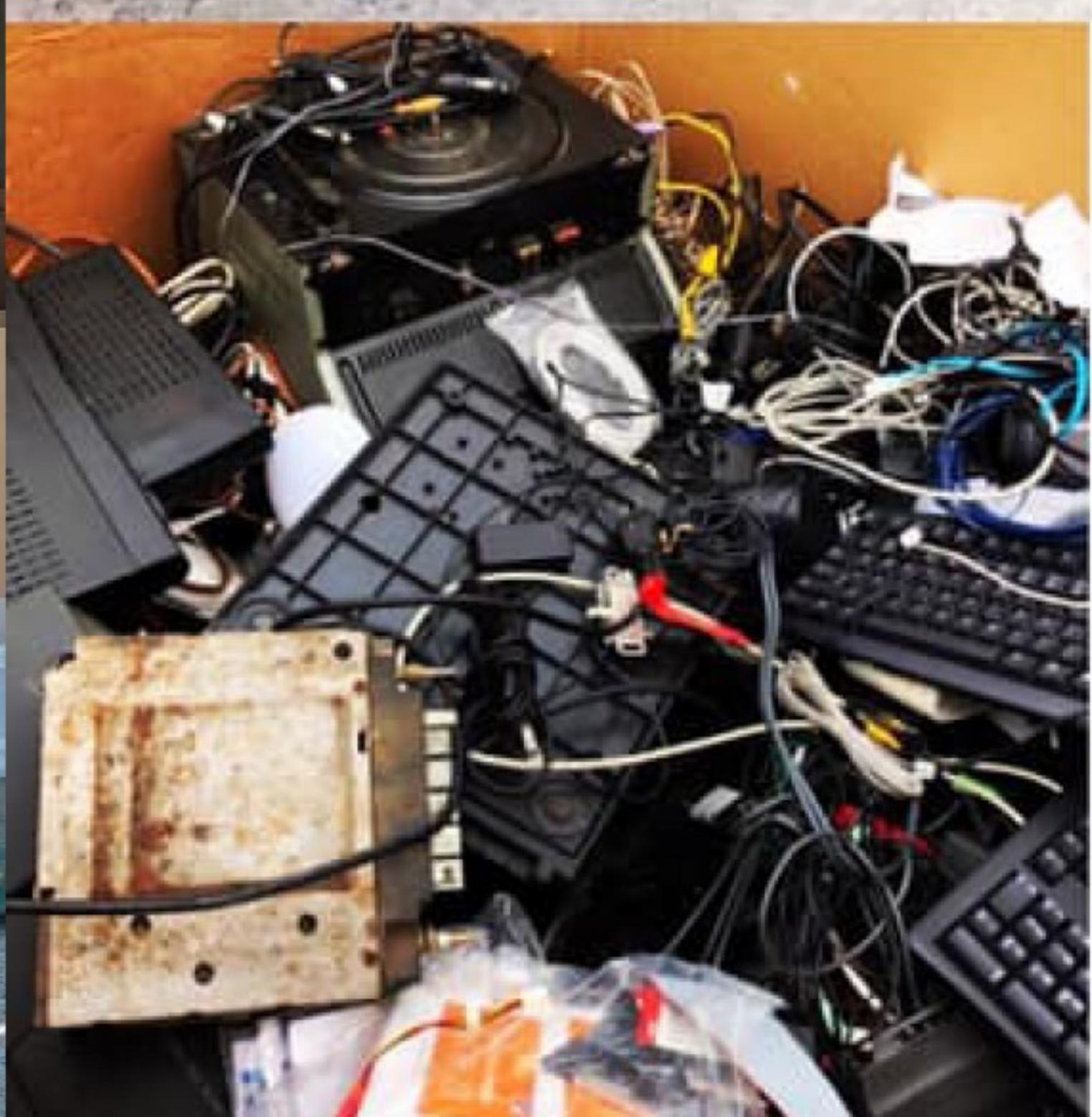
Since 2017, we have also held many electronic recycling initiatives at the Farmer's Market. Recycling the waste from electronics saves space in the landfills and prevents the environmental pollution. Starting in the summer of 2019, we have been working alongside an electronic waste company called Take 2. We have assisted in the collection of e-waste 6 times, and collected a total of 10,500 pounds of e-waste.

Conducting our electronic recycling gives us a sense of pride, by giving our community a way to interact with our mission as well as safely dispose of unwanted materials.

## STATISTICS

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YEARS ATTENDED	2017 - 2021, 2022
DATES OF LAST ATTENDANCE	2022
PEOPLE IMPACTED AT LAST ATTENDANCE	100



# STEAM OUTREACH



# FULL STEAM AHEAD

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## WHAT IS STEAM?

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STEAM is an acronym that stands for Science, Technology, Engineering, Art, and Mathematics. These five words create the basis of our mission, and what we look to promote within our community. While community outreach looks to build a connection with those around us, our STEAM outreach intends on building foundational skills within these fields, as well as create long-lasting technical connections with those who support our mission.

This section will cover classes we have provided for third party organizations, and demonstrations that have built a foundation with some of our STEAM-based sponsors.

## SUSTAINING OUR MISSION

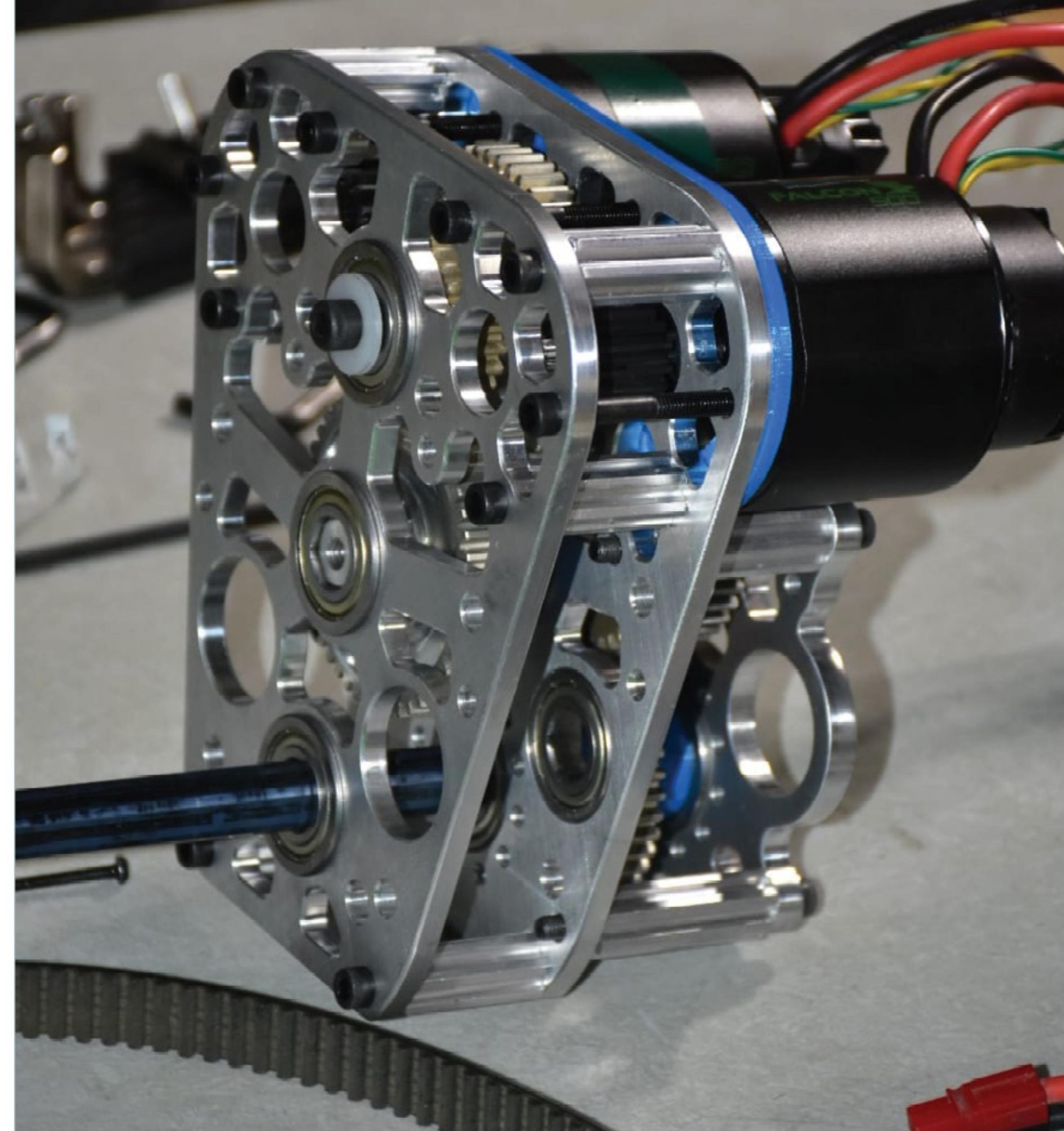
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In order to sustain our mission, we find organizations that share our vision and passion. One of these ways is by connecting with sponsors and creating an equally-providing relationship. We have many consistent sponsors who give us financial support. Our most notable sponsor, the Arthur G. Russell Company, provides us our build space, gives us complete access to their shop tools and machines, and contributes financial aid. Our students have a close working relationship with the engineers and machinists, they provide guidance and advice on our designs.

We partner with many other companies, such as

- Thomaston Savings Bank
- Automation Associates
- RBC Bearings

We thank our sponsors every year for their involvement with our program.



# BRISTOL B&G CLUB

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In 2016, we established a STEM Curriculum at the Bristol Boys and Girls Club for their after school program. This was the first of its kind to be introduced in any Boys and Girls Club in Connecticut, other clubs have since used our program as a model to create their own. The classes included at the Bristol Boys and Girls Club were basic coding, game design, CAD using Inventor and 3D printing, Vex IQ, and an FLL team, geared towards 3rd to 5th graders as a stepping stone into technology. We reach over 300 students per session through this initiative.

With this curriculum, the Bristol Boys and Girls Club has been able to apply for new grants raising over \$30,000. Through these grants, a permanent paid position was created for our team to head the "Tech Room." One of our former members, Johnny Chea, was a Dean's List Finalist for his outstanding volunteer work with this program. In October 2018, we started an additional VEX Robotics program at the New Britain Boys and Girls Club for ages 10 and up.

## INFORMATION

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- Created the "Tech Room"
- Founded by Dean's List Finalist Johnny Chea
- Raised \$30,000 in grants
- Started FLL and VEX teams
- 300+ Students per session



## ACTIVITIES

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- LabVIEW programming class 2014 with around 8 students per class

## CLUB FAIRS

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In addition to other outreach, we also reach out to local schools to do demonstrations at their club fairs. We reached out and demonstrated at Lewis Mills High School in 2017, as well as a few other high schools in the area for grades 8-12.

We intend to keep doing this in 2023 and beyond with schools such as Harwinton-Burlington, Lewis Mills, Imago Dei Classical Academy, and more.



# MANUFACTURING CT

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Founded in 1913, ManufactureCT, (formerly New Haven Manufacturers Association) is among the longest-running industry groups to serve manufacturers in the United States. This coalition of companies spans several firms that make precision instruments for medical and aerospace industries, security devices for information systems, specialty chemicals, fixtures in metals, plastics, and other materials using a range of technologies and processes from 3D printing to traditional stamping and machine tooling, and more. Some have been operating as family businesses for several generations, others are larger, multinational corporations.

In the spring and summer of 2022, we were humbly invited to take part of this group by one of our title sponsors, Arthur G. Russell. As members of several manufacturing companies toured the space, we demonstrated our robot and the true commitment we have to spreading STEM within our community.

## STATISTICS

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YEARS ATTENDED	2022
DATES OF LAST ATTENDANCE	2022
PEOPLE IMPACTED AT LAST ATTENDANCE	50

# RBC BEARINGS DEMO

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In 2022, Operation P.E.A.C.C.E. was fortunate to have RBC Bearings join as a sponsor to our team. Founded in 1919, RBC Bearings Incorporated is an international manufacturer and marketer of highly engineered precision bearings and products, which are integral to the manufacture and operation of most machines, aircraft, and mechanical systems, in order to reduce wear on moving parts, facilitate proper power transmission, reduce damage and energy loss caused by friction, and control pressure and flow.

To show our thanks, we showcased our robot to the engineers at the lab, as well as showcased what kinds of bearings we used to design the robot. The event was a great success and we can't wait to go back in future years,

## STATISTICS

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YEARS ATTENDED	2022
DATES OF LAST ATTENDANCE	2022
PEOPLE IMPACTED AT LAST ATTENDANCE	8-10 employees



# C.C.R.A.

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Founded in 2022, the Central Connecticut Robotics Alliance (CCRA) is a multi-team collaboration between FRC 178 (The Second Law Enforcers), FRC 1071 (MAX) and FRC 3461 (Operation P.E.A.C.C.E. Robotics) to create accessible STEM within Connecticut, by creating a community field space, accessible to all FIRST teams. Currently, we are focusing on our fundraising initiatives to fuel our organization's future.

## STATISTICS

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YEARS ATTENDED	2022
DATES OF LAST ATTENDANCE	2022
PEOPLE IMPACTED AT LAST ATTENDANCE	56 Golfers



GIFT  
BAGS!!!

BBQ  
COOKOUT  
DINNER!!!

# CCRA 1ST ANNUAL GOLF TOURNAMENT

Join us for an exciting day of golf on one of Farmington Valley's most scenic 18-hole courses. All proceeds benefit our three FIRST High School Robotics teams.

**BLUE FOX RUN GOLF COURSE, AVON, CT -  
SATURDAY, OCTOBER 1ST, 2022 9:00 - 2:00  
\$95 PER GOLFER**

[GOLF.CCRAROBOTICS.ORG](http://GOLF.CCRAROBOTICS.ORG)

CONTINENTAL  
BREAKFAST!!!



RAFFLE  
PRIZES!!!



# WORKSHOP CLASSES

# OFF-SEASON TRAINING

A goal of Operation P.E.A.C.C.E. Robotics is to pass on knowledge to students every year, no matter if they are part of not part of the team. To accomplish this, our team has set up annual workshop classes that take place throughout the summer, leading up to our build season in January.

Our Workshop Classes aim to cater to ages 13-18. These classes teach students how to use tools, make simple build projects, and come up with innovative solutions to problems. Some of these workshops will include:

- How to Solder
- Basics of Power Tools
- Basics of Programming

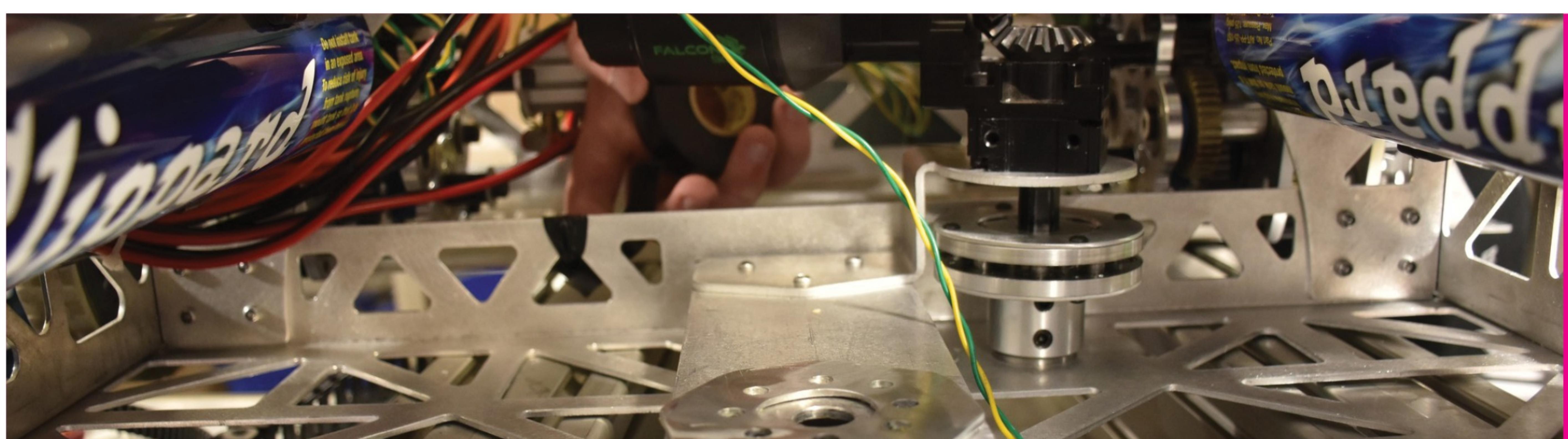
We've launched these classes since 2017 to be both in-person and virtual through Google Meet.

## HOW DO WE PROMOTE THESE CLASSES?

Our advertising starts immediately at our team's Open House every year. The Open House is a way for parents and students grades 7+ to meet the team, interact with the robot, sign paperwork, and overall join the team's season.

When a student is on-boarded, we let them join our Slack, where they receive updates for when weekly classes are, and the agenda tackled for that session. By build season, students have learned the basics skills needed to partake in STEM and join the field of their choice.

We also promote these sessions online using social media, such as Facebook and Twitter, to get the word out.



# PROGRAMMING CLASS

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Since 2017, our team has run a Java programming class open to the public, and it has proved to be our most popular class. Run by both mentors and students, attendants work to create projects such as building a functional Tic-Tac-Toe game and writing a program to control our robot. By the end of the class, members should be ready to program basic robot code!

## GOALS

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- Build literacy in basic coding terms
- Understand the layout of team-standard programs such as Visual Studio Code
- Create effective programs that utilize skills that are frequently used in robot production



## PROGRAMS

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- code.org
- Scratch
- Visual Studio Code
- WPI Library
- Languages
- Java



## FACTS

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- Annual Attendance: 6-10 kids per class
- Session Time: around 1.5 hours
- Mentors: 1
- Students: 2



# ASSEMBLY CLASS

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In addition to our programming classes, we try to offer sessions where attendants can get hands on with assembling and manufacturing the robot. This class has also proven useful, as it builds necessary design skills that are utilized within STEM fields. Our team hosts lessons that include soldering, tool literacy, and even CAD-ing robot parts.

In 2021, our team put our attendants to the test with a mini-bot competition. In the Fall, we gave a challenge to shoot small tennis balls, and two teams sought to built a robot to compete. Using the skills they accumulated, they competed three weeks later.

## GOALS

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- Build literacy in design and machining such as drill presses and Gene Haas VF6s
- Utilize programs used throughout the workforce, such as Solidworks
- Create products that are robust in design, lightweight, and effective in purpose

## PROGRAMS

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- Solidworks

## FACTS

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- Annual Attendance: 2-6 kids per class
- Session Time: around 2 hours
- Mentors: 4
- Students: 2

## MINIBOT COMPETITION

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- Team Attendance: 2



# FIRST OUTREACH



# FIRST IS A COMMUNITY

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In the spirit of FIRST, we frequently practice the key philosophies that define this organization: Gracious Professionalism and Co-operation. The spirit of competition does not mean our opponents are necessarily just that, but also members of our huge FIRST community. We treat everyone we come across as members of one big family, and frequently promote this ideology through becoming a prominent figure within the Connecticut FIRST community.

We try to embody this mission in everything we do. We create documentation with the purpose of spreading our knowledge to our students and the community beyond. We also offer our space and materials to any team who asks, including access to our practice field.

Within the past six years, we have opened our doors to seven local teams, and intend to continue this mission in years beyond.



# FIRST LEGO LEAGUE

In 2017, we partnered with the New Haven Islamic Center and their leaders to continue spreading the spirit of FIRST throughout the state. Through this partnership, three teams were formed: FTC-Gear Shakers, FLL-Royal Engineers and FLL Firewall Breakers. This partnership was conceived by five former members of our FLL teams that had been commuting 50 miles before the creation of these teams.

Our team has also founded other teams through the Bristol Boys & Girls Club, and through local community teams from our student's basements.

## INFORMATION

TEAM NUMBER	FTC 14035
YEAR FORMED	2017
YEARS ACTIVE	2017 -2019
STUDENT ATTENDANCE	6
AWARDS & ACCOMPLISHMENTS	n/a

TEAM NUMBER	FLL 48705
YEAR FORMED	2019
YEARS ACTIVE	2019
STUDENT ATTENDANCE	6
AWARDS & ACCOMPLISHMENTS	n/a

TEAM NUMBER	FLL 39114
YEAR FORMED	2018
YEARS ACTIVE	2018
STUDENT ATTENDANCE	7
AWARDS & ACCOMPLISHMENTS	n/a

TEAM NUMBER	FLL 22343
YEAR FORMED	2015
YEARS ACTIVE	2015 - 2016
STUDENT ATTENDANCE	8 members
2015 AWARDS & ACCOMPLISHMENTS	Won golden ticket in 2015

TEAM NUMBER	FLL 37388
YEAR FORMED	2018
YEARS ACTIVE	2018
STUDENT ATTENDANCE	9
AWARDS & ACCOMPLISHMENTS	n/a

TEAM NUMBER	FLL 14072
YEAR FORMED	2014
YEARS ACTIVE	2014 - 2016
STUDENT ATTENDANCE	7
AWARDS & ACCOMPLISHMENTS	n/a



# OPENING OUR SPACE

Every year, Operation P.E.A.C.C.E. Robotics opens up our space to teams around the world to come and gain assistance from our team. We allow access to all our tools, machining, mentor knowledge, and even a custom-built wooden practice field for the annual game. This allows invaluable practice to teams in the area.

Additionally, In the summer of 2018, an FRC team, team 7662, Buzzbots, from Missouri, was looking for guidance in starting up their own team. We offered the needed help and instruction and showed one of their new mentors around our shop when she came to see what our program was like. In October 2019, we lent out our robot to team 4420, Swarm Storm, a rookie team, in need of a robot to participate in Bash at the Beach, an offseason competition. Two of our mentors have also volunteered at the tool space in the Waterbury event since 2014, and frequently volunteer at the Where In Wolcott Invitational (WIWI).

Our help extends far beyond this, we try to help teams all the time at events through lending a part, assisting with code, and planning strategies.



## TEAMS INVITED

TEAM NUMBER	DATE(S)
178	February 2023
1071	March 2022
7662	June 2018
1729	2019
228	April 2022

**NOTE:** Teams mentioned above have attended several times to our space. The dates above mark their most recent visit.



