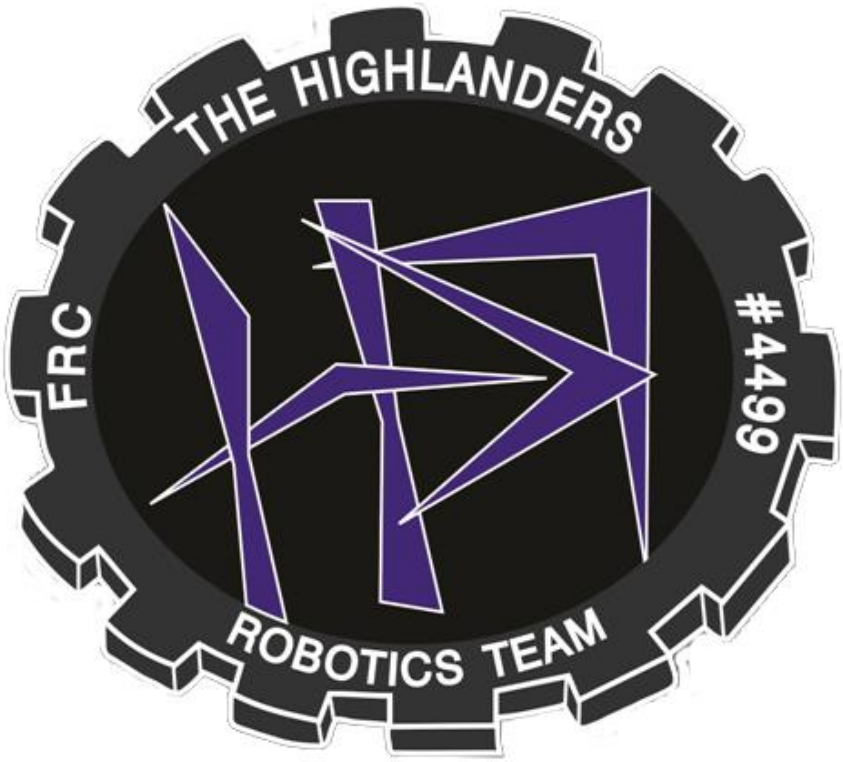


The Highlanders
FIRST Team #4499
2020
Business Plan

Contents

SLOGAN

It's not about the game, it's about the journey.

VISION

To provide middle school and high school students hands-on training, mentoring and education in the fields of science, technology, engineering and mathematics; to provide students with real-life business interactions with businesses in the community; to practice gracious professionalism, teamwork and innovation.

SUMMARY OF TEAM GROWTH

- Our team is in its eighth year, and we intend to be true competitors, going for our first regional win.
- We have an updated leadership team; they commonly have meetings to keep the team on track.
- We have developed and improved on skills that help us present to companies effectively in order to gain sponsors, mentors, and maintain relationships with businesses.
- For the past seven years we have gone to the World Festival; our first year with the Rookie All-Star Award at the Hub City and Colorado Regional Qualifiers, our second year with the Engineering Inspiration Award at the Inland Empire Regional and our third year with the Chairman's Award at the Colorado Regional Qualifier. For the 2016 season, we earned the Engineering Inspiration Award at the Arizona North regional and won Chairman's award and Regional Finalists at the Colorado regional. At the World Festival we won the Gracious Professionalism award and came in 15th in our division. For our 2018 season we earned a waitlist spot to attend. We were lucky enough to partner with an alliance to go on and win our first robot performance award, a division win and go on to become Houston Championship Finalists. And last year at the Oklahoma regional we were one of the finalist and won the Chairman's award.
- We have hosted 4 years of Lego robotics summer camps over the past 6 summers.
- We have also created Robot Disguise day, where we create a costume for our robot and go out and hand out candy. We have done this 3 years so far. The first year we made a spider-bot, in 2018 we made a dragon-bot and we made a slithering snake this year.

DEPLOYMENT OF RESOURCES

PARTNERSHIPS / SPONSORS

- We recognize all our sponsors on our team website: www.highlandersfrc.com
- We have different sponsorship levels. The sponsors will get their level of reward and the rewards of all the previous levels.
- Silver level sponsors and up will be recognized on our team shirts. The higher the rank, the bigger the logo will be.
- Gold level sponsors and up will have their logo on the team robot. Their logos will be displayed even more prominently on our t-shirt.
- Platinum level sponsors and up will have their company recognized during our team announcements as part of our team name.
- Diamond level sponsors and up will get an additional recognition plaque.
- Aluminum level sponsors will have their video displayed and literature handed out at the 3-day competitions.
- We have good relationship with our sponsors, and they mentor us when we need it.

FUTURE PLANS

- We hope to build a self-sustaining team by encouraging members to return and mentor The Highlanders and or go on to engage with teams of their own.
- By working under our team's non-profit, we to help and assist other robotics teams and students.
- We plan to expand our support and recruit more members, especially past FLL and FTC members, who are interested in STEM to help them pursue their passions.
- We have broadened our initiatives with an open-door policy to help other FRC teams, FTC teams and FLL teams.
- We hope to be a resource to any struggling FRC team and assist them financially, with shop time and with additional resources.

LEADERSHIP AND ORGANIZATION

Mentors that have helped us throughout the season:

Tony English, Mechanical Engineer	Barbara Frye, Mechanical Engineer
Dean Iverson, Electrical Engineer	Tim Frye, Software Engineer
Debbie English, Computer Scientist	Jacob Darling, Electrical Automation Engineer
Cody Clayton, Electrical Engineer	

FACILITIES

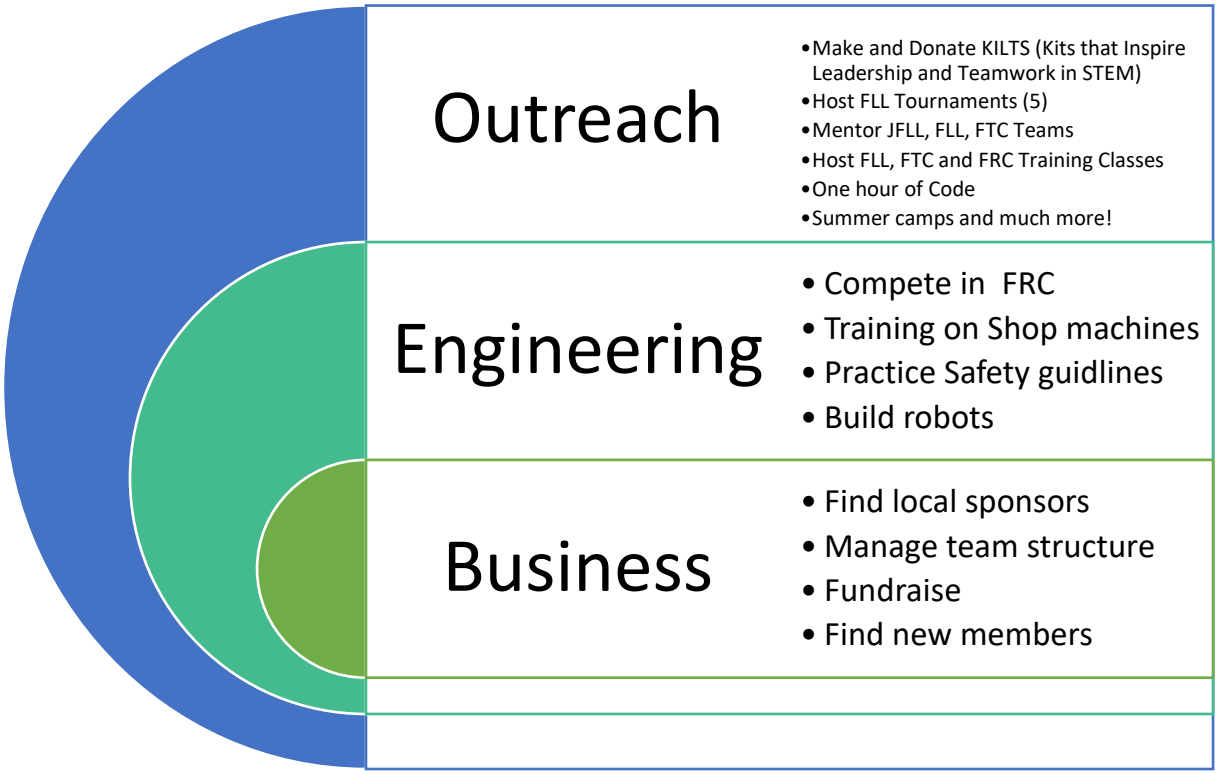
Team 4499 has been operating under one location since it started.
Location information:

- 4,000 square foot shop located inside a mentor's home
- Of that 4,000 square feet, 2,000 is dedicated to mechanical, computer and electrical design in a classroom and shop setting
- Tony and Debbie English's home in Fort Collins, Colorado
  5819 Highland Hills Circle, Fort Collins, Colorado

FINANCIAL STATEMENT

Team 4499's budget for 2019 is $67,500. We plan to raise most of this money with donations, grants and fundraising. Our non-profit organization was created to help FRC, FTC and FLL teams.

ACTIVITIES



These are just some of the events we participate in.

STRATEGIC PRIORITIES

In our years as a team we have come to understand the importance of planning and having a strategy in place for success. We feel that our partnerships with our sponsors, mentors and reaching out to help with our community are vital to our success. Team 4499 has established a list of important team categories:

- Increase our community involvement and volunteering
- Share the word of FIRST and STEM
- Increase our skills by learning from our mentors and business professionals
- Help youth become interested in STEM and how it can change their future.

AWARDS


2013
• Rookie All Star - Hub City
• Rookie All Star - Colorado Regional
• Highest Rookie Seed - Colorado Regional
2014
• Engineering Inspiration - Insland Empire
• Engineering Excelence - Colorado Regional
2015
• Quality Award - Dallas Regional
• Chairmans Award - Colorado Regional
• Woddie Flowers Finalist - Tony English
• Regional Finalists - Colorado Regional
2016
• Engineering Inspiration - Arizon North
• Chairman's - Colorado Regional
• Regional Finalist - Colorado Regional
• Gracios Profesionalism - World Championship
2017
• Deans List Finalist - Hub City Regional
• Deans List Finalist - Hub City Regional
• Innovation in Controls - Hub City Regional
• Woodie Flowers Finalist- Hub City Regional
• Gracious Profesionalism - Denver Regional
• Quality Award - Last Vegas Regional
2018
• Deans List Finalist - Jocelyn Holman
• Carver Division Winners
• World Championship - Houston Finalists

PUBLIC ACTIVITIES

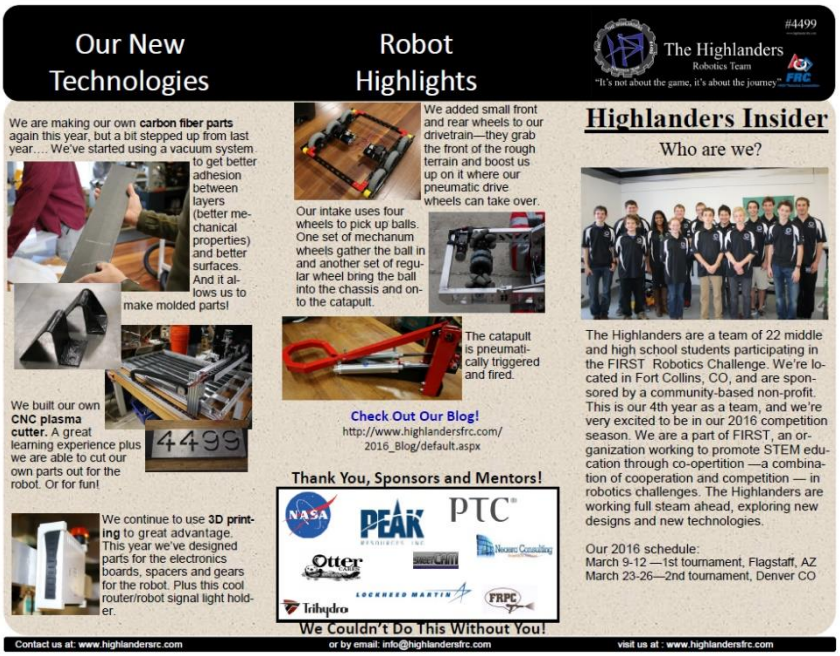
Program Overview
Future for Success
Year-Round Activities
Community Outreach
Newsletters
Training Session

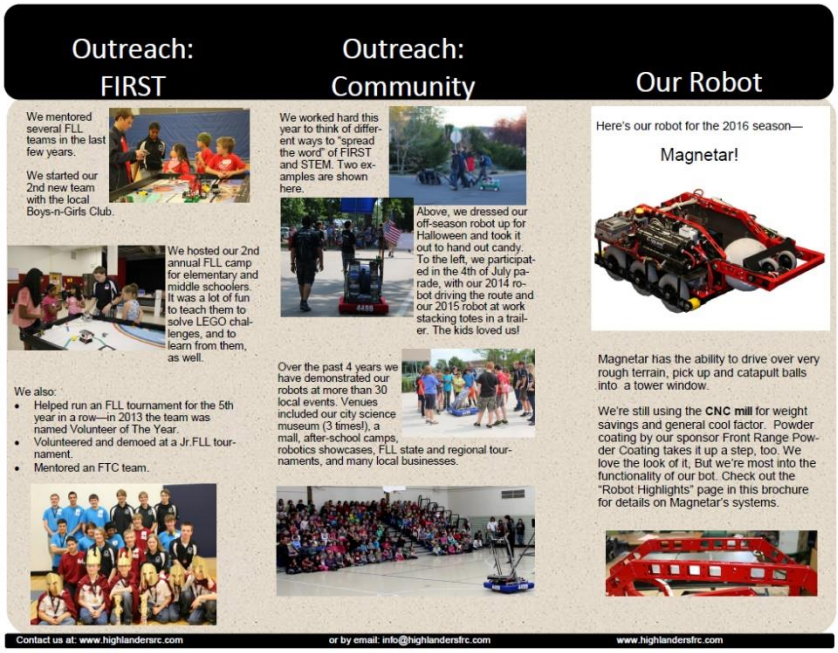
PROGRAM OVERVIEW

Team information

Our team is composed of 11 students from 6 different schools in Colorado who are all dedicated to STEM being a part of their future. After working hard and being involved in a variety of school activities, we meet in the house and shop of our steadfast mentors. Just like a family, we finish our homework, build the robot, plan our community outreach, and, obviously, to have fun.

Our long-term plan is to create a Cycle of Success, this cycle involves our team taking in students and outputting students that are ready for the workforce in STEM and entrepreneurship. These students will then come back and mentor the new generation of The Highlanders.





FUTURE FOR SUCCESS

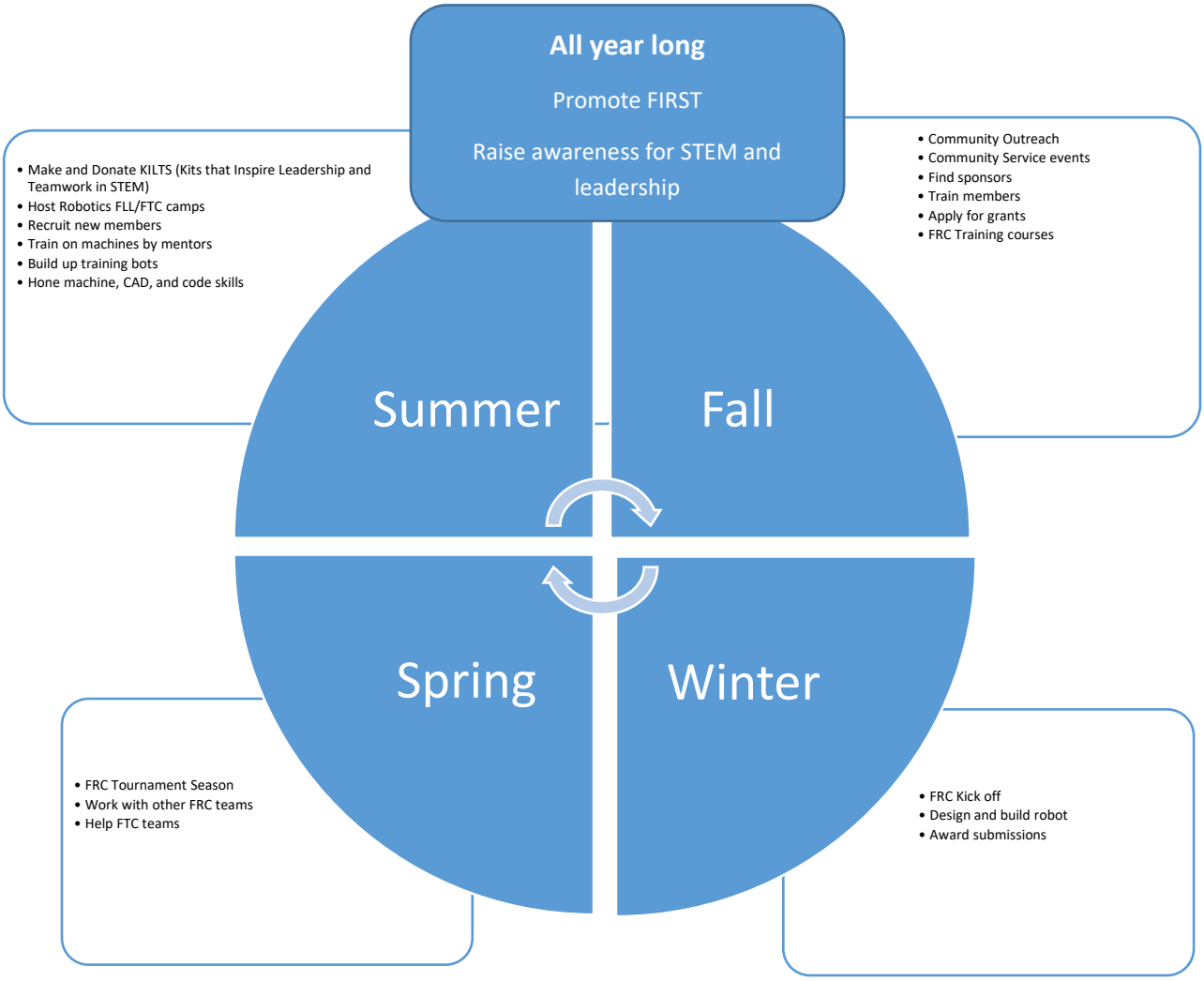
Growth of Team

Our team consists of 11 members this year. We plan to recruit new Highlanders throughout and immediately following the build season. The Highlanders pride ourselves in being an open team for anyone interested in what we do. Our team is made up of students from six different schools from Fort Collins to Greeley to Arvada to Broomfield, CO. Some of the struggles the team has had to overcome are the differences in school structure and dynamics. The Highlanders have overcome all of the social, educational and passion struggles and have come together to form FRC team 4499's year-round program.

Cycle of Success

We have a mission to provide students from elementary through high school hands-on training, mentoring, and education in the fields of science, technology, engineering, and mathematics; to provide students with real life business interactions with firms in the community; and to practice gracious professionalism, teamwork, and innovation. To accomplish this mission, we have implemented a feedback loop we like to call the *Cycle of Success*. Our *Cycle of Success* takes in students of any qualifying age and places them in the level of FIRST most appropriate for them. As they grow, they will progress up the levels, FLL Jr. to FLL to FTC to FRC, eventually graduating from high school and moving on to college. This finishes the receiving end of our *Cycle* and begins the cycle of giving back. In addition to growing and improving students in STEM fields during their experiences with our team, they are able to give back to the team by mentoring future members after they return from college. Members come back to Neaera Robotics or another organization, and mentor their own FIRST team—ultimately completing our *Cycle of Success.* Our Neaera graduates will teach future Highlanders the foundation of FIRST and give them real, first-hand examples of how FIRST will change their lives for the better because they themselves have gone through this cycle. Our college alumni act as role models for current and future team members and offer these members a chance to work with a mentor.

YEAR-ROUND ACTIVITIES



COMMUNITY OUTREACH

2014 - 2015

Started & Coached FLL Team at Boys and Girls Club

We had the opportunity to spend about three days a week coaching an FLL team as a whole FRC group. Overall, it was difficult to educate the kids because they came from diverse backgrounds, but when we realized we had a similar passion with STEM, the whole experience became incredible, as we brought out their hidden potential and maybe even got them hooked on robots and engineering.

FLL Mentoring

We mentored 2 rookie FLL teams 2 years ago and both teams made it to the state championships! Our team also held FLL Training classes on programming, design concepts, project presentations and administrative techniques. We hope to mentor these two teams and many more this year.

One Hour of Code

We were proud to be a part of the One Hour of Code program at a local elementary school. Our team assisted with a demonstration of our robot and how programming is such a part of everything that we use. We hope to support and help make this program grow next year by introducing it to other elementary schools in our area.

Community Events

This past pre-season we volunteered at two elementary schools where we taught the students about how to build FLL robots, a local kids triathlon where we supplied most of the volunteers for the event. In addition to all of these events, we also volunteer and help run two local FLL Regional Tournaments.

2015-2016

Boys and Girls Club Team

We started an FLL robotics team at our local Boys and Girls Club this year. We had over 25 kids participate over the 3 months. They had a great time and participated in a local FLL qualifying tournament.

Community Visits

We also visited a local cub scout pack and showed them our robot and answered lots of their questions.

One Hour of Code

We were proud to be a part of the One Hour of Code program four our 3rd year at Truscott Elementary. Our team assisted with a demonstration of our robot and how programming is such a part of everything that we use.

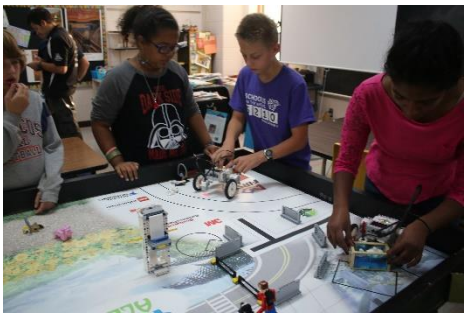
Maker Faire

This year we also participated in our local Maker Faire event. We were able to show our robot capabilities and explore other ideas and creations from local engineers, artists and other enthusiasts

4th of July Parade

We had the opportunity to participate in this year's 4th of July parade. We had so much fun and were able to show how much fun robotics is to our local youth. There were about 2500 people lining the streets of Fort Collins, and were all appreciative of our 2015 Robot, Quasar, kicking the big exercise ball as we walked the parade route.

2016 - 2017

	**Boys and Girls Club Team – 3rd Team** We started an FLL robotics team at our local Boys and Girls Club this year. We had over 25 kids participate over the 3 months. They had a great time and participated in a local FLL qualifying tournament.
	**Community Visits** We demoed our robots at the Boys and Girls summer event, a Boy Scouts Tech day and STEAM camp for low income Hispanic teens.
	**Started a JFLL Team** We started, hosted and mentored an FLL Jr. team this year, our first ever. We taught them how to use gears and motors, and they grew to love building and learning more about animals. We had such a great time getting to know these kids and teach them about motors, gears, and bumble bees!
	**Maker Faire** Our second year at the Maker Faire, we changed some things up. We were able to run our robot Magnetar just outside of the event, so we had plenty of room to drive and shoot balls. We did make-your-own carbon fiber demos, and the biggest hit was our button maker – people could color the paper circles and then make their own buttons. The kids loved the ability to make something of their own after seeing all of our machines and robots.

Summer Camps

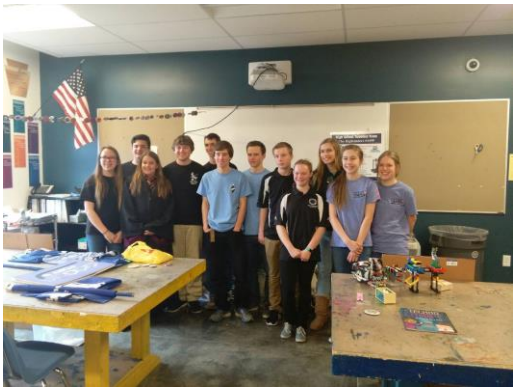
We ran three summer camps this year, an FLL camp (for the 4th year) as well as an FLL Jr. and a Waterbotics camp. All three camps were a great success, and we introduced 40 elementary and middle school students to STEM concepts and to FIRST programs.

Robot Disguise Day

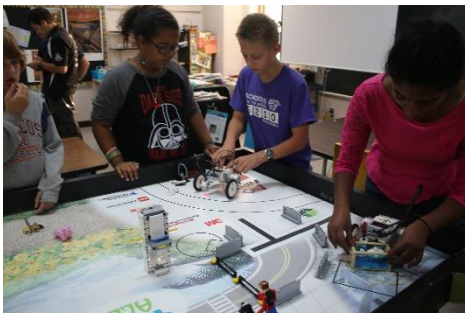
We celebrated our 2nd Annual Robot Disguise Day at a local HP event, by bringing our Dragon Robot there for the employees and their families. The dragon was really our 2016 robot, Magnetar, dressed up! We took the dragon trick-or-treating, and then to a local elementary school as part of their STEM night.

STEAM Fest

In Centerra, we demoed our robot at STEAM fest. We also brought the pool and water robots from our summer Water Robotics camp. We were able to talk to many students about FIRST and FRC especially, and even recruited a few students to join our team.

	**Festival of Ideas** At Liberty Common High School's Festival of Ideas, ¾ levels of FIRST presented, including an FLL team (#009), two FTC teams (#5899 and #9899), and our team. We were able to present for a total of 2 hours, educating both adults and students alike about FIRST and STEM.
	West Woods FLL Teams We started and mentored two FLL teams at West Woods Elementary in Arvada, CO. We went two to three days a week to mentor them at before and after school practices. As they neared state, we mentored them at Saturday practices. One of the teams won second place at the State competition and went on to compete at the Houston World Championships.

2017 - 2018



Boys and Girls Club Team – 4th Team

We started an FLL robotics team at our local Boys and Girls Club this year. We had over 25 kids participate over the 3 months. They had a great time and participated in a local FLL qualifying tournament.

Woodward Family Night

We attended the Woodward family night. Here we were able to show Woodward families some of the fun things we machine and program. We even went a tour of their new facility…and their shop!

STEAM Event

For the 3rd year we attended the Shepardson STEM event. This was a fun filled night that had many different STEAM projects for elementary students. The kids had so much fun playing with our robots! We hope to attend next year.

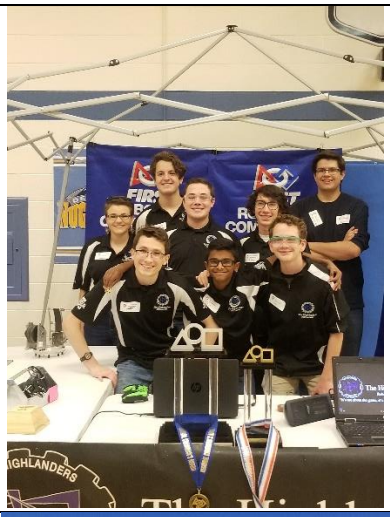
Summer Camps

We ran 2 summer camps this year, an FLL camp (for the 6th year) as well as an FLL Jr. and a JFLL camp. All these camps were a great success, and we introduced 15 elementary and middle school students to STEM concepts and to FIRST programs.

2018 - 2019

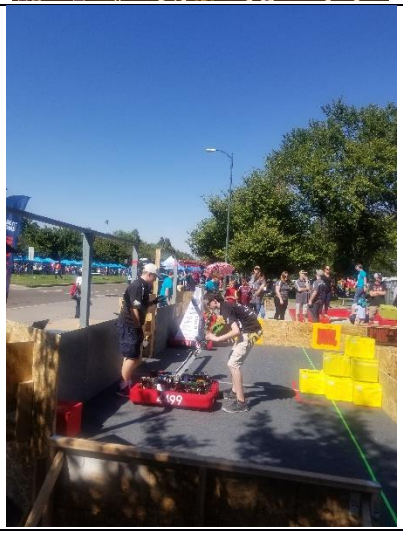
Learning Machining Skills

Since we had new team members we hosted many different machining skill days. In order to do that, we made special turner cubes.



Shepardson STEM event and Woodward Family Night

We attended the Woodward family night. Here we were able to show Woodward families some of the fun things we machine and program. We even go a tour of their new facility…and their shop!



Fall STEM Event

For the first time, we participated in the Stem event hosted by team 1339 and had fun showing our designs with many different vendors.

NEWSLETTERS

We send out a monthly newsletter to all our sponsors that contains information about the team and details our progress as well as events that month during the robotics season. We will do a newsletter during the build season and after tournaments. Below is a screenshot of a link to our newsletter via our website:

January 2014 Fort Collins, CO

FIRST team #4499

The Cyber Cycle

The Highlanders FRC

"The Cycle of Success"

And Our New Season Begins...

aerial assist SM

The Highlanders are working full steam ahead, brainstorming, prototyping, designing, building CAD models and generally moving forward with some great designs!

Aerial Assist is a complicated game, stressing cooperation and passing with teams on the alliance. Teams can score by throwing a 2' ball into the goals on either end of the field, but score more points if the other teams on the alliance have possessed and passed the ball before scoring. Teams can also earn extra points by tossing the ball over a 5' truss in the middle of the field, and even more if another team catches the ball. Other than in the autonomous section at the beginning, there will only be one ball on the field for each alliance. Once an alliance puts the ball in the goal, a human player can put another one onto the field. For a clearer explanation, you can watch the animated video FIRST put out. Go to our website, www.Highlandersfrc.com and click on the Aerial Assist link in the middle of the page.

Who are we? The Highlanders are a team of 24 middle and high school students participating in the FIRST Robotics Challenge. We're located in Fort Collins, CO, and are sponsored by a community-based non-profit. This is our 2nd year as a team, and we're very excited to get started on our 2014 competition.

Www.highlandersfrc.com Debbie@highlandersfrc.com

TRAINING/DEMO SESSIONS

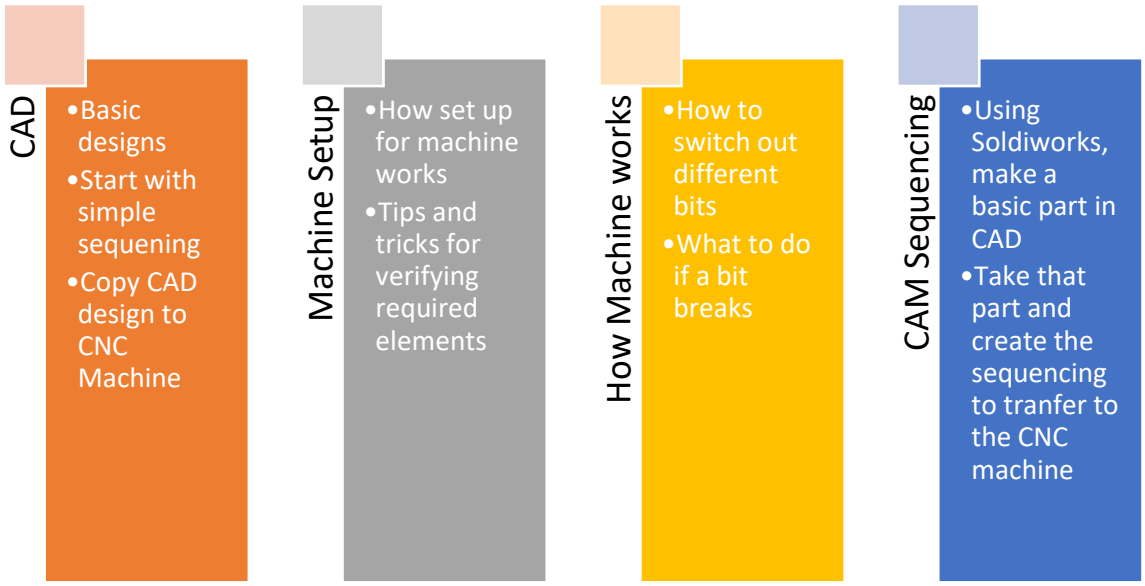
DEMO EVENT

We have demoed our robot at over 55 schools, events and expos over the years. We tailor the content to the audience, especially focusing on school-aged groups. We've developed a recruiting poster to display at these events, alerting middle and high-school students in particular to the opportunities that FIRST provides

TEAM TRAINING

The Highlanders held their own CNC training event. This was organized and put on by our CNC/CAM leaders on the team to help teach the rest of the build team how to run the new CNC machine. They also hosted several workshops over the year to teach other FRC teams how to write custom CAM sequences in SolidWorks.

The training included:



CARBON FIBER TRAINING CLASSES

Over the years, we have made our own carbon fiber for our robots. The light, durable material has been a huge help on the mechanical parts of the robot and the electronics board. Two of our Carbon Fiber team leaders put on a hands-on class at one of our demos on how to make a carbon fiber coaster. This past year we held a similar demo at the Northern Colorado Mini-Maker Faire, exposing far more people to the possibilities of carbon fiber. We have hosted several training classes over the years for other local FRC teams.

TEAM HISTORY

2012-2013

2013-2014

2014-2015

2015-2016

2016-2017

2017-2018

2018-2019

TEAM HISTORY

2013 Season

Dean and Sondra Iverson along with Debbie and Tony English founded the Highlanders Robotics team. The two couples started out separately, each coaching a team of elementary school students in FIRST Lego League. Their teams each continued on to the next level of FIRST robotics, FTC. When both teams considered stepping up to the big leagues, FIRST Robotics Competition, the coaches got together, and decided that the two teams needed to join forces.

We started experime 12, meeting for 10 hours a week. anies and asking for support, w ble to gain support from several , ENCORP, Colorado Iron and Me FleetwoodGoldCoWy ed a grant from NASA. By the er ifferent middle and high scho

TEAM HISTORY

2014 Season

In our second year in FRC, we expanded our boundaries: switching our coding language from Java to C++, creating our very own chassis, customizing our controllers, learning more about the machines, and tinkering with the new CNC Mill and 3D Printer. We had nine new members join the team and it was a great experience getting them up to speed on the machines. Our goal, with our previous experience and new learning, was to further our learning in the world of FIRST.

TEAM HISTORY

2015 Season

During our third season we were actively trying to make ourselves one of the elite teams of FIRST. To that end, we again switched our coding language to LUA, and created a significantly improved chassis. In the summer of 2014, we made a CNC Plasma Jet, adding to the Carbon Fiber, 3D printing, and CNC Milling capabilities of previous seasons. We certainly put the plasma jet to good use, creating sheet metal parts for our robot. Additionally, we clarified our goals and created a plan of action to ensure that we were on the right track to getting to where we envisioned ourselves. With the impending graduation of almost ½ of our team, we implemented a better mentoring system on the team to ensure that team experience wouldn't die out as the seniors leave, including recruiting six new members to the team.

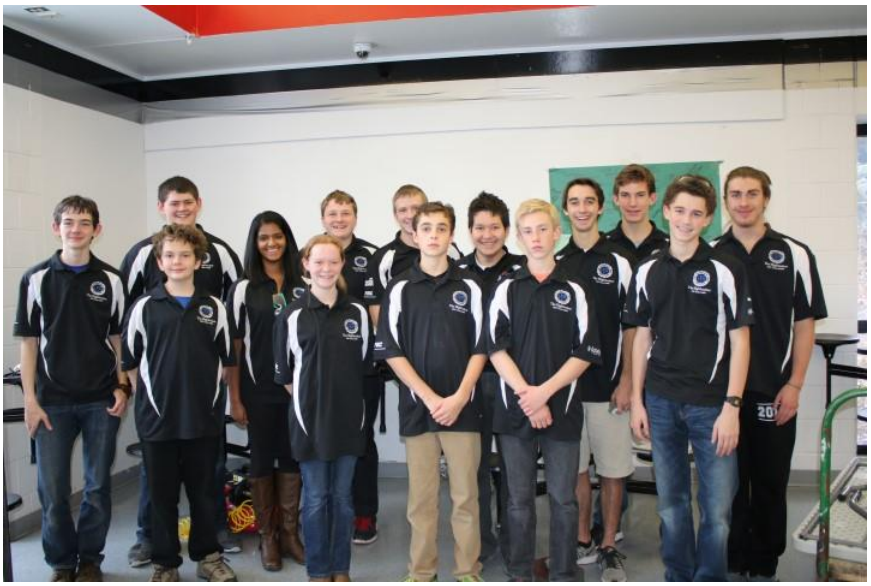
TEAM HISTORY

2016 Season

The 2015-2016 season was extraordinary. We started the year worried about membership levels and the loss of so many seniors, but we rebounded from that to be an even stronger team. With only eight returning members, we spent much of the summer and early fall recruiting and returned our membership count to 22 students. Our team demographics have changed dramatically, as well, with our members distributed over six grades. Returning team members, along with team mentors, spent a lot of time teaching skills to the new students and we wound up with a very well-balanced team.

We still had the support of Neaera Consulting as well as NASA, PTC and Lockheed Martin, plus added PEAK Resources, of Denver CO, as a sponsor.

We increased our machining capabilities, as well, adding a HAAS CNC Mill to our shop.



TEAM HISTORY

2017 Season

Our fifth season went great! We were 17 members strong and our alumni returned in force over the weekends to help mentor us and were instrumental in working with the younger team members to help them through the very busy, high-pressure build season. Even with the graduation of members, we have been able to sustain the team with new members moving up from FTC and past members returning. We attended 3 regionals and the World Championship! We also had a Deans list finalist and a Woodie Flowers Finalist! What an amazing season.

2018 Season

This is our 6th season! We took a significant drop in team members this year. Unfortunately, we had several members move, change to other hobbies or could not make the commitment to the team. We actively recruited throughout our off season, but we realized we need to step up our efforts for next year. This year we had 6 team members and the support of over 10 of our alumni. We took on the phrase this year, “We might be small, but we are mighty”. Each of us stepped up to a leadership role during the season and learned many new parts of the program.

2019 Season

The Highlanders have started their 7th season and we are pleased to announce we have almost than doubled in size since 2018. We are at 11 team members, 4 new to robotics and FIRST and 2 who decided to join after the First Lego League season. Since we have so many new team members, we spent the pre-season designing a chassis, learning machining skills and working on basic and advanced programming skills. The Highlanders have a large support group from alumni and mentors. We decided to keep our design with specializing in a few tasks but doing them very well. And last year at the Oklahoma regional we were one of the finalist and won the Chairman's award!

2020 Season

We have stared our eighth year! Currently we have 11 team members. This year we recruited 2 new members, 1 is new to robotics and FIRST, and the other has had past experience with FIRST. Throughout the preseason we have worked to improver our skills. We have a lot of support form our mentors and coaches who teach and push us to our potential. We are eager to see what the season has instore for us.

PARTNERSHIPS

SPONSORS AND COMMUNITY SUPPORT

SPONSORSHIP LEVELS

SPONSORSHIP PROJECTION

THE HIGHLANDERS SPONSORS

2012-2013

Neaera Consulting Group *$10,000 donation*	**NASA** Grant of $6,500
Encorp $3,000 Donation	**Micron** $10,000 Donation
OtterCares $3000 Donation	**Wolf Robotics** $250 Donation
Home State Bank $250 Donation	**Bank of Colorado** $500 Donation
Trihydro Corporation 19 Laptops Donated	**Family Donations** $4500 Donations

2013-2014

Neaera Consulting Group *$10,000 donation*	**NASA** Grant of $6,500
Encorp $3,000 Donation	**Micron** $5,000 donation and 500 USB Flash Drives
Trihydro 6 laptop and 1 desktop workstation donation	**Front Range Powder Coating** Powder Coating services and supplies donation
Family Donations $5000 Donations	

2014-2015

Neaera Consulting Group *$10,000 donation*	**PTC** Grant of $2,500
Micron $2,500 Donation	**Colorado Metal Distributors** $250 Donation
Trihydro 12 laptops, 4 desktop workstation, 8 monitors donated	**Front Range Powder Coating** Powder Coating services and supplies donation
Family Donations $8,000 Donation	**Lockheed Martin** $2,500 Donation
SheetCAM Free G-Code Software	

2015-2016

Neaera Consulting Group *$10,000 donation*	**PTC** Grant of $2,500
OtterCares $2,500 Donation	**Colorado Metal Distributors** $250 Donation
Trihydro 10 laptops	**Front Range Powder Coating** Powder Coating services and supplies donation
Family Donations $5,000 Donation	**Lockheed Martin** $2,500 Donation
SheetCAM Free G-Code Software	**PEAK Resources** *$3,000 donation*
NASA *$5,000 donation*	

2016-2017

Neaera Consulting Group *$10,000 donation*	**Constant Contact** $750 Donation
SheetCAM Free G-Code Software	**Colorado Metal Distributors** $250 Donation
Trihydro 10 laptops	**Front Range Powder Coating** Powder Coating services and supplies donation
Family Donations $5,000 Donation	**Lockheed Martin** $2,500 Donation

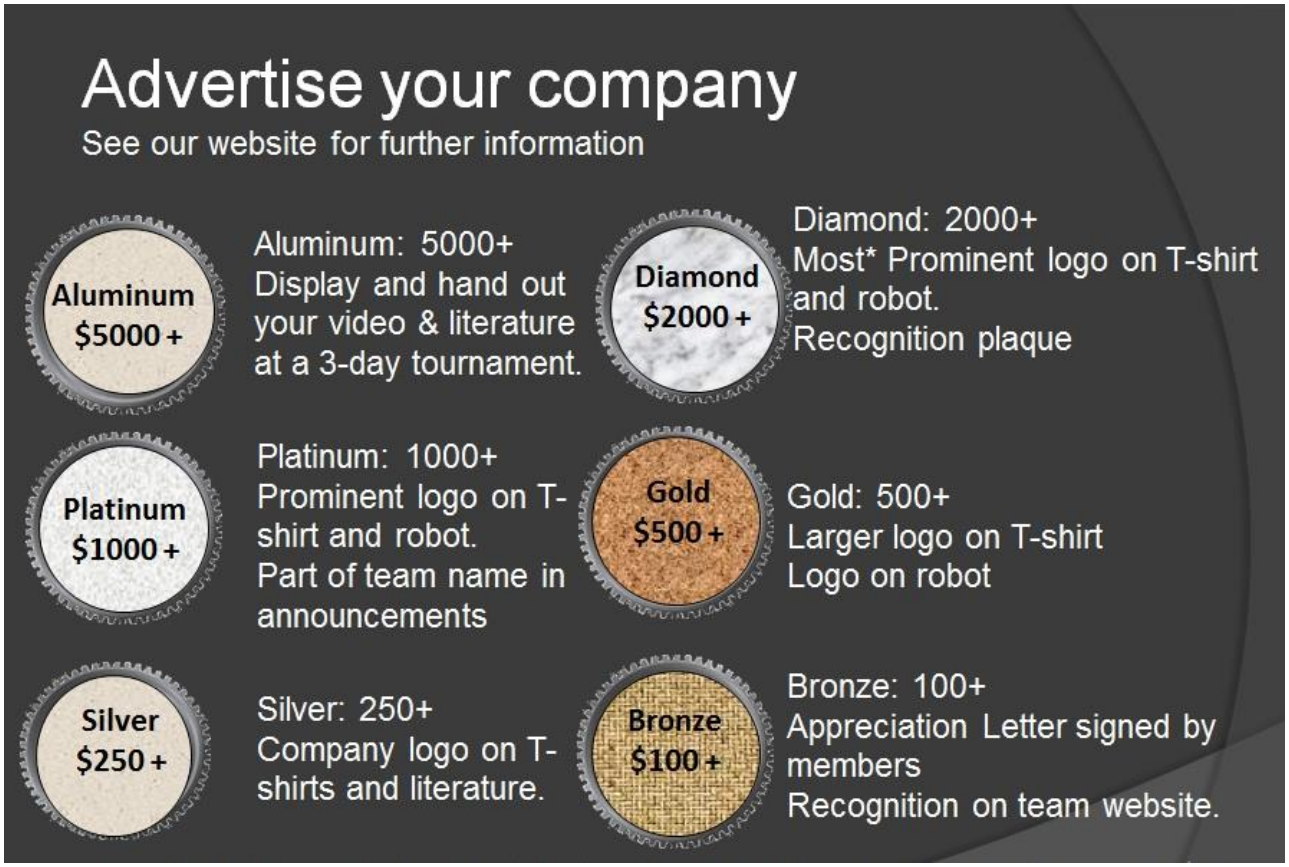
2017-2018

Neaera Consulting Group *$10,000 donation*	**Constant Contact** $750 Donation
SheetCAM Free G-Code Software	**Colorado Metal Distributors** $250 Donation
NVidea $500 donation	**Front Range Powder Coating** Powder Coating services and supplies donation
Family Donations $5,000 Donation	**Lockheed Martin** $2,500 Donation

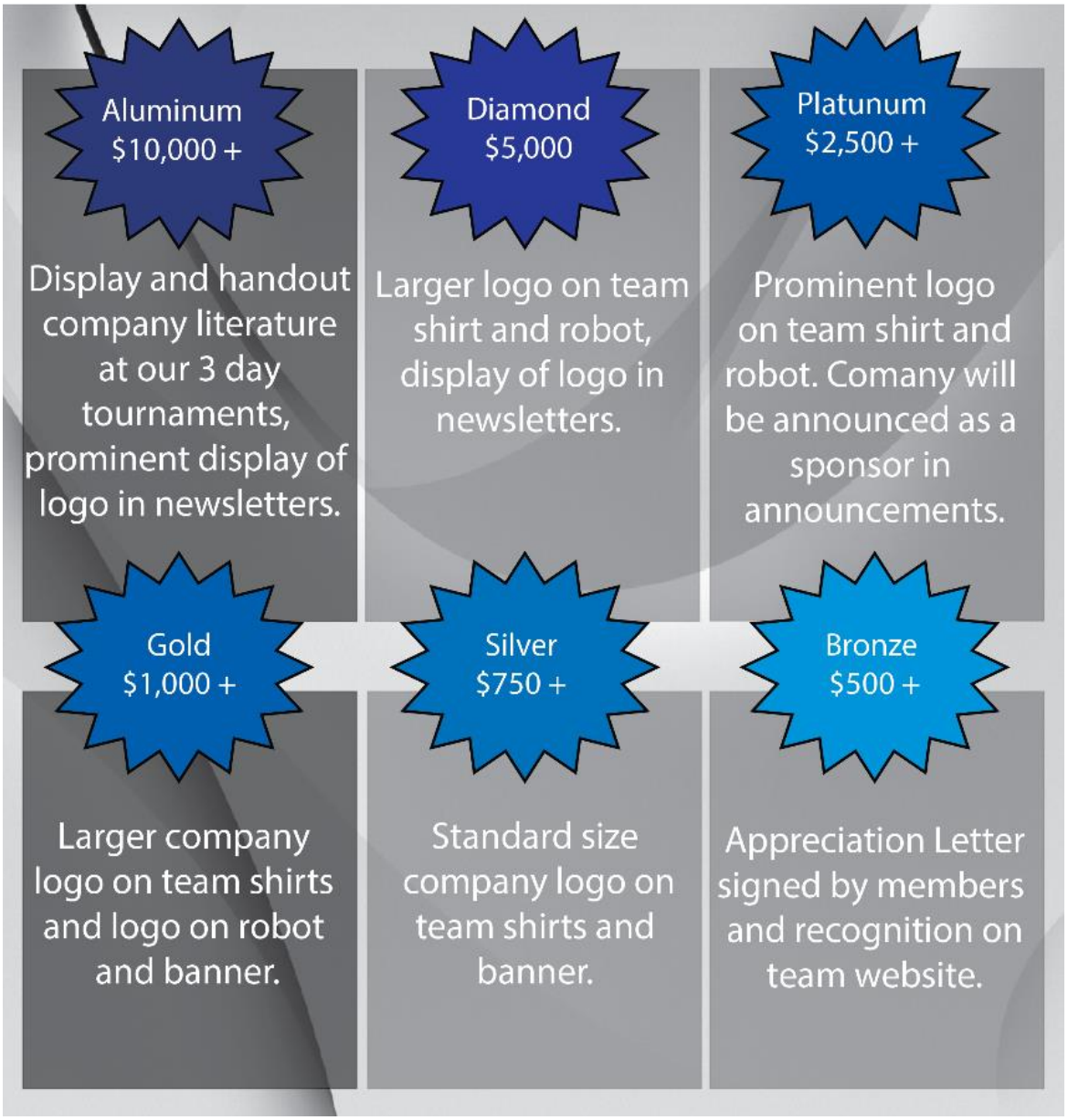
2018-2019

Neaera Consulting Group *$10,000 donation*	**Constant Contact** $750 Donation
Lockheed Martin $2,500 Donation	**Colorado Metal Distributors** $205 Donation
	Front Range Powder Coating Powder Coating services and supplies donation

SPONSORSORSHIP LEVELS (2018)



SPONSORSORSHIP LEVELS (2019)



SPONSORSHIP PROJECTIONS

	2018-2019	2017-2018	2018-2019	2019-2020
Grants				
National	$10,00	$12,000	$15,000	$15,000
Local	$5,000	$10,000	$12,000	$13,000
Local Businesses				
Sponsors	$12,00	$12,000	$13,000	$13,000
General Donations	$5,000	$6,000	$8,000	$9,000
National Businesses				
FIRST Sponsors	0	0	0	0
Family Donations				
Member families	$3,000	$2,500	$3,000	$3,500
General Family	$1,000	$800	$1000	$1000

LEADERSHIP AND ORGANIZATION

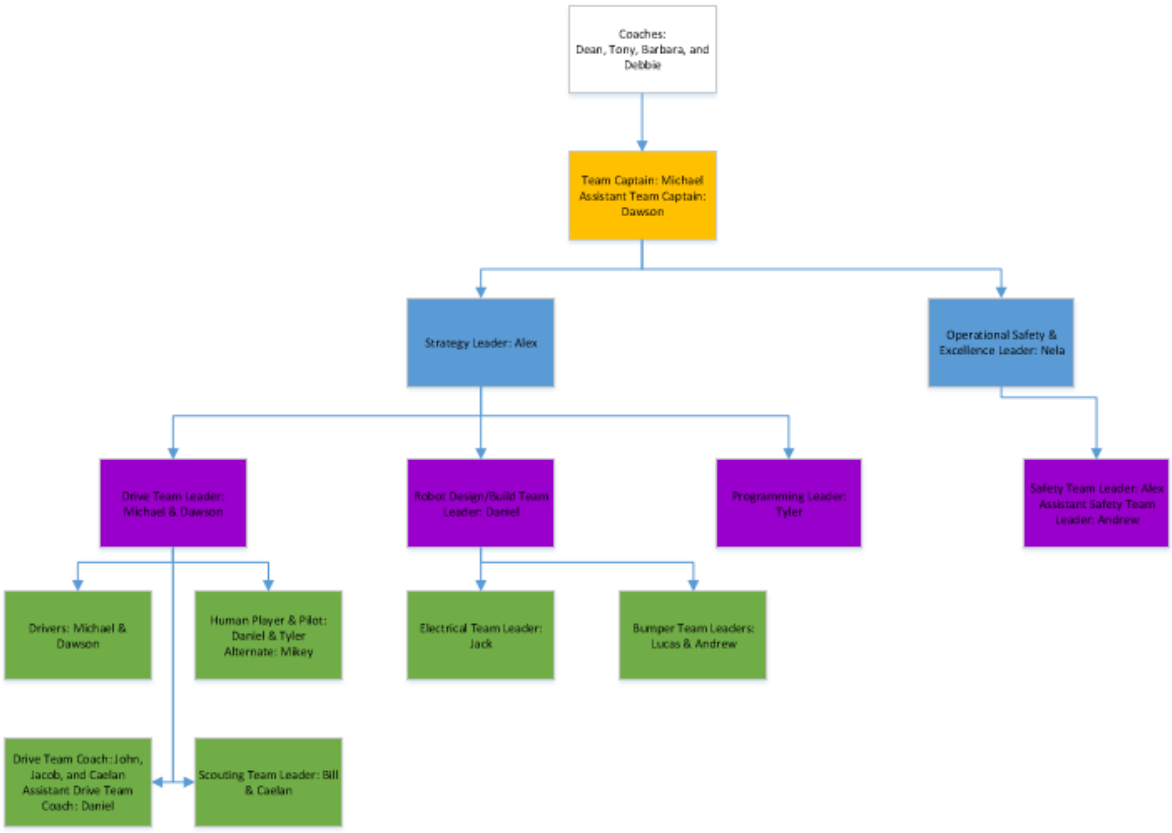
Explanation
Alumni Support
Organization Chart (2018)
Leadership Role Expectations (2018)
Organization Chart (2019)
Leadership Role Expectations (2019)
Mentors
Membership Application
School/Grades Expectations
Website

LEADERSHIP EXPLANATION

Structure is a very important aspect of our team; it gives people a general idea of who to go to if they need help in a certain area. It also provides a list of who will be in charge of making sure that certain things get done and who is responsible if tasks aren't completed. The main departments we created are Strategy and Operational Safety & Excellence (OSE). The leaders of both these teams report directly to the team captain, who links them. Strategy branches into Drive Team, Robot Design/Mechanical, and Programming teams. OSE goes into Safety, Business/Marketing, and Tournament Logistics. We structured the team this way to put a higher focus on the business side of robotics and have divided the team into two organized, yet collaborative entities. To retain the skill set of the graduating seniors, many positions have "Co-Leads," so that the younger kids get experience leading the team before they are put in the hot seat. Overall, this leadership system has been extremely effective for team dynamics and productivity, and helps prepare for the inevitable graduation of leaders. When more opportunities for leaders arise, the strength of leadership continues throughout the years.

ORGANIZATIONAL CHART

2017 Season Team Organization Chart



JOB DESCRIPTIONS

TEAM CAPTAIN

Duties: Ensures that entire team is focused on same goal and working to same schedule. Coordinates change process, so that OSE and Strategy teams work in tandem effectively and efficiently.

Roles and Responsibilities: Check in with each sub-team leader daily. Solve conflicts between the sub-team goals and plans. Delegate tasks to members looking for work.

Qualifications: Leadership skills. Ability to see 'bigger picture.' Knowledgeable about many different areas of the team. Ability to speak productively with a variety of people.

STRATEGY LEAD

Duties: Need to integrate design, build and programming to reach team objectives. Authority and central coordination for all strategic decisions regarding the robot.
Roles and Responsibilities: Organize the team's strategy discussions and think tanks. Guide team members on how to achieve robot objectives.
Qualifications: Must be able to quickly and efficiently large amounts of game-related information. Must be familiar with Strategy tactics.

OPERATIONAL SAFETY & EXCELLENCE

Duties: Organizing the documents for submissions and helping out with necessary. Ensuring that each document is completed with quality. Guaranteeing chairman's team ready to present to judges.
Roles and Responsibilities: Keeping tabs on all the due dates and double checking work. Leading Chairman's group. Ensuring that the Safety Team has all the resources they need to teach and maintain safety standards.
Qualifications: Adequate knowledge of all activities done business and community-wise by the team. Good handle on safety procedures. Effective communicator.

DRIVE TEAM LEAD

Duties: Coordinate drive, rules, game play and scouting teams. Aid team captain and coaches in selection of drivers and human players for competitions.
Roles and Responsibilities: Act as coach during competition matches. Pass on driving knowledge to newer members.
Qualifications: Know game rules and regulations. Understand strategy, robot and driver capabilities.

ROBOT DESIGN/BUILD TEAM LEAD

Duties: Coordinating efforts to build the physical components of the robot. Areas include welding, CAD, CNC, electrical and mechanical build. Maintaining build deadlines.
Roles and Responsibilities: Ensure that shop remains stocked with necessary supplies. Manage the flow of parts through the shop from one build stage to another. Maintain the organization systems.
Qualifications: Familiarity and general proficiency in skills used in all build areas. Ability to keep tabs on several concurrent processes. Facilitate offseason teaching.

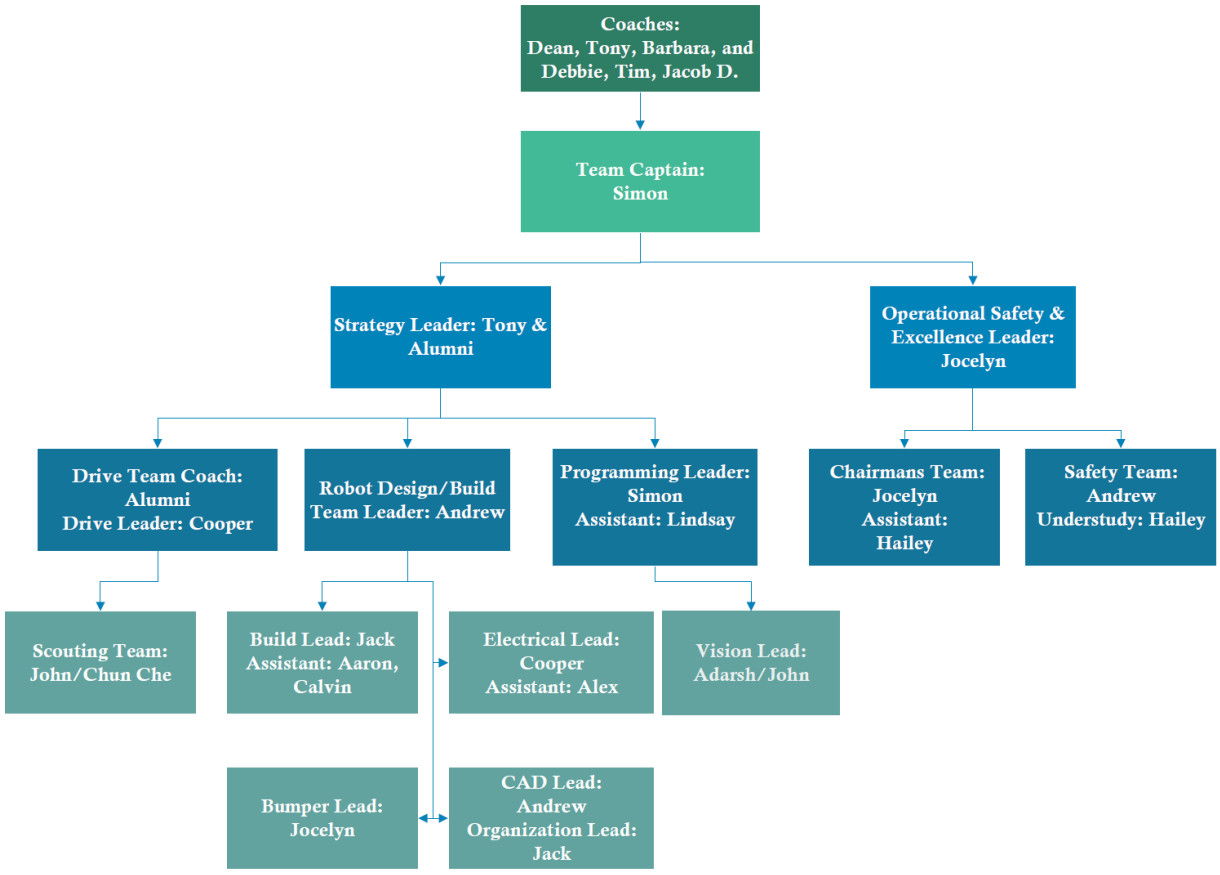
PROGRAMMING TEAM LEAD

Duties: To coordinate a team to create a tele-op and autonomous program for the robot
Roles and Responsibilities: Create and carry out a plan to program the robot.
Qualifications: Leadership skills. Ability to program in java and to use and program encoders.

SAFETY TEAM LEAD

Duties: Ensure that the team follows FIRST safety principles. Coordinate team efforts to monitor and ensure safety in the shop and at tournaments, coordinate safety education efforts at tournaments and create and update a safety manual.
Roles and Responsibilities: Perform periodic safety checks. Train team on safe procedures and provide safety tips to the team. Complete any paperwork necessary for injuries incurred for the team. Print and post safety signs for pit at tournaments and the shop.
Qualifications: Knowledge of FIRST safety rules. First Aid skills a plus.

2019 Season Organization Chart



2019 Season Team Roles

STRATEGY LEAD

Duties: Need to integrate design, build and programming to reach team objectives. Authority and central coordination for all strategic decisions regarding the robot.

Roles and Responsibilities: Organize the team's strategy discussions and think tanks. Guide team members on how to achieve robot objectives.

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PROGRAMMING TEAM LEAD

Duties: To coordinate a team to create a tele-op and autonomous program for the robot

Roles and Responsibilities: Create and carry out a plan to program the robot.
Qualifications: Leadership skills. Ability to program in java and to use and program encoders.

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Qualifications: Knowledge of FIRST safety rules. First Aid skills a plus.

VISION TEAM LEAD

Duties: To design and implement basic vision targeting using a Jevois camera and detect reflective tape. Send Distance and angle over serial to the RoboRio and communicate with the drivers.
Roles and Responsibilities: Learn the Jevois camera and how OpenCV works and create a custom python program to detect the game specific reflective tape.
Qualifications: Knowledge and interest to program and learn python. Have basic math skills to calculate the distance and angle from a picture.

ELECTRICAL TEAM LEAD

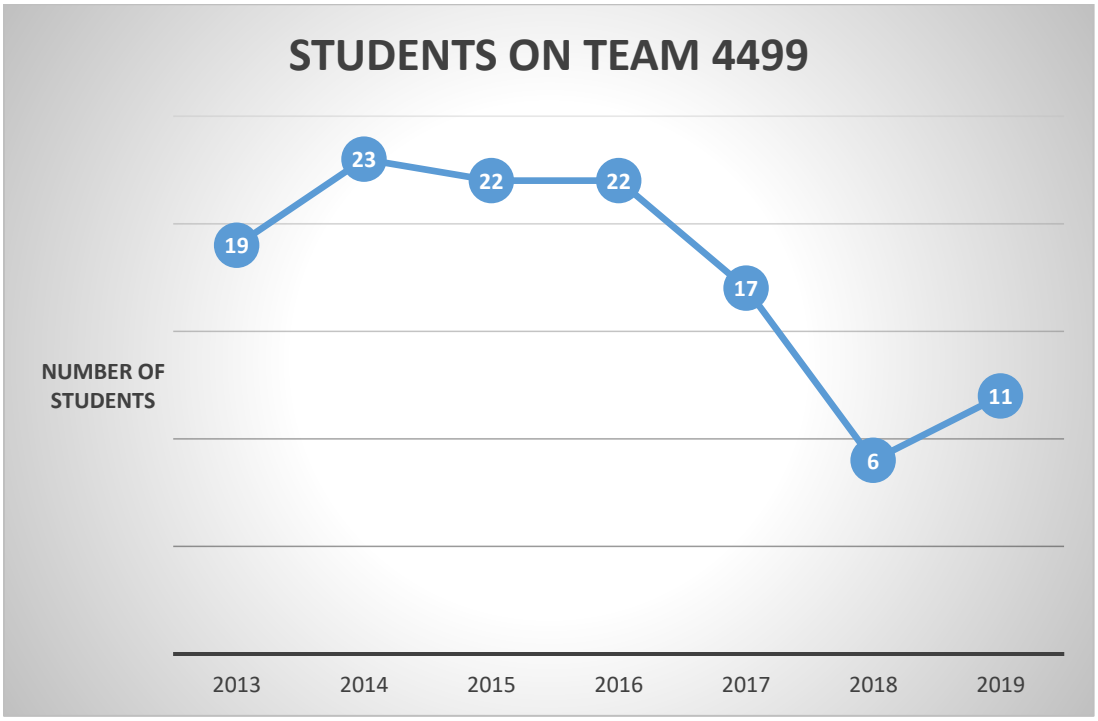
Duties: Design and implement an organized layout for all electronics for a FRC robot. Be able to work with sub teams to accomplish this task and implement on a robot.
Roles and Responsibilities: Have the ability to CAD electronics and layout in the best efficient layout possible while following all FIRST FRC game rules.
Qualifications: Knowledge of CAD and knowledge of FRC electronics and pneumatics rules.

CAD TEAM LEAD

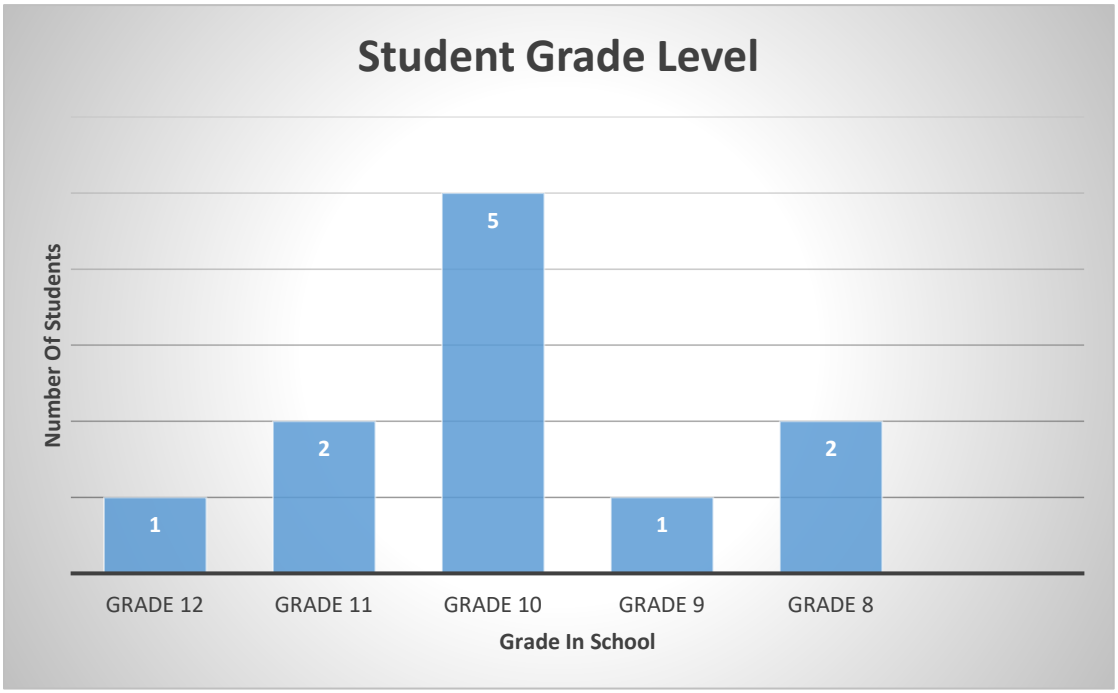
Duties: To understand Solidworks, be able to design and create basic robot designs and mechanism. Also, understand and set up a team working environment using a cloud base source control for CAD like GrabCad.
Roles and Responsibilities: To manage and maintain a working CAD environment for the design of the 2019 robot and have the ability to work on different subassemblies with different team members.

Qualifications: Have prior understand of basic SolidWorks foundations and knowledge of how to design.

2020 Season Team Roles

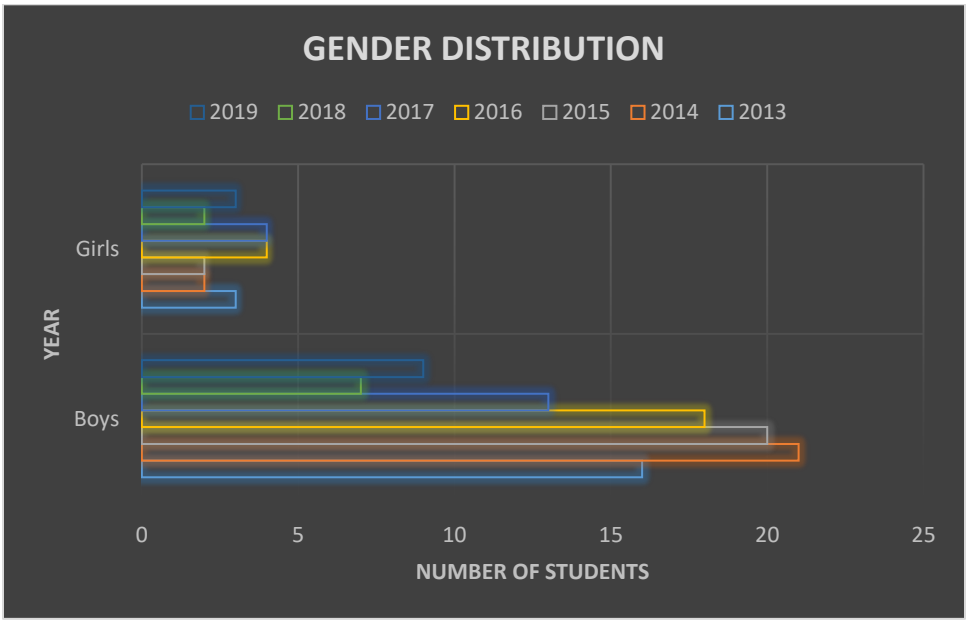


Number of students on FRC Team #4499



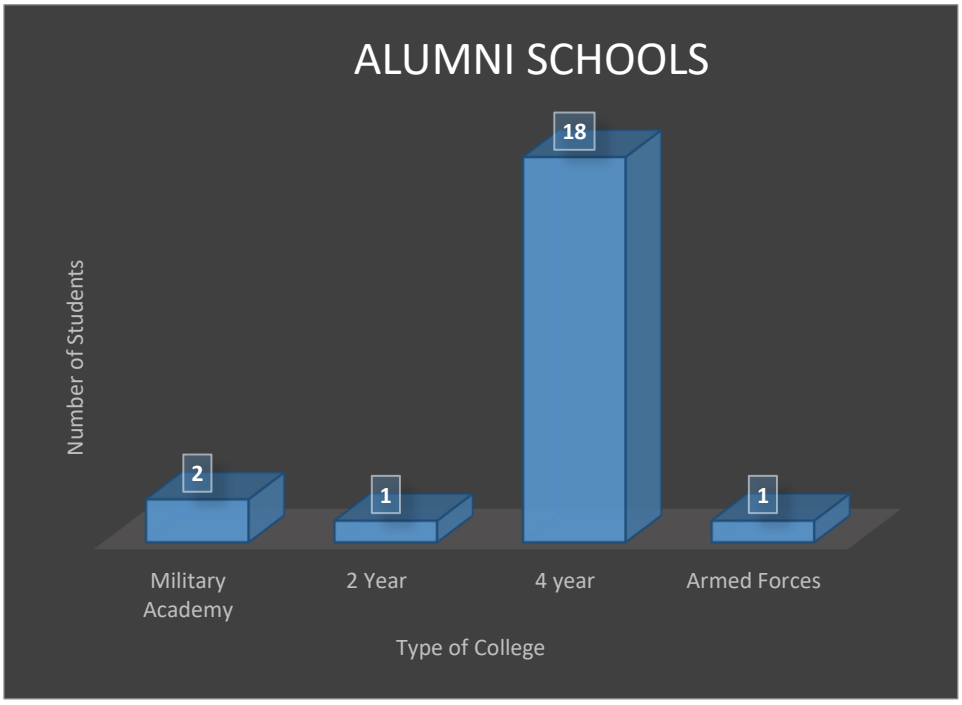
Number of students per grade on team #4499

TEAM STATISTICS

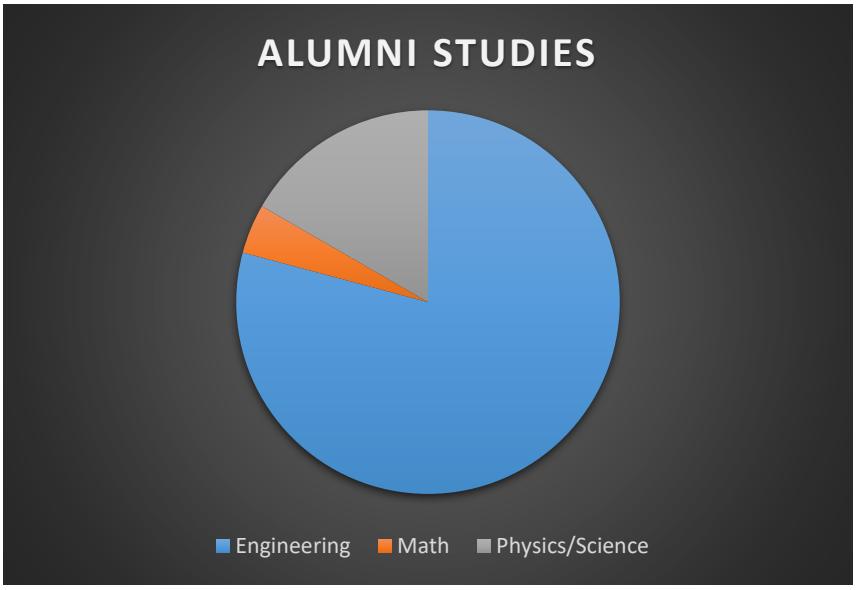


Gender Distribution on team 4499 throughout team history

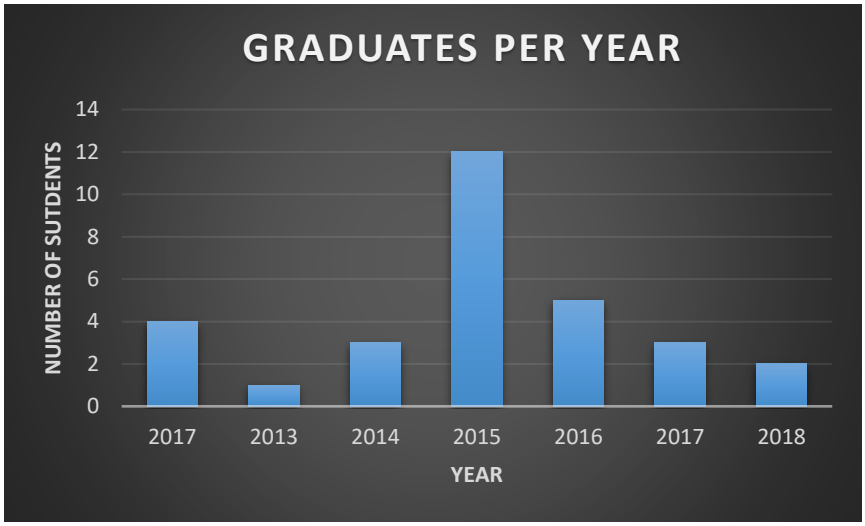
TEAM ALUMNI STATISTICS



Alumni Types of further studies



Types of studies by all alumni since 2013



Graduates per year since 2013

ALUMNI SUPPORT

The Highlanders have enjoyed great support from our Alumni, with 64% or our graduates coming back to assist the team. One of our alums has been a judge at three consecutive World Championships and one regional event.

2017 Alumni Mentors:
John Wiens, Electrical Engineering, Colorado School of Mines
Jacob Frye, Physics and Mechanical Engineering, University of Colorado
Caelan Gockeler, BioMedical and Electrical Engineering, Colorado State University
Drew Johnston, Computer Science, Colorado State University
Alex Frye, Electrical Engineering, South Dakota School of Mines
David Gronlund, Computer Science, Carnegie Mellon University
Will Werst, Electrical Engineering, Cal Tech University

2018 Alumni Mentors:
John Wiens, Electrical Engineering, Colorado School of Mines
Jacob Frye, Physics and Mechanical Engineering, University of Colorado
Caelan Gockeler, BioMedical and Electrical Engineering, Colorado State University
Drew Johnston, Computer Science, Colorado State University
Alex Frye, Electrical Engineering, South Dakota School of Mines
David Gronlund, Computer Science, Carnegie Mellon University
Michael English, Mechanical Engineering, Colorado School of Mines
Alex Gronlund, Mechanical Engineering, South Dakota School of Mines

2019 Alumni Mentors:
John Wiens, Electrical Engineering, Colorado School of Mines
Jacob Frye, Physics and Mechanical Engineering, University of Colorado
Drew Johnston, Computer Science, Colorado State University
Alex Frye, Electrical Engineering, South Dakota School of Mines
David Gronlund, Computer Science, Carnegie Mellon University
Michael English, Mechanical Engineering, Colorado School of Mines
Alex Gronlund, Mechanical Engineering, South Dakota School of Mines
Dawson Scheid, Mechanical Engineering, WPI

2020 Alumni Mentors:

John Wiens, Electrical Engineering, Colorado School of Mines
Jacob Frye, Physics and Mechanical Engineering, University of Colorado
Drew Johnston, Computer Science, Colorado State University
Alex Frye, Electrical Engineering, South Dakota School of Mines
David Gronlund, Computer Science, Carnegie Mellon University
Michael English, Mechanical Engineering, Colorado School of Mines
Alex Gronlund, Mechanical Engineering, South Dakota School of Mines
Dawson Scheid, Mechanical Engineering, WPI
Lyndon Salts

PROFESSIONAL MENTORS

Tony English
5819 Highland Hills Cir
Fort Collins, CO 80528
Mechanical Engineer
Machine Expert/Shop owner

Debbie English
5819 Highland Hills Cir
Fort Collins, CO 80528
Computer Scientist
Programming team, community outreach and general team timelines

Dean Iverson
4220 Center Gate Ct
Fort Collins CO 80526
Electrical Engineer
Electronics Expert/ Design/strategy

Sarah Wingate
Lockheed Martin
Environmental Engineer
11057 Needles Ct
Parker CO 80138
Project Management/Team sponsor

Tim Frye
SSD Firmware Engineer
1826 Rosemary Court
Fort Collins CO 80528
Programming team/Design/Strategy

Barbara Frye
1826 Rosemary Ct
Fort Collins CO 80528
Mechanical Engineer
Design/Community outreach

Mitch Sherburne
Front Range Powder Coating Inc
120 Commerce Drive Unit 2
Fort Collins CO 80524
Powder coating services & supplies

Jacob Darling
Mechanical Engineer
FleetwoodGoldcoWyard
5605 Goldco Drive
Loveland CO 80538
Design/CAD/Strategy/Game Play

Cody Clayton
AMD
3636 Manhattan Ave.
Fort Collins, CO 80526

MEMBERSHIP APPLICATION

THE HIGHLANDER'S ROBOTICS APPLICATION		
MEMBER INFORMATION		
Name:		
Home address:		
City:	State:	ZIP Code:
Birth Date:		
Home Phone:	Cell Phone:	Receive texts? Yes No
Current School:		
Grade: 8 9 10 11 12		GPA:
Other Contact info: (Facebook, etc.)		
You do have a drivers License? Y/N Do you have your own vehicle? Y/N		
Do you need a ride to practices or meetings? Y/N		

PARENTS(S) INFORMATION		
	Parent 1	Parent 2
Name:		
Address		
Home Phone		
Cell Phone		
Email		
Interested in volunteering?		
If so how?		

MEDICAL INFORMATION		
Any Medical Conditions?		
Allergies?		
Physician	Phone Number:	
Emergency Contact:	Phone number:	

FIRST/ ROBOTICS EXPERIENCE		
Please check special interests		
☐ Programming (C#, Java)	☐ CAD	☐ Photography / Videography
☐ Metal working	☐ Marketing (Design flyers/handouts, etc.)	
☐ Electrical (wiring, circuit boards)	☐ Website development	☐ Other _____
Select the past robotics experience:		
☐ FLL _____ # years/seasons	☐ Vex Robotics _____ #years	
☐ FTC _____ # years/seasons	☐ Other _____ # years_____	
Check the classes you have taken in school that can give you skills that will help on a robotics team:		
☐ Intro To Engineering	☐ Photography	☐ Technical writing
☐ CAD	☐ Videography	☐ Programming
☐ Robotics	☐ Journalism	

THE HIGHLANDER'S ROBOTICS APPLICATION

HOBBIES

List any hobbies you are interested in:

AFTER SCHOOL COMMITMENTS

Please list what after school activities you are involved with throughout the year:

Name	Time of year	# hours

ROBOTICS INTEREST

List Robotics interest		
Please select the sub-team on an FRC team that you would be interested in?		
☐ Build Team	☐ CAD team	☐ Programming
☐ Business (public relations, marketing)	☐ Videography	☐ Photography
☐ Website		

SHORT ANSWERS

Please take time to consider your answers for each of the following questions. There are no right or wrong answers, your answers will assist in selection to/placement on the robotics team. Feel free to attach additional paper or type your responses if easier.

Why do you want to join this team?

What qualities/experiences do you have that would make you a significant contributor to our team?

CODE OF CONDUCT	
Please read the following and sign	
☐	I agree to actively participate during the pre-season, build season and competition season and accept your role on the team as assigned by the team mentors and team leaders.
☐	Our team has a very intense philosophy and realize that this team might not be for everyone. You must agree to commit, as much as possible, to the team during the build and tournament seasons. Understand that we practice almost 7 days a week for 5-8 hours per meeting. The lack of commitment to the team will likely hurt the design and build phases of this program.
☐	You become a part of a team and collectively work toward a defined goal.
☐	Maintain your school homework and GPA. The team coaches/mentors will expect your homework to come first and assist you in any help you need with accomplishing this task. This will not be actively monitored by the coaches/mentors, but it is required for your parent/guardians to keep track of.
☐	Agree to attend the mandatory Kick Off Day (either at the event, or after the event at the defined location) January 4th, 2014. This is when the game and tasks are announced and starts the beginning of the season and is when our brainstorming begins.
☐	Agree to stay with the team while at a tournament and understand that there is much time that is un-supervised by a mentor. During this time, you are expected to be courteous to other teams, coaches and spectators. You are also required to assist the team in any support needed, but stay with the team during the duration of the tournament. You will also be required to check in and out with a coach/mentor.
☐	Agree to assist in fundraising to offset expenses.
☐	You respect all members of the team as well as the adult coaches, mentors and engineers.
☐	You check your email and the team website daily for updates and other important information regarding team business.
☐	Agree to sign in and out, fill out the attendance log, when you arrive and leave from each meeting.
☐	Agree to follow all safety rules, clean the work area and put all items back where they belong.
☐	Agree to be courteous and respectful when visiting or working at corporate sites
	To be filled out by Parent/Guardian
☐	Have read the team handbook and agree to responsibilities and expectations defined.
☐	Commit to a level of support (donating meals, snacks, etc.), transportation of your own child to and from meetings and tournaments

SIGNATURES	
I agree that I will commit to the above requirements.	
Signature of applicant:	Date:
Signature of parent/guardian	Date:

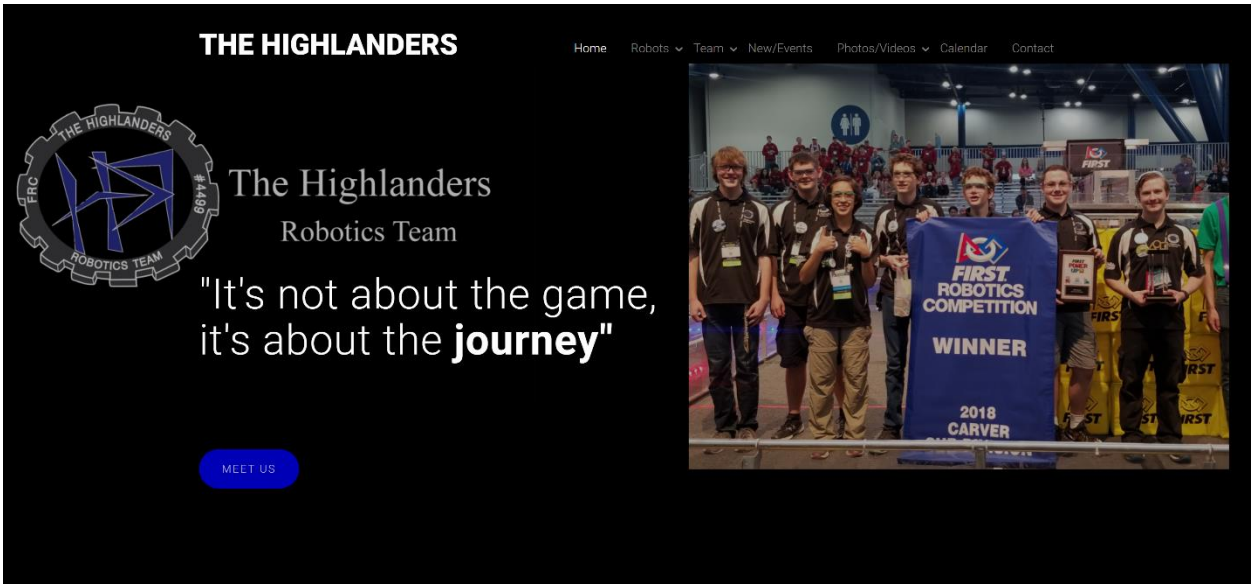
MEMBER ELIGIBILITY	
Please read the following and sign	
1.	Members must be attending school, middle school or high school.
2.	Members must maintain a grade point average defined by your parents/guardian.
3.	Members must be willing to make a significant commitment to the team, actively participate in meetings, workshops and events. Especially during January – April.
4.	Members are expected to be reliable (on-time, prepared to work, clean up, positive attitude, assist new members, and work with adult mentors and volunteers) and assist in teams administrative tasks.
5.	Members must attend the Kick-Off event (January 6th, 2014) either at the actual hosted event or the after event brainstorming session.
6.	Participate in a minimum 90% of all meetings, with less and 10% as unexcused absences.
7.	Have read the Handbook and agree to details written.
SIGNATURES	
I agree that I will commit to the above requirements.	
Signature of applicant:	Date:
Signature of parent/guardian	Date:

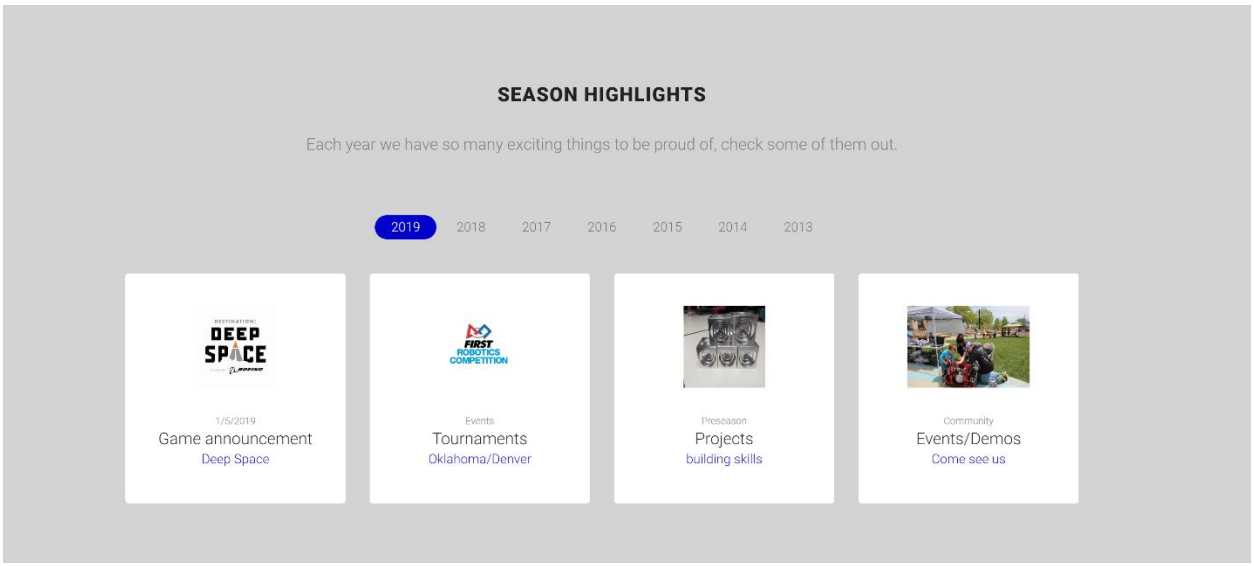
GRADES AND EXPECTATIONS

Even though we all are very devoted to robotics, we still have to attend school. Balancing school with the six-week season can be very difficult. We care about our grades to the utmost degree and will always say school comes first and try our best to make sure everyone does not fall behind. Before going into the shop, all homework must be completed in order to keep priorities straight. We allow anybody that is struggling in a class or classes to be absent from robotics in order to catch up and improve their grade. We go out to the shop in shifts, people with little homework take the first shift until dinner, and the second shift is after dinner and compromised of the people who need a little extra time to finish homework in the early hours of practice. This allows everyone to finish their homework before doing any robotics. For the competitions we attend, our team coaches will email all of our teachers and inform them that they have students that are part of an FRC team and will be absent in order to attend a tournament. The Highlanders FRC is a robotics team that doesn't only care about its members' knowledge of robotics, but also their success in school.

TEAM WEBSITE

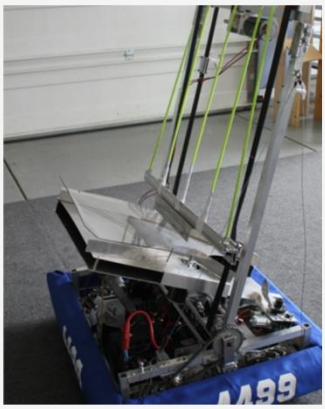
Our team re-designed our website this fall and created a Visual Studio, C# application that is hosted with Microsoft Azure. We created this as a fully responsive and bootstrapped solution.



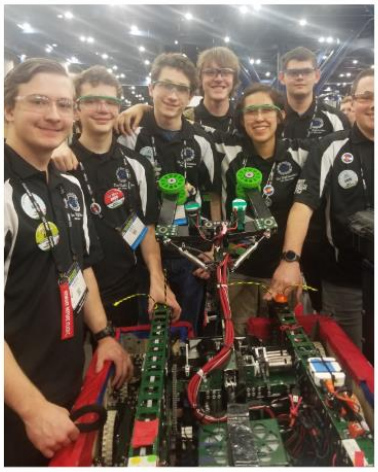


OUR ROBOTS

The Highlanders are proud to introduce our robots. Each one was built with passion and commitment, and each one has its own story!




FIRST




What We Need To Succeed
Mentors
Business Professionals
Sponsors

Team Events

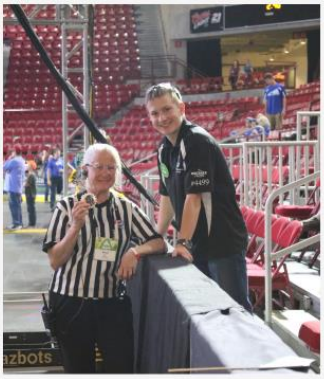
See when we will be next!

EVENTS

Resources

Training & resources

RESOURCES



Parent Portal

Get up to date information about team information.

PARENTS

Meet the Team

Meet the team.

TEAM

Mentors

Meet our mentors!

MENTORS

Photos/Videos

See our season photos

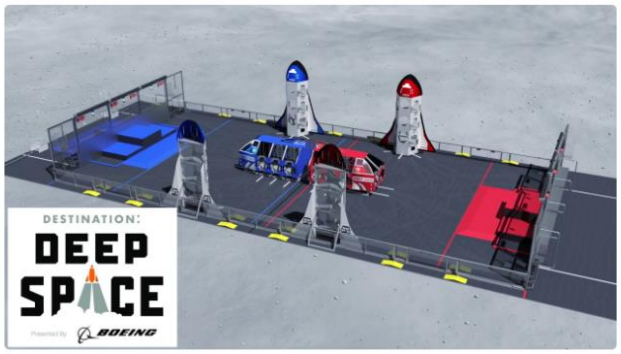
MEDIA

News & Events

See what we have been up to and what we will be doing.

21 Jan

New



The Highlanders just started their 2019 Season - Deep Space.

We are working hard building a robot to play this game, and we only have 6 weeks! Check back with us soon to see our robot.

11 OCT

Updated

EVENT/NEWS

We will be running/hosting the Liberty FLL tournament on Nov. 3

Come see some of our robots!

IRI Tournament - We just returned from IRI and had a great time.

Check On

2018 Houston World Championship Finalist award Winner! Congradulations to The Highlanders!

See our Champs

2018 Energy Day - Winners and recipiant of the STEM Award!

See our Champs

OTHER NEWS

Calendar

Chief Delphi

Parent Information Page

We will post important parent informatin and link so check back often.

21 JAN 19
New

New Team Website!

Website

Introducing our new team website! Please let us know if you see any errors or problems...but keep in mind we have written this website in our "spare" time and voluntarily. We hope that this site can be helpful as well as a place to update family and friends with what the team is up to! Any suggestions would be great,just give us time to integrate them! We now have a calendar that will allow family members to sign up for meals. :)

30 DEC 18
New

Team Presentation

Todays meeting

Here is the link to the parent meeting on 12/30/19. Send any questions or concerns our way.

VIEW PRESENTATION >

30 DEC
New

Kick off is 1 week away! Check out the team calendar for practice days/times

1/5/2019 - 8:00am-9:00pm

RECENT EMAILS

2019 Deep Space has been Announced!
Visit Deep Space

Please check the meal calendar and sign up when you can.
Visit Calendar

Practice days - Mon/Tues/Thurs/Fridays 3:30-9:00 and Saturdays 09:00pm-09:00pm
Go to our Calendar

DOCUMENTS

» Liability Waiver

» Comming soon...upcoming Travel details

QUICK LINKS

FIRST CHIEF DELPHI

FACILITIES

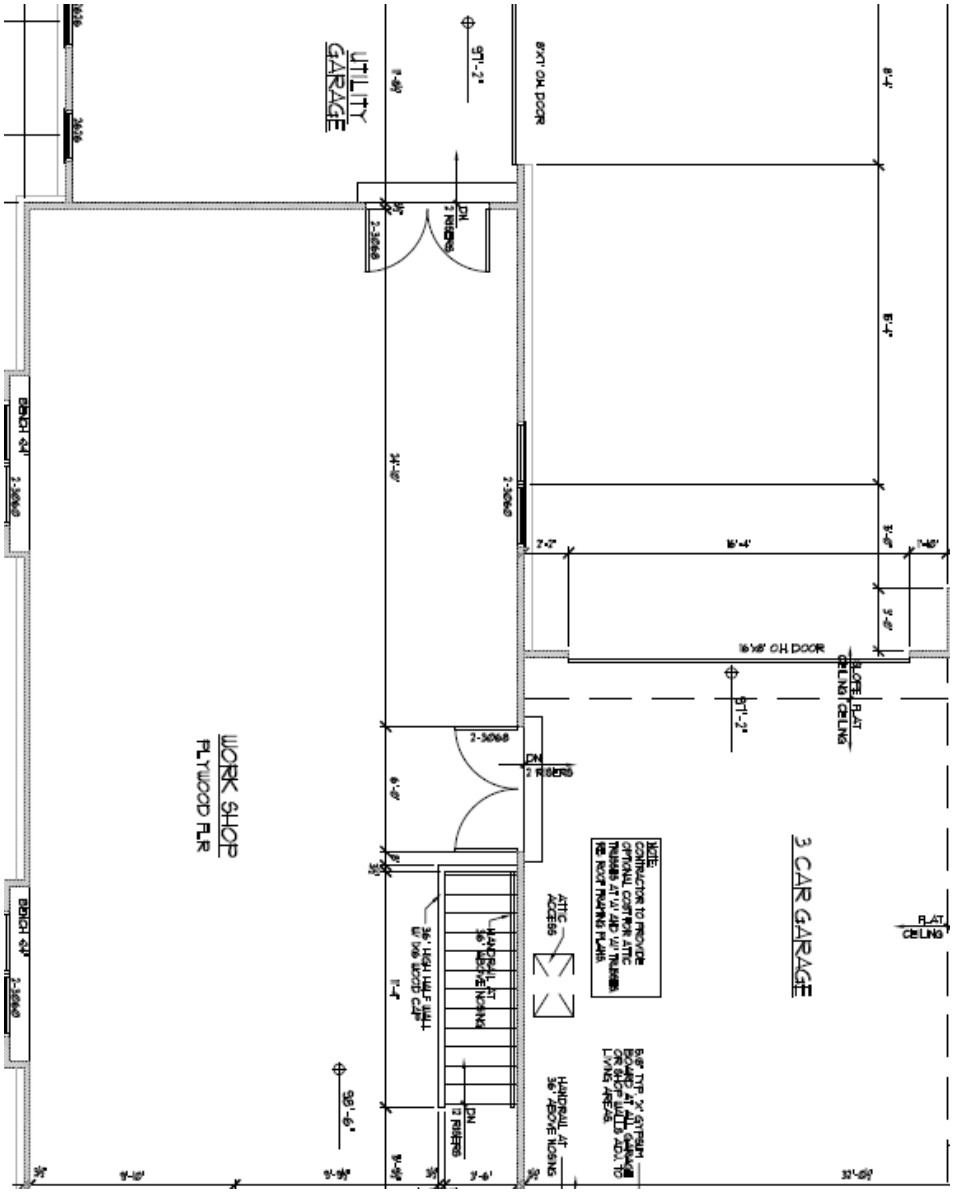
Our facility

Floor plan

FACILITY

Our facility is furnished with the tools necessary to build a robot like a mill, lathe, welder, and our favorite, the CNC Mill. We have places for the build team, programming team, and CAD team to work without feeling crowded. The shop is connected to the house, a place where we can do homework and go to eat. Over the season, the place becomes our second home (we do spend more time here than in our own households!)

FLOOR PLAN


UTILITY GARAGE
WORK SHOP
PLYWOOD FLR
3 CAR GARAGE
16'X8' OH DOOR
ATTIC ACCESS
HANDRAIL AT 36" ABOVE NOSING
FLAT CEILING

FINANCES

Neaera Robotics Foundation Documentation

Budget 2012-2013

Budget 2013-2014

Budget 2014-2015

Budget 2015-2016

Budget 2016-2017

Budget 2017-2018

Budget 2018-2019

NEAERA ROBOTICS INC. FOUNDATION DOCUMENTATION

Neaera Robotics Executive Summary

Neaera Robotics will work as a nonprofit company working with middle school and high school aged children developing in the fields of science technology, engineering and mathematics through the interest of building robots. We aim to also guide and mentor youth with real life business interactions with businesses within the community. Our main focus is to work with a group of students to develop an understanding of engineering through developing robots that have practical use. We will also assist these students in competing in the FIRST FRC challenge.

Neaera Robotics Determination Certificate

INTERNAL REVENUE SERVICE
P. O. BOX 2508
CINCINNATI, OH 45201

DEPARTMENT OF THE TREASURY

Date: SEP 24 2012

NEAERA ROBOTICS INC
5819 HIGHLAND HILLS CIR
FORT COLLINS, CO 80528

Employer Identification Number:
46-0631995
DLN:
17053236334022
Contact Person:
DEL TRIMBLE ID# 31309
Contact Telephone Number:
(877) 829-5500
Accounting Period Ending:
December 31
Public Charity Status:
170(b)(1)(A)(vi)
Form 990 Required:
Yes
Effective Date of Exemption:
July 23, 2012
Contribution Deductibility:
Yes
Addendum Applies:
No

Dear Applicant:

We are pleased to inform you that upon review of your application for tax exempt status we have determined that you are exempt from Federal income tax under section 501(c)(3) of the Internal Revenue Code. Contributions to you are deductible under section 170 of the Code. You are also qualified to receive tax deductible bequests, devises, transfers or gifts under section 2055, 2106 or 2522 of the Code. Because this letter could help resolve any questions regarding your exempt status, you should keep it in your permanent records.

Organizations exempt under section 501(c)(3) of the Code are further classified as either public charities or private foundations. We determined that you are a public charity under the Code section(s) listed in the heading of this letter.

Please see enclosed Publication 4221-PC, Compliance Guide for 501(c)(3) Public Charities, for some helpful information about your responsibilities as an exempt organization.

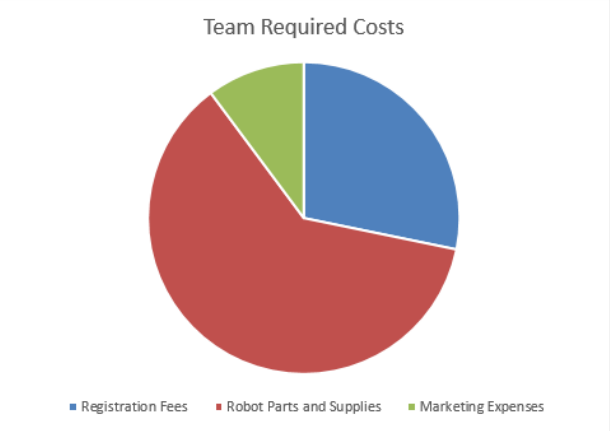
Letter 947 (DO/CG)

BUDGET 2012-2013

Team Required Costs	Amount
Registration Fees	
Registration	$6,500
(includes 1 tournament)	
2nd Tournament	$5,000
Championship	$5,000
Total	$16,500
Travel	
Lubbock	$6,000
Colorado	$1,000
Championship	$10,000
Total	$17,000
Robot Parts and Supplies	
Parts and supplies	$26,000
Additional supplies	$10,000
Total	$36,000
Marketing Expenses	
Buttons	$1,000
Flyers, Handouts	$400
Banners	$150
Flag	$200
Pit	$1,000
USB Drives	$1,000
Marketing Bag	$1,000
Shits/Sweatshirts	$1,200
Total	$5,950

Donations	Amount
Nasa	$6,500
Encorp	$2,000
OtterCares	$3,000
Homestate bank	$250
Bank of Colorado	$500
Pleaseing Software	$2,000
Wolf Robotics	$250
Baker Family	$750
Weibler Family	$200
MD English family	$500
Mohan Family	$1,001
Micron	$10,000
BoJohnston	$500
Total	$27,451

Family Expenses	
Texas	$900
Colorado	$280
Championship	$1,216
Total	$2,396



BUDGET 2013-2014

Expenses	Amount
1st Competition, Entry Fee and Kit of Parts	$5,000.00
Materials to build robot	$5,000.00
Remaining Tools and Shop materials	$5,000.00
Field components—build practice field objects	$2,000.00
Marketing Materials—Buttons, pamphlets, etc.	$650.00
TShirts, sweat shirts, etc	$500.00
Banners, posters, event supplies for tourna-ment	$300.00
Pit design, build and supplies for tournament	$500.00
Sub Total for season and 1 tournament	$18,950.00
2nd Regional Tournament - TBD	
Registration	$4,000.00
Materials	$3,000.00
Bus Rental	$6,000.00
Sub Total for 2nd tournament	$13,000.00
Expenses Total	**$31,950.00**
Income	
Micron donation	$5,000.00
NASA Grant - 2nd year	$5,000.00
Lockheed Martin	$2,500.00
OtterCares Grant	$3,000.00
PTC Grant	$2,500.00
Concessions at FLL tournaments	$800.00
Raffle at FLL tournament	$200.00
Parent Contribution	$7,000.00
Famly Travel Payments	$6,000.00
Income Total	**$32,000.00**

BUDGET 2014-2015

Expenses	Cost
1st Competition, Entry Fee and Kit of Parts	$5,000.00
Materials to build robot	$10,000.00
Remaining Tools and Shop materials	$10,000.00
Field components—build practice field objects	$2,000.00
Marketing Materials—Buttons, pamphlets, etc.	$650.00
TShirts, sweat shirts, etc	$1,500.00
Banners, posters, event supplies for tournamer	$1,300.00
Pit design, build and supplies for tournament	$1,500.00
Sub Total for season and 1 tournament	**$31,950.00**
2nd Regional Tournament - TBD	
Registration	$4,000.00
Materials	$3,000.00
Bus Rental	$6,000.00
Sub Total for 2nd tournament	**$13,000.00**
Expenses Total	**$44,950.00**
World Championship Costs **If qualify	
Registration	$5,000.00
Costs for materials	$1,000.00
Give-a-ways at tournament	$1,000.00
Travel - bus	$10,000.00
Travel - Robot expenses	$1,000.00
World Championship Total	**$18,000.00**
Total with World Championship	**$62,950.00**
Income	
Lockheed Martin	$2,500.00
OtterCares Grant	$3,000.00
PTC Grant	$2,500.00
Concessions at FLL tournaments	$800.00
Raffle at FLL tournament	$200.00
Income Total	**$9,000.00**
Cash in bank	$5,000.00
Net Difference	**$53,950.00**

BUDGET 2015-2016

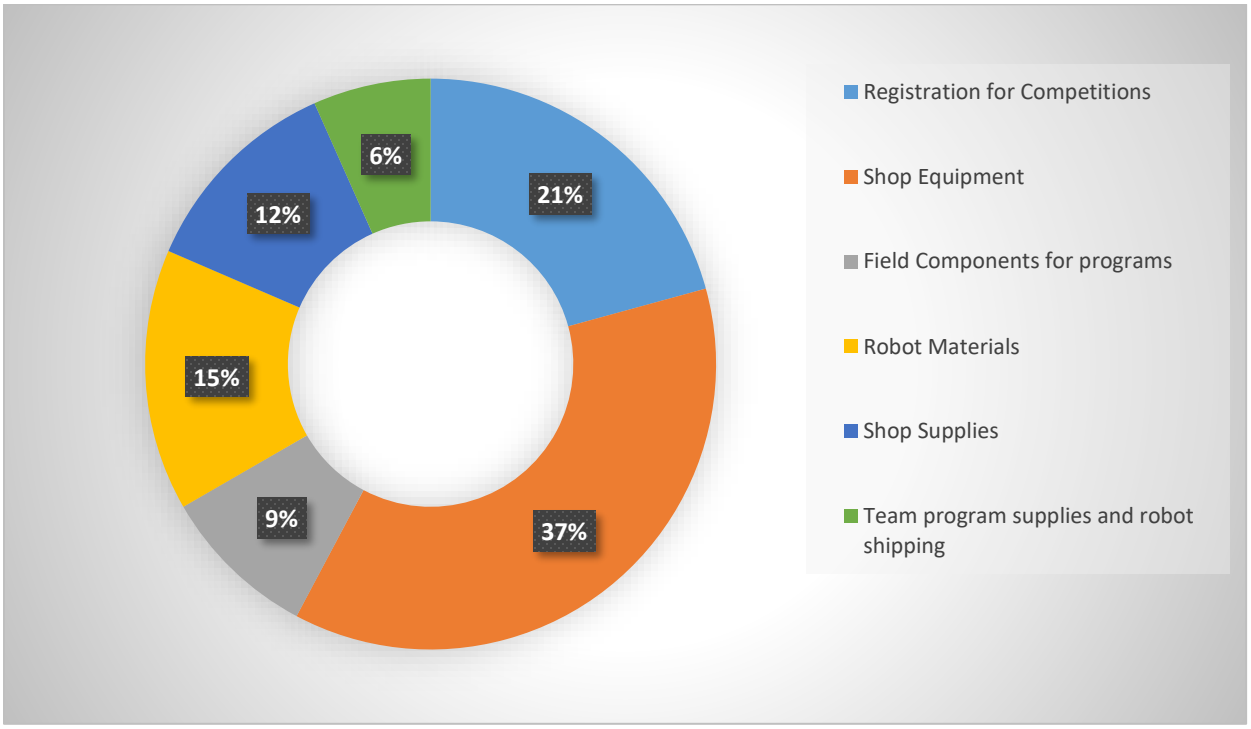
Expenses	Cost
1st Competition, Entry Fee and Kit of Parts *required to participate	$5,000.00
Materials to build robot	$10,000.00
Remaining Tools and Shop materials	$12,000.00
Field components—build practice field objects	$5,000.00
Marketing Materials—Buttons, pamphlets, etc.	$800.00
TShirts, sweat shirts, etc	$2,500.00
Banners, posters, event supplies for tournament	$800.00
Pit design, build and supplies for tournament	$1,200.00
Sub Total for season and 1 tournament	**$37,300.00**
2nd Regional Tournament - Arizona North	
Registration	$4,000.00
Materials/Supplies	$3,000.00
Bus Rental	$6,000.00
Parent/Family travel payments	($6,000.00)
Sub Total for 2nd tournament	**$7,000.00**
Expenses Total	**$44,300.00**
World Championship Costs **If qualify	
Registration	$5,000.00
Costs for materials	$500.00
Give-a-ways at tournament	$500.00
Travel - bus	$10,000.00
Travel - Robot expenses	$250.00
Travel Reimbursement - Parent Covered Expenses	($10,000.00)
World Championship Total	**$6,250.00**
Total with World Championship	**$50,550.00**
Income	
PTC Grant	$2,500.00
OtterCares	$2,500.00
Neaera Consulting	$20,000.00
Lockheed Martin	$2,500.00
Peak Resources*	$3,000.00
NASA	$5,000.00
Concessions at FLL tournaments	$600.00
Raffle at FLL tournament	$200.00
Parent/Family donations	$8,000.00
Income Total	**$44,300.00**
Net Difference *2 tournament season	**$0.00**
Net Difference *3 tournament season	**$6,250.00**
Assets	
Shop useage / year	$80,000.00
Supplies	$15,000.00
Powder Coating Services	$5,000.00
Metal donations	$250.00
Total Assets	$100,250.00

BUDGET 2017-2018

Expenses	Cost
1st Competition, Entry Fee and Kit of Parts	$5,000.00
Materials to build robot	$10,000.00
Field components—build practice field objects	$2,000.00
Marketing Materials—Buttons, pamphlets, etc.	$650.00
TShirts, sweat shirts, etc	$1,500.00
Banners, posters, event supplies for tournament	$1,300.00
Pit design, build and supplies for tournament	$1,500.00
Sub Total for season and 1 tournament	**$21,950.00**
2nd Regional Tournament - Kansas City, MO	
Registration	$4,000.00
Materials	$1,000.00
Sub Total for 2nd tournament	**$5,000.00**
Expenses Total	**$26,950.00**
Income	
Lockheed Martin	$2,000.00
Nvidea	$500.00
Hach Family foundation	$5,000.00
Concessions at FLL tournaments*	$402.00
Raffle at FLL tournament*	$102.00
Constant Contact	$1,000.00
Keysight	$1,000.00
Family Dontation	$1,000.00
Income Total	**$11,004.00**
Money in account	**$16,753.00**
Total Expenses	**$15,946.00**

BUDGET 2018-2019

Expenses	Amount $
Initial Registration	$5,000.00
Cost to build field	$3,000.00
Robot build supllies	$6,000.00
Sensors/electrical equipment	$5,000.00
Handouts/brochures/bannners	$1,000.00
Total Initial registration	**$20,000.00**
2nd Event Registration	$4,000.00
Transportation of robot to event	$1,500.00
Total 2nd registration	**$5,500.00**
World Championship registration	$5,000.00
Transportation of robot to event	$2,000
Total World Championship	**$7,000.00**
Shop Equipment	$25,000.00
Additional shop supplies	$10,000.00
Total Shop Expenses	**$35,000.00**
Grand Total	**$67,500.00**



STRATEGY PLAN

SWOT Analysis

Priorities

Marketing and communication Strategy

Website Communication Strategy

Community Outreach Strategy

Engineering Strategy

Sponsorship Strategy

SWOT ANALYSIS 2016

	Strengths	Weaknesses	Opportunities	Threats
Marketing/ Communications	We have built up a non-profit company to run our FRC team and have much more flexibility.	Our Team is small and we do not have enough students on this part of the team.	We are in a town with a lot of Tech businesses We are young and are ready to gain experience.	• There are many other STEM organizations in the area competing for attention.
Team Development	• Our members are dedicated to FRC and to STEM. • We have members that have used their prior FIRST experience to great advantages in other areas.	• Our younger members do not have much experience.	• Our team is experienced in all levels of FIRST. • Our large number of young members have many years of learning ahead.	• Our program has chance to lose manpower.
Robot	• We've got a quick and aggressive robot to cross barriers.	• We're unable to complete all tasks on field.	• We are trying to do everything in order to win a regional.	• The time crunch we are put under!
Design	• We have 3 years under our belt to see what works and what doesn't. • We've streamlined design processes.	• Our design team is also on the build on programming team, so they don't have enough time.	• We got a lot of people up to speed about basic design.	• Our CAD team is significantly understaffed.
Financial	• We have great relationships with our current sponsors.	• We are privately run and have no school sponsoring us.	• People and corporations in the area are interested in kids going into STEM.	• Sponsorship is uncertain from year to year. • There are two other

				FRC teams in the area.

SWOT ANALYSIS 2017

	Strengths	Weaknesses	Opportunities	Threats
Marketing/ Communications	• We use our non-profit umbrella to sponsor FIRST teams and stay connected. We keep up communication with sponsors.	• We could reach out to more teams through hangouts, Twitter, or Skype.	• Many local Tech businesses are available for us to reach out to.	• Our marketing team is small because of the limited people on the team to fill spaces.
Team Development	• This year, even though many graduated, many new members joined, including members of a past FTC	• Our younger members do not have much experience. • We only have 17 members on our team this year.	• Although our members may be young, they will grow up to be strong members, pulling the weight of the team.	• We could run out of team members; however, we continued to get younger team members, so this doesn't seem like a pressing concern.
Robot	• We have a fast robot with the capability to hold ~70 whiffe balls.	• We are currently unable to intake whiffle balls from the ground.	• We plan to be able to do all aspects of the robot game including whiffle balls, gears, hanging, and intake.	• With limited members, we may not be able to complete all goals by our first competition.
Design	• We have had 4 years of experience, so the design process has been streamlined • Many people have learned SolidWorks.	• Because we have fewer members on our team, fewer people can solely focus on design.	• New team members have begun to get involved with new programs such as SolidWorks.	• Our most knowledgable experts in design are currently seniors.
Financial	• We currently have good relationships with sponsors and demo and reach out to them regularly.	• We have less sponsors and grants as previous years, and with fewer teammates,	• Many Tech businesses are nearby, and we have many opportunities to reach out to new sponsors.	• There are other teams in the area looking for money and grants as well, and

		higher costs are assigned to each person.		with more competition, we are less likely to receive the money.

SWOT ANALYSIS 2018

	Strengths	Weaknesses	Opportunities	Threats
Marketing/ Communications	• With our non-profit we have reached out to the community.	• We could reach out to more outside of our community and online.	• We could participate in more tech events in our area.	• We have limited resources and people to assist in more demos.
Team Development	• This year we have a small team so we can all really specialize in one area.	• Our younger members do not have much experience. • We only have 6 members on our team this year.	• With a small team each person can be an expert in a specific field and take that knowledge for next years.	• With such a small team it is uncertain we can sustain a build season and build a robot. For our future we need more team members.
Robot	• We have a fast robot that focuses only on the switch.	• We will not score on the scale at all, we have an idea for a ramp type climb but not implemented.	• We hope our climb for the end game will work to give us additional functionality. • We can do defense	• With a robot that cant do the scale, we might not be as valuable of a robot.
Design	• We have worked hard in the preseason to prepare for the new season. • Advanced our knowledge in CAD	• Because we have fewer members on our team, fewer people can solely focus on design.	• New team members have begun to get involved with new programs such as SolidWorks.	• Half of our CAD design team is graduating.
Financial	• We continue to demo our robot to our sponsors and have continued our partnership.	• We have less sponsors and grants as previous years, and with fewer teammates, higher costs are assigned to each person.	• There are new businesses in the area and we could reach out to these businesses.	• There are other Robotics teams in the area, and some businesses are already sponsors to them.

SWOT ANALYSIS 2019

	Strengths	Weaknesses	Opportunities	Threats
Marketing/ Communications	• We use our non-profit umbrella to sponsor FIRST teams and stay connected. We keep up communication with sponsors.	• We could reach out to more teams through hangouts, Twitter, or Skype.	• Many local Tech businesses are available for us to reach out to.	• Our marketing team is small because of the limited people on the team to fill spaces.
Team Development	• This year, even though many graduated, many new members joined, and several are new to robotics and FIRST.	• Our younger members do not have much experience. • We only have 11 members on our team this year.	• Although our members may be young, they will grow up to be strong members, pulling the weight of the team.	• We could run out of team members; however, we continued to get younger team members, so this doesn't seem like a pressing concern.
Robot	• We have a fast robot with the capability to cycle quickly.	• We are currently unable score in the mid and high goals and hab 3.	• We plan to be able to keep improving our mechanisms and possibly get to hab 3.	• With limited members, we may not be able to complete all goals by our first competition.
Design	• We have had 6 years of experience, so the design process has been streamlined	• Because we have fewer members on our team, fewer people can solely focus on design.	• New team members have begun to get involved with new programs such as SolidWorks.	• Our deisgn team is still learning many of the design.
Financial	• We currently have good relationships with sponsors and demo and reach out to them regularly.	• We have less sponsors and grants as previous years, and with fewer teammates, higher costs	• Many Tech businesses are nearby, and we have many opportunities to reach out to new sponsors.	• There are other teams in the area looking for money and grants as well, and with more competition,

		are assigned to each person.		we are less likely to receive the money. We need additional sponsors to continue program support.

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PRIORITIES STRATEGY

Marketing and Communication

- Provide an easy interface for team to communicate
- Allow our family, friends, sponsors, and community to see what the team is doing

Community Outreach

- Participate in local community events
- Spread the word of FIRST to local children

Continuing education/abilities

- Pass on knowledge to the younger members on the team
- Give and share our knowledge of what we have learned to others in our community
- Guarantee team longevity

Cycle of Success – Self-sustaining program

- Support newly graduated members and keep in touch
- Encourage graduated members to return to help mentor and teach.

STEM Awareness

- Keep spreading the impact on STEM in the community.
- Visit Local events that have a STEM focus and bring the team.
- Mentor and advance other FIRST teams in the area in order to grow the community with people who are already involved in STEM.

Support Academics

- Our team puts academics first and supports each member with academic challenges by creating a homework club environment.
- Allow each member to reach out for help from mentors or other members.

MARKETING AND COMMUNICATIONS FOR WEBSITE STRATEGY

	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
Our Team												
Mission			X									
History			X									
Video/Pictures												
Links/Blogs			X									
Create year blog				X								
FIRST Updates				X								
Current Members							X					
Engineering Content												
On-line training			X	X	X							
Reference Materials				X	X							
Presentations/Events												
Update site with presentations				X	X							
Update site with new events/demos					X	X	X					
Website Team/Updates												
Identify Website team		X	X									
Schedule updates and additional content			X									
Training			X	X	X							

COMMUNITY OUTREACH STRATEGY

	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
Demos events												
Volunteer at Kids Triathlon			X									
Sparkfun		X										
FLL Tournament						X						
Contact Local Press												
Reach out to local paper					X							
Find local Politian to assist in creating Robot Awareness Day				X	X							
Visit Elementary Schools												
One hour of code							X					
Research and start FLL team			X									
Visit Middle School												
Visit and bring robot to demo			X	X	X							
Offer to mentor FLL or FTC Team			X	X	X							
Sell Light Bulbs												
Order Light bulbs						X						
Organize sales					X	X						
Sell bulbs						X	X	X				
Improve Website												
Identify website team		X	X									
Develop wish list and plan out		X	X	X								

ENGINEERING DESIGN STRATEGY

	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
Skills Development												
Improve CAD design		X	X	X								
Improve machining techniques and skills				X	X	X	X					
Learn CNC CAD sequencing		X	X									
Contact Local Business professional for additional learning opportunities		X	X	X								
Classes /Workshops												
Attend local workshops for FIRST				X	X							
Attend local workshops offered by local businesses			X	X	X							
Target new and existing mentors												
Reach out to new potential mentors		X	X	X	X							
Talk with local business leaders about mentoring our team			X	X	X							
Virtual Classes												
Start online classes to share on website		X	X	X	X							
Identify members to manage online classes/workshops		X	X									

SPONSORSHIP STRATEGY

	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
Obtain new Sponsors												
Define List of sponsors and relationships					X							
Develop target sponsors						X						
Contact local and national interested businesses						X						
Start sponsorship advantages			X									
Visit and demo for existing sponsors												
Identify Local sponsors		X										
Develop new relationships			X									
Apply for local and national grants												
Identify new opportunities		X	X	X								
Draft new grant proposals				X	X							
Identify grant team members			X	X								
Submit grants by due dates					X	X	X					

THANK YOU TO OUR SPONSORS AND MENTORS

LOCKHEED MARTIN

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Designing for the Future

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