

The Highlanders
FIRST Team #4499
2015-2016
Business Plan



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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 fourth 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 ask for funds, mentors, and build a healthy relationship.
- For the past three 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 last year with the Chairman's Award at the Colorado Regional Qualifier. The talent there inspired us to try to match the performances of those teams 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 on 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 relation 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 FRC and possibly a team of their own.
- By working under our team's non-profit we are able to help and assist other robotics teams and students.
- We hope to expand our support and recruit more members who are interested in STEM to help them pursue their passions.
- We hope to broaden our initiatives in having an open-door policy to help other FRC teams, FTC teams and FLL teams.
- We hope to start an FRC team in Laramie Wyoming within the next year with the help of one of our sponsors and the University of Wyoming.
- We hope to be a resource to any struggling FRC team and assist them financially, shop time and with additional resources.



LEADERSHIP AND ORGANIZATION

Additional 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	• Kevin Forsythe, Mechanical Engineer
• Sondra Iverson, Computer Scientist	• Jason Medina, Mechanical Engineer

FACILITIES

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

- 4,000 square foot shop located inside one of the mentors home
- Of that 4,000 square feet, 2,000 is dedicated to computer and electrical design in a classroom 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 2015 is \$37,600. We hope 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

Outreach

Host FLL 2 Tournaments
Mentor FLL and FTC Teams
Host FLL Training Classes
Support One Hour of Code program
Run FLL Camp
Started and Coaching an FLL Team

Engineering

Compete In FIRST FRC
Training on shop machines
Practice Safety Guidelines
Build a robot

Business

Find local sponsors
Manage team structure
Fundraise
Find new members



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 Winner at Hub City
- 2014 Engineering Inspiration at Inland Empire Regional
- 2015 Quality Award at Dallas Regional
- 2013 Rookie All Star at Colorado Regional
- 2013 Highest Rookie Seed Winner at Colorado Regional
- 2014 Engineering Excellence at Colorado Regional
- 2015 Chairman's Award at Colorado Regional
- 2015 Finalist at Colorado Regional



PUBLIC ACTIVITIES

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



PROGRAM OVERVIEW

Team information

Our team is composed of twenty-two students from six 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 to work on 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.

2014 Challenge:
Community Involvement


Our Robot



Here's a 'behind the scenes' look at the work that goes into our robots





Our bagged and tagged robot! We will not be able to open it until our tournament.



This was our side climber design that did not work for us...but it still was an amazing idea.



Our final robot design. Yes, that is a Home Depot bucket. It holds Fnsbees great.





We volunteered at a kids triathlon in August. We even brought one of our small robots for the kids to drive around.



We volunteered at an FLL tournament and also supplied a Banana Man emcee.



We showed one of our robots at a JFLL event in January. We were able to talk with younger kids and tell them where robotics could take them as they get into high school.

Contact us at : www.highlandersrc.com
or by email: info@highlandersfrc.com
visit us at : www.highlandersfrc.com




Events

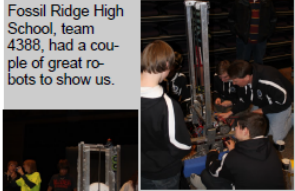
Team Structure

#4499

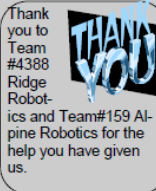
We got some experience in troubleshooting and repair work on location... and some time to 'hang' out!



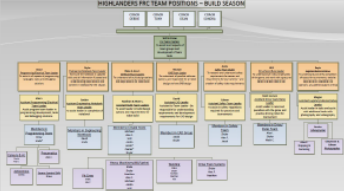
Fossil Ridge High School, team 4388, had a couple of great robots to show us.



Thank you to Team #4388 Ridge Robotics and Team#159 Alpine Robotics for the help you have given us.



HIGHLANDERS FRC TEAM POSITIONS - BUILD SEASON




Each member on our team made a 5 minute presentation to the members for what group they wanted to lead. Then, the members voted on each group leader. The mentors appointed the team captains.

A Very Big 'Thank You' to our Sponsors and Mentors!


Mentors:
We couldn't do this without our mentors, including engineers from:

FleetwoodGoldcoWyard
A BARRY-WEIMILLER COMPANY

Other Sponsors:
THE ENGLISH FAMILY AT DENHAM, VA.
THE WEIBLER FAMILY
BO JOHNSTON MUD CONSULTANTS, INC.



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. We are a part of FIRST, an organization working to promote STEM education through co-opertition—a combination of cooperation and competition — in robotics challenges. The Highlanders are working full steam ahead, brainstorming, prototyping, designing, building CAD models and generally moving forward with some great designs!

Contact us at: www.highlandersrc.com
or by email: info@highlandersrc.com
visit us at: www.highlandersrc.com



FUTURE FOR SUCCESS

Growth of Team

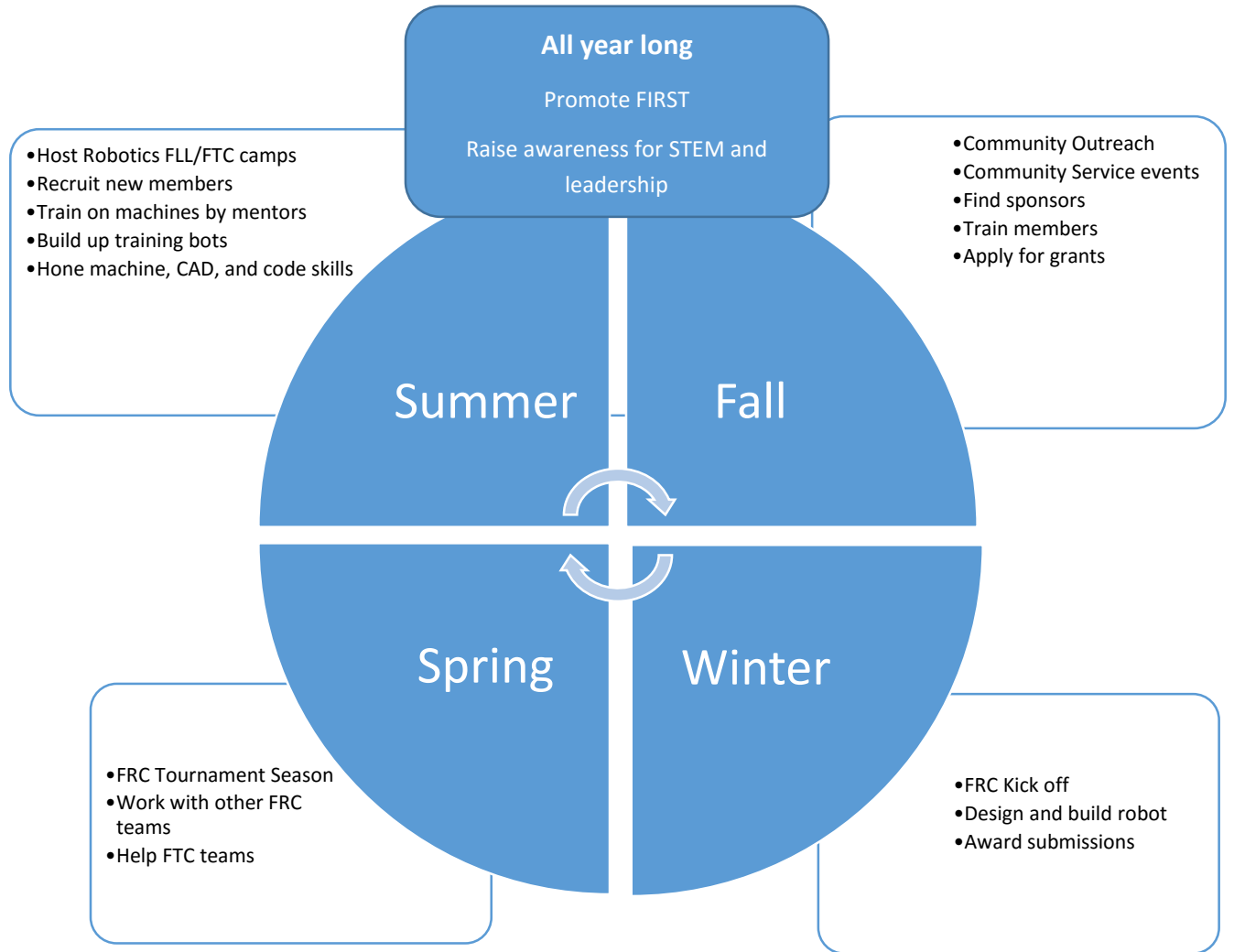
Our team has increased from 19 members in our first year to 25 members in our third year. However, we plan to recruit new Highlanders throughout and immediately following the build season. Our team prides ourselves in being an open team for anyone interested in what we do. Our team is made up of students from 5 different schools. Some of the struggles the team has to overcome are the differences in school structure and dynamics. The Highlanders have overcome all of the social, educational and passion struggles to come together for the FRC 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, and as they grow they will progress up the levels, FLL to FTC to FRC, eventually graduating from high school and moving on to college. This ends the receiving end of our *Cycle* and begins the start of the giving back portion of our *Cycle of Success*. After college, each member will come back to Neaera Robotics 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. Our college alumni will 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

2015

	<p style="text-align: center;">Started & Coaching FLL Team at Boys and Girls Club</p> <p>We had the opportunity to spend about three days a week coaching an FLL team as a whole FRC group. Overall, it was</p> <p>difficult to educate the kids because the majority of them were from low-income families, but when we bonded with them, the whole</p> <p>experience became incredible, as we brought out their hidden potential and maybe even got them hooked on robots and engineering.</p>
	<p style="text-align: center;">FLL Mentoring</p> <p>We mentored 2 rookie FLL teams 2 years ago and both teams made it to the state championships! Our team also held FLL Training</p> <p>classes on programming, design concepts, project presentations and administrative techniques. We hope to mentor these two teams</p> <p>and many more this year.</p>
	<p style="text-align: center;">One Hour of Code</p> <p>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</p> <p>our robot and how programming is such a part of everything that we use. We hope to support and help make this program grow</p> <p>next year by introducing it to other elementary schools in our area.</p>



This past pre-season we volunteered at two elementary schools where we taught the students about how to build FLL robots, a local

Community Events

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 boy scouts team and showed them our robot and answered lots of their questions.



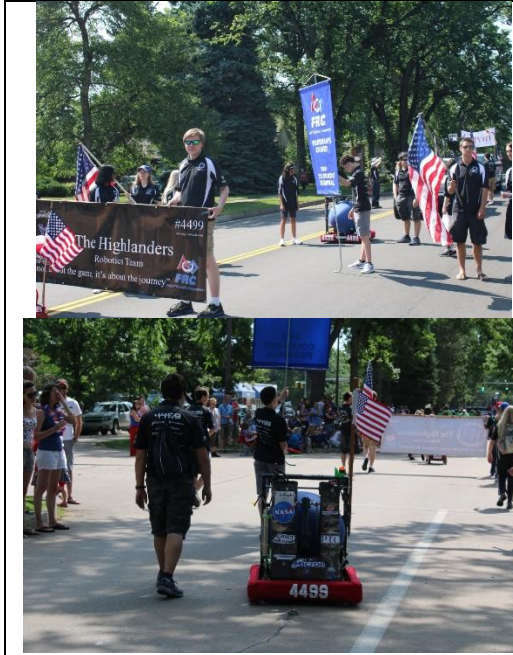
One Hour of Code

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.



MakerFair

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



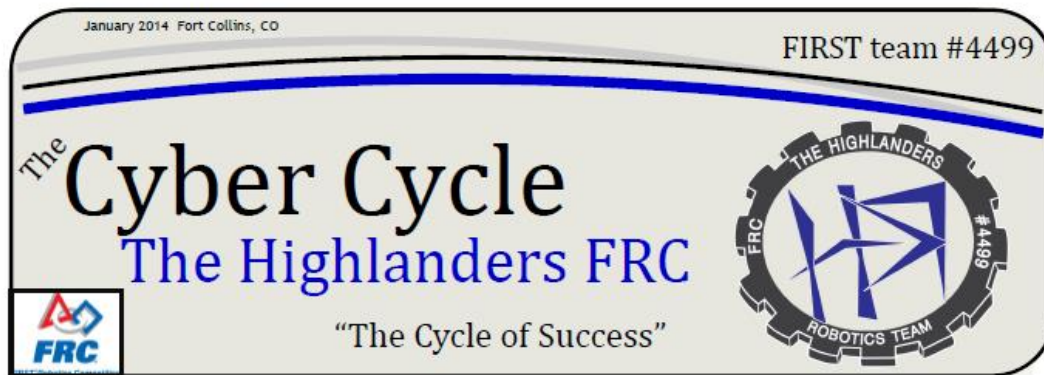
4th of July Parade

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.



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 for each month from January through April, which is when our Denver, Colorado tournament takes place. Below is a screenshot of a link to our newsletter via our website:



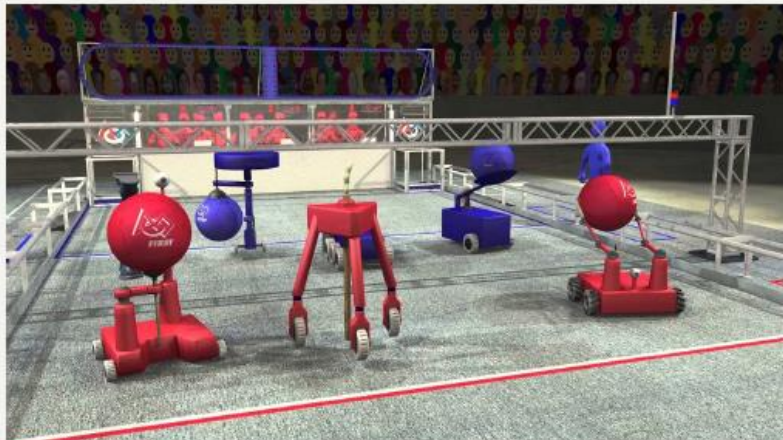
And Our New Season Begins...



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

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.

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.





TRAINING/DEMO SESSIONS
DEMO EVENT



FRC
FIRST Robotics Competition

The Highlanders
Team #4499

We are a second year team this year and are excited for this season. We are a team made up of 4 different schools in the Fort Collins area (Liberty Common High School, Fossil Ridge High School, Rocky Mountain High School and Webber Junior High). We are looking forward to an exciting season!

Our Sponsors & Mentors
We want to thank our amazing sponsors for supporting us in this program





FRC Robotics Demo

You are invited to our Robot Preview day Event!



WHEN? Feb 8th 2pm-5pm
WHERE? Liberty Commons High School
Address: 2745 Minnesota Drive, Fort Collins 80525
FOR WHO? Anyone interested in seeing robotics teams in northern Colorado.
Schedule:
2:00 - 5:00
Come see some of the local FIRST Robotics teams in northern Colorado
FRC—The Highlanders #4499
*2 other FRC teams have been invited and might be there as well.
FLL— The Spartans—Come see this rookie team demo their robot that they competed at the State tournament.

Sponsors/ Friends/ Family - Please join us any time from 2:00-5:00 to see what the teams & robots have been doing—throwing 25" inflatable balls in 8-10ft high goals.

Below is a layout of the field that the robots will be competing on. At this event, we will have 1 high goal that robots can shoot in. Given size and financial constraints we will not have an entire field, but should have plenty of space to show you our stuff!



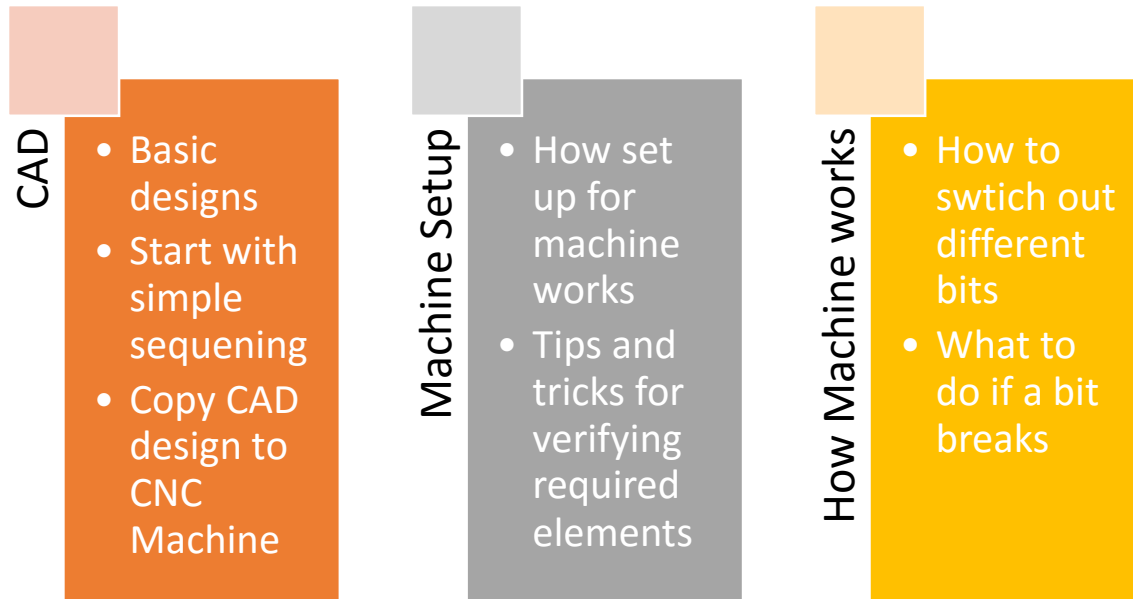
All FRC teams across the country have been busy since the announcement of this year's challenge—Aerial Assist. This year teams can create a robot that throws large inflatable type balls in high or low goals to gain points. There are many rules of the game so teams might choose significantly different game strategies. Since the kick off (1/4/14) we have been working everyday creating/designing a robot. We only have 6 weeks to accomplish this and then we are required to lock up our robots on Feb 18th. We would like to welcome anyone interested in this program to check out our team and several other levels of robotics. We would enjoy it if we could show you what we have been working on and have you meet some of these amazing kids and mentors! Not to mention seeing these impressive robots!



TEAM TRAINING

The Highlanders held their own CNC training event. This was organized and put on by 2 members on the team to help teach the rest of the build team how to run the new CNC machine.

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 team members put on a hands-on class at one of our demos on how to make a carbon fiber coaster. We also hosted a 6-hour training class that two other local teams attended.



TEAM HISTORY

2012-2013

2013-2014

2014-2015

2015-2016



TEAM HISTORY

2012-2013

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. That is the basic story of how the Highlanders came to be.



We started experimenting with robot building and programming in September 2012, meeting for 10 hours a week. This was also an intensive time of reaching out to local companies and asking for support, whether that was in materials, mentors, or money. We were able to gain support from several companies in Northern Colorado, including Home State Bank, ENCORP, Colorado Iron and Metal, Wolf Robotics, Bank of Colorado, Trihydro and FleetwoodGoldCoWyrd. We also were the only team in Fort Collins to be awarded a grant from NASA. By the end of that year, our team had grown to 24 students from six different middle and high schools.



TEAM HISTORY

2013-2014

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

2014-2015

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 envision ourselves. With the impending graduation of almost $\frac{1}{2}$ 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

2015-2016

The 2015-2016 season has been extraordinary. We started the year worried about membership levels and the loss of so many seniors, but we have 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 have returned membership count up to 22. 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 now we have a very well balanced team.

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

We increased our machining capabilities, as well, adding a HAAS CNC Mill to our shop. It has been very useful in building our robot, significantly reducing machining times.

d





PARTNERSHIPS

SPONSORS AND COMMUNITY SUPPORT

SPONSORSHIP LEVELS

SPONSORSHIP PROJECTION



THE HIGHLANDERS SPONSORS

2012-2013

Neaera Consulting Group	NASA
<i>\$10,000 donation</i>	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

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



2014-2015

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



2015-2016


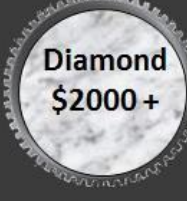




Neaera Consulting Group	PTC
<i>\$10,000 donation</i>	Grant of \$2,500
OtterCares	Colorado Metal Distributors
\$2,500 Donation	\$250 Donation
Trihydro	Front Range Powder Coating
10 laptops	Powder Coating services and supplies donation
Family Donations	Lockheed Martin
\$5,000 Donation	\$2,500 Donation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



SPONSORSHIP LEVELS

Advertise your company

See our website for further information

 <p>Aluminum \$5000 +</p>	<p>Aluminum: 5000+ Display and hand out your video & literature at a 3-day tournament.</p>	 <p>Diamond \$2000 +</p>	<p>Diamond: 2000+ Most* Prominent logo on T-shirt and robot. Recognition plaque</p>
 <p>Platinum \$1000 +</p>	<p>Platinum: 1000+ Prominent logo on T- shirt and robot. Part of team name in announcements</p>	 <p>Gold \$500 +</p>	<p>Gold: 500+ Larger logo on T-shirt Logo on robot</p>
 <p>Silver \$250 +</p>	<p>Silver: 250+ Company logo on T- shirts and literature.</p>	 <p>Bronze \$100 +</p>	<p>Bronze: 100+ Appreciation Letter signed by members Recognition on team website.</p>



SPONSORSHIP PROJECTIONS

	2015-2016	2017-2018	2018-2019
Grants			
National	\$10,000	\$12,000	\$15,000
Local	\$5,000	\$10,000	\$12,000
Local Businesses			
Sponsors	\$10,000	\$12,000	\$13,000
General Donations	\$5,000	\$6,000	\$8,000
National Businesses			
FIRST Sponsors	\$1,000	0	0
Family Donations			
Member families	\$2,000	\$2,500	\$3,000
General Family	\$500	\$800	\$1000



LEADERSHIP AND ORGANIZATION

Explanation

Organization Chart

Mentors

Membership Application

School/Grades Expectations



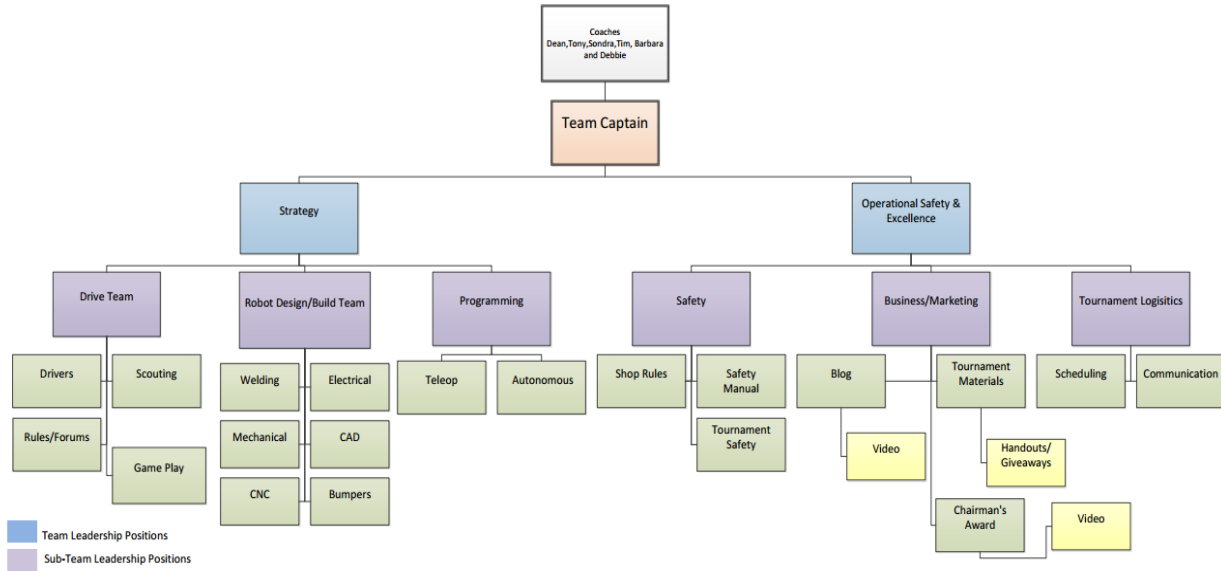
LEADERSHIP EXPLANATION

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), and 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. This was a monumental change from last year, as we have decided to put a higher focus on the business side of robotics and have divided the team into two organized, yet collaborative entities. We have retained the basic subgroups, such as CAD team, the autonomous team, and the videography team, from last year. We elected team leaders by having everyone write an essay about their vision for each position they wanted. This provided the students with the valuable experience expressing themselves through a resume and goal-setting style of writing. After the essay process, the coaches selected those they felt best felt the positions in an interview selection process. To retain the skill set of the graduating seniors, this year, many positions also have "Co-Leads," so that the younger kids get experience leading the team before they are put in the hot seat. Overall, this revised leadership system has been extremely effective for the team dynamic.

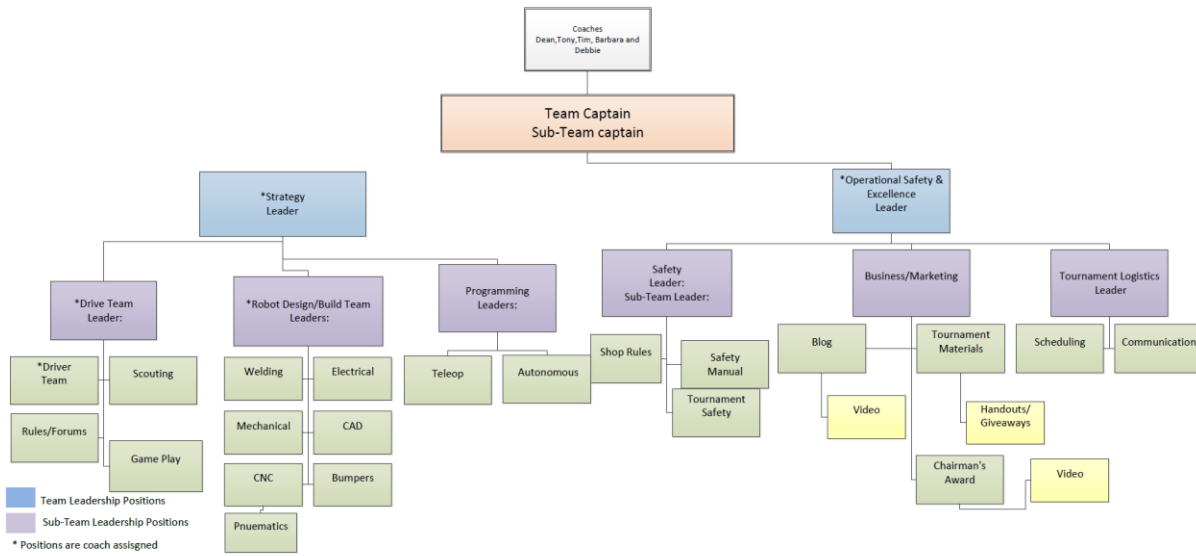


ORGANIZATIONAL CHART

2015 SEASON



2016 SEASON





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: Working with leads in OSE based sub-groups to ensure have manpower necessary to complete projects. Keeping tabs on all the due dates and double checking work. Leading Chairman's group.

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. Facility in 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: Ability to program in LUA 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.

TEAM LOGISTICS LEAD

Duties: Coordinating team efforts to plan tournament events. Setting up communications between members of the team. Making sure everyone knows what roles they have at the tournament.

Roles and Responsibilities: Coordinate the sub-teams so that all team events are covered appropriately at the tournament.

Qualifications: Good communication skills. Ability to effectively communicate diverse team goals in a tournament setting.



BUSINESS/MARKETING LEAD

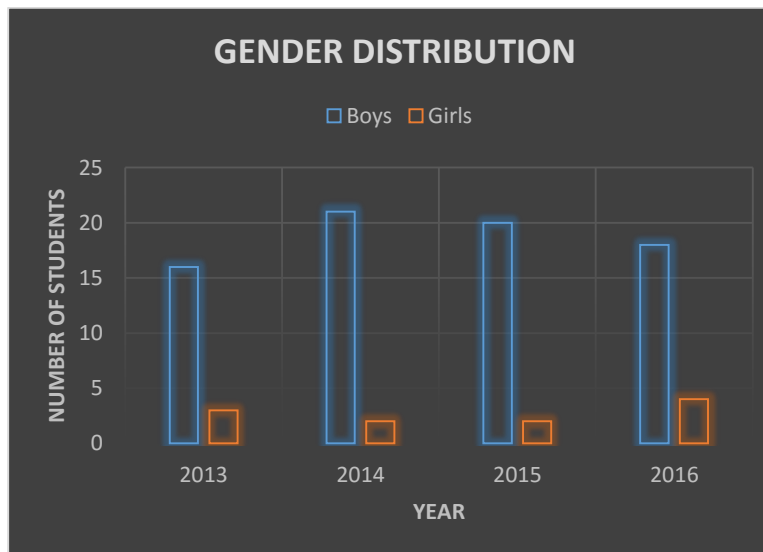
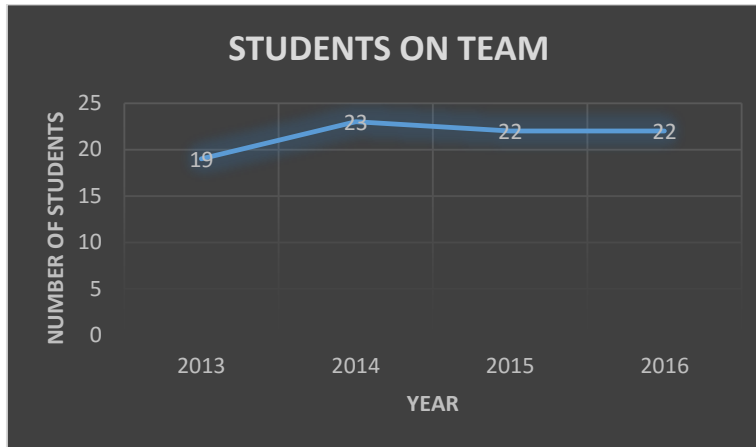
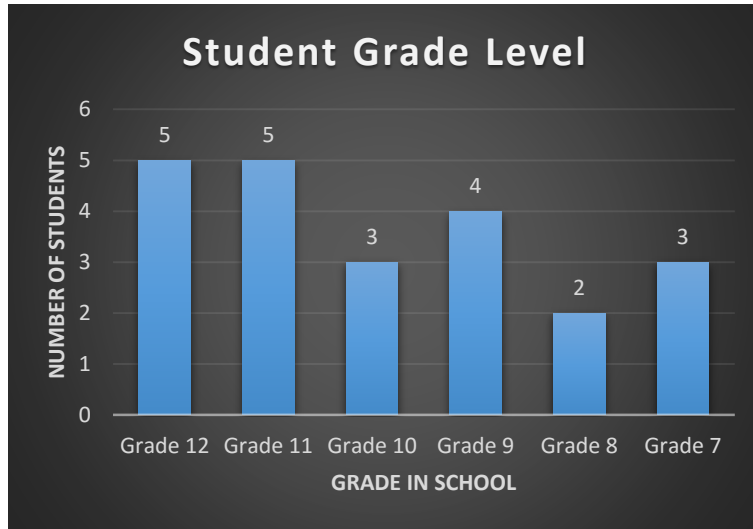
Duties: Creating and distributing marketing material throughout the tournament. Completing and revising the business plan. Proofreading all of the essays.

Roles and Responsibilities: Ensure that the server is backed up with all the necessary information. Making sure to keep tabs on the due dates for each of the submissions and being slightly ahead of schedule.

Qualifications: Knowing basic business concepts. Being able to effectively communicate on verbal and written levels.

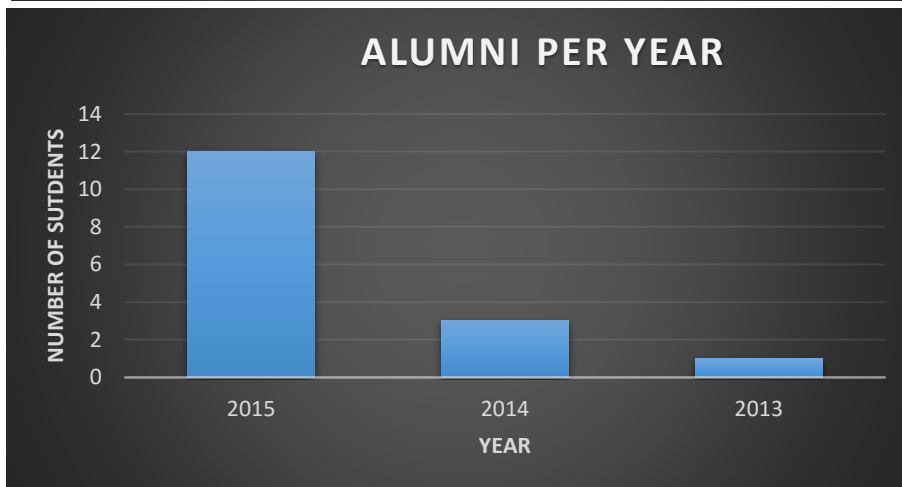
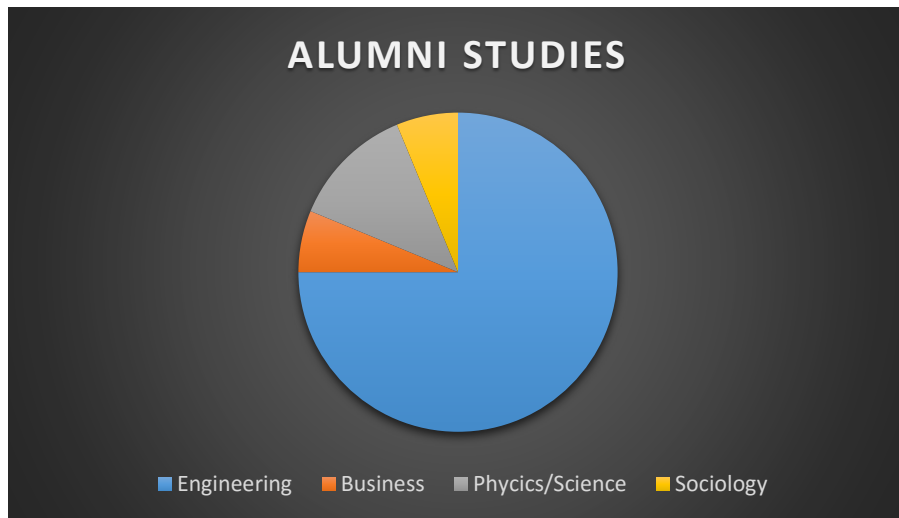
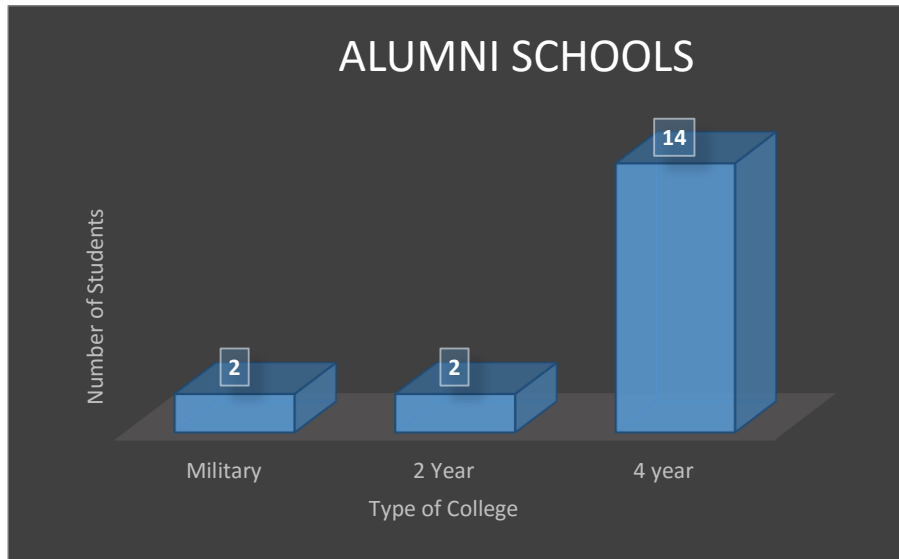


TEAM STATISTICS





TEAM ALUMNI STATISTICS





MENTORS

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

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

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

Sarah Wingate
Lockheed Martin
Environmental Engineer
11057 Needles Ct
Parker CO 80138
Project Management/Team sponsor
Mitch Sherburne
Front Range Powder Coating Inc
120 Commerce Drive Unit 2
Fort Collins CO 80524

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

Sondra Iverson
4220 Center Gate Ct
Fort Collins CO 80526
Computer Scientist
Programming team, Strategy team and
general team guidelines.

Barbara Frye
1826 Rosemary Ct
Fort Collins CO 80528
Mechanical Engineer
Design/Community outreach and general
team duties

Jason Medina
Mechanical Engineer
FleetwoodGoldcoWyard
5605 Goldco Drive
Loveland CO 80538

Lee Stutzman
Project Engineer
Wolf Robotics
6809 Brittany Dr.
Fort Collins CO 80525



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		
<input type="checkbox"/> Programming (C#, Java)	<input type="checkbox"/> CAD	<input type="checkbox"/> Photography / Videography
<input type="checkbox"/> Metal working	<input type="checkbox"/> Marketing (Design flyers/handouts, etc.)	
<input type="checkbox"/> Electrical (wiring, circuit boards)	<input type="checkbox"/> Website development	<input type="checkbox"/> Other _____
Select the past robotics experience:		
<input type="checkbox"/> FLL _____ # years/seasons	<input type="checkbox"/> Vex Robotics _____ #years	
<input type="checkbox"/> FTC _____ # years/seasons	<input type="checkbox"/> Other _____ # years_____	
Check the classes you have taken in school that can give you skills that will help on a robotics team:		
<input type="checkbox"/> Intro To Engineering	<input type="checkbox"/> Photography	<input type="checkbox"/> Technical writing
<input type="checkbox"/> CAD	<input type="checkbox"/> Videography	<input type="checkbox"/> Programming
<input type="checkbox"/> Robotics	<input type="checkbox"/> 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?		
<input type="checkbox"/> Build Team	<input type="checkbox"/> CAD team	<input type="checkbox"/> Programming
<input type="checkbox"/> Business (public relations, marketing)	<input type="checkbox"/> Videography	<input type="checkbox"/> Photography
<input type="checkbox"/> 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?		



THE HIGHLANDER'S ROBOTICS APPLICATION	
What do you hope to gain from this experience?	
Are you able to commit to a very heavy schedule during the build season? (usually 1/5 – 4/15)	
Are there any specific dates during the 6 week build season that you will not be available? (1/5 – 2/17)	
During the build season, our team meets 6-7 days a week from 3:30-9:00 (homework club is first), are you able to commit to this schedule and keep your school work up? If not, explain the circumstances.	
Many of our competitions will require travel to another state, do you have the support (1 parent/guardian is required on all trips)?	
SIGNATURES	
I agree that the information that I provided is true and correct to my ability.	
Signature of applicant:	Date:
Signature of parent/guardian	Date:

*If accepted into this program, there will be a 30 day trial period. After that time, we will talk with you about your experience and receive team member evaluations.



CODE OF CONDUCT	
Please read the following and sign	
<input type="checkbox"/>	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.
<input type="checkbox"/>	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.
<input type="checkbox"/>	You become a part of a team and collectively work toward a defined goal.
<input type="checkbox"/>	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.
<input type="checkbox"/>	Agree to attend the mandatory Kick Off Day (either at the event, or after the event at the defined location) January 4 th , 2014. This is when the game and tasks are announced and starts the beginning of the season and is when our brainstorming begins.
<input type="checkbox"/>	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.
<input type="checkbox"/>	Agree to assist in fundraising to offset expenses.
<input type="checkbox"/>	You respect all members of the team as well as the adult coaches, mentors and engineers.
<input type="checkbox"/>	You check your email and the team website daily for updates and other important information regarding team business.
<input type="checkbox"/>	Agree to sign in and out, fill out the attendance log, when you arrive and leave from each meeting.
<input type="checkbox"/>	Agree to follow all safety rules, clean the work area and put all items back where they belong.
<input type="checkbox"/>	Agree to be courteous and respectful when visiting or working at corporate sites
To be filled out by Parent/Guardian	
<input type="checkbox"/>	Have read the team handbook and agree to responsibilities and expectations defined.
<input type="checkbox"/>	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 6 th , 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. 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.



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 time here than in our own households!)





FINANCES

Neaera Robotics Foundation Documentation

Budget 2012-2013

Budget 2013-2014

Budget 2014-2015

Budget 2015-2016



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	Employer Identification Number: 46-0631995
NEAERA ROBOTICS INC 5819 HIGHLAND HILLS CIR FORT COLLINS, CO 80528	DIN: 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.

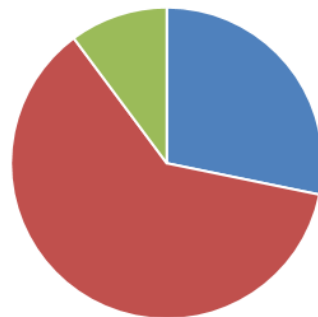
Letter 947 (DO/CG)



BUDGET 2012-2013

Team Required Costs	Amount	Donations	Amount
Registration Fees		Nasa	\$6,500
Registration	\$6,500	Encorp	\$2,000
(includes 1 tournament)		OtterCares	\$3,000
2nd Tournament	\$5,000	Homestate bank	\$250
Championship	\$5,000	Bank of Colorado	\$500
Total	\$16,500	Pleaseing Software	\$2,000
		Wolf Robotics	\$250
Travel		Baker Family	\$750
Lubbock	\$6,000	Weibler Family	\$200
Colorado	\$1,000	MD English family	\$500
Championship	\$10,000	Mohan Family	\$1,001
Total	\$17,000	Micron	\$10,000
		BoJohnston	\$500
Robot Parts and Supplies		Total	\$27,451
Parts and supplies	\$26,000		
Additional supplies	\$10,000		
Total	\$36,000		
Marketing Expenses		Family Expenses	
Buttons	\$1,000	Texas	\$900
Flyers, Handouts	\$400	Colorado	\$280
Banners	\$150	Championship	\$1,216
Flag	\$200	Total	\$2,396
Pit	\$1,000		
USB Drives	\$1,000		
Marketing Bag	\$1,000		
Shirts/Sweatshirts	\$1,200		
Total	\$5,950		

Team Required Costs



■ Registration Fees ■ Robot Parts and Supplies ■ Marketing Expenses



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 tournament	\$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
Family 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 tournament	\$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



STRATEGY PLAN

SWOT Analysis

Priorities

Marketing and communication Strategy

Website Communication Strategy

Community Outreach Strategy

Engineering Strategy

Sponsorship Strategy



SWOT ANALYSIS

	Strengths	Weaknesses	Opportunities	Threats
Marketing/ Communications	<ul style="list-style-type: none"> • We have built up a non-profit company to run our FRC team and have much more flexibility. 	<ul style="list-style-type: none"> • Our Team is small and we do not have enough students on this part of the team. 	<ul style="list-style-type: none"> • We are in a town with a lot of Tech businesses • We are young and are ready to gain experience. 	<ul style="list-style-type: none"> • There are many other STEM organizations in the area competing for attention.
Team Development	<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • Our younger members do not have much experience. 	<ul style="list-style-type: none"> • Our team is experienced in all levels of FIRST. • Our large number of young members have many years of learning ahead. 	<ul style="list-style-type: none"> • Our program has chance to lose manpower.
Robot	<ul style="list-style-type: none"> • We've got a quick and aggressive robot to cross barriers. 	<ul style="list-style-type: none"> • We're unable to complete all tasks on field. 	<ul style="list-style-type: none"> • We are trying to do everything in order to win a regional. 	<ul style="list-style-type: none"> • The time crunch we are put under!
Design	<ul style="list-style-type: none"> • We have 3 years under our belt to see what works and what doesn't. • We've streamlined design processes. 	<ul style="list-style-type: none"> • Our design team is also on the build on programming team, so they don't have enough time. 	<ul style="list-style-type: none"> • We got a lot of people up to speed about basic design. 	<ul style="list-style-type: none"> • Our CAD team is significantly understaffed.
Financial	<ul style="list-style-type: none"> • We have great relationships with our current sponsors. 	<ul style="list-style-type: none"> • We are privately run and have no school sponsoring us. 	<ul style="list-style-type: none"> • People and corporations in the area are interested in kids going into STEM. 	<ul style="list-style-type: none"> • Sponsorship is uncertain from year to year. • There are two other FRC teams in the area.



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.

Support Academics

- Our team puts academics first, support 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
<i>Demos events</i>												
Volunteer at Kids Triathlon			X									
Sparkfun		X										
FLL Tournament						X						
<i>Contact Local Press</i>												
Reach out to local paper					X							
Find local Politian to assist in creating Robot Awareness Day				X	X							
<i>Visit Elementary Schools</i>												
One hour of code							X					
Research and start FLL team			X									
<i>Visit Middle School</i>												
Visit and bring robot to demo			X	X	X							
Offer to mentor FLL or FTC Team			X	X	X							
<i>Sell Light Bulbs</i>												
Order Light bulbs						X						
Organize sales					X	X						
Sell bulbs						X	X	X				
<i>Improve Website</i>												
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
<i>Obtain new Sponsors</i>												
Define List of sponsors and relationships					X							
Develop target sponsors						X						
Contact local and national interested businesses						X						
Start sponsorship advantages			X									
<i>Visit and demo for existing sponsors</i>												
Identify Local sponsors		X										
Develop new relationships			X									
<i>Apply for local and national grants</i>												
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



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