2014-2015 Business Plan

FIRST TEAM 2996

COUGARS GONE WIRED

COUGARS GONE WIRED

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Executive Summary

Team Mission Statement

Cougars Gone Wired endeavors to combine a constant pursuit of knowledge with a commitment to the team, community, expansion of STEM, and message of FIRST. It strives to be a role model for other teams by focusing on more than just building robots and competing in FIRST events. Participation in service projects and STEM-related activities entices a variety of audiences and allows the team to use its resources to benefit the community.

Cougars Gone Wired's business structure educates students in technical and business aspects in a sustainable and safe environment. The student-led team model provides members with valuable experience and leadership opportunities under the invaluable guidance of mentors and alumni. Cougars Gone Wired conducts itself in such a way that upholds respectable reputations for STEM programs, FIRST, and other team affiliates.

Team Origin

In August of 2008, Mr. Bryce McLean, mathematics and engineering teacher at Coronado High School, nine mentors, and thirty-four Colorado Springs School District 11 (CSSD11) students established FIRST Robotics Team 2996, Cougars Gone Wired. Mr. McLean's classroom became home and the base for growth and development as a team and as a family. Cougars Gone Wired has since expanded throughout the Pikes Peak Region to sixty-eight dedicated students.

In the last six seasons, Cougars Gone Wired has overcome challenges in order to continue participation in FIRST events. At the end of 2009, Mr. McLean had to undergo major heart surgery. This resulted in his absence during the critical months prior to build season. Budget cuts throughout the city continue to decrease sponsorships substantially.

In August of 2014, just weeks before the start of the school year and the official start of Cougars Gone Wired's off-season, Mr. McLean accepted a promotion and took the position of Assistant Principal at Jenkins Middle School, which required him to resign as head coach. In the same week, Dr. John Wood, an invaluable mentor since the start of the team, and his wife passed away in a small plane accident. To overcome these challenges which preceded the 2015 season, Cougars Gone Wired joined together to continue holistic team development. This strengthened relationships and increased coach, mentor, and student responsibilities to initiate dynamic improvements in team operation and enterprise.

Organizational Structure

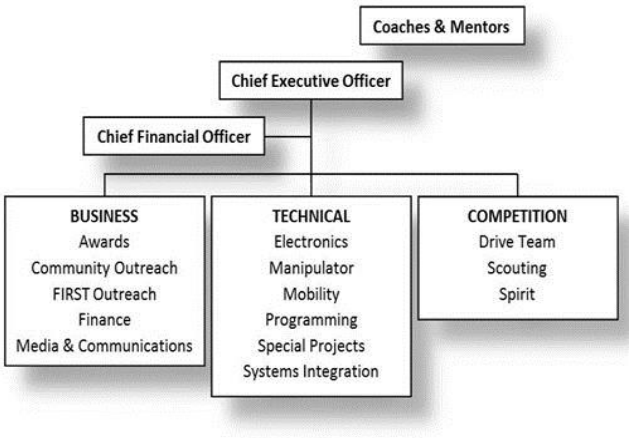
The majority of the team's revenue comes from STEM-related corporate sponsors. The team raises money through collaborative fundraisers, including FIRST Green e-watt saver lightbulbs. During the 2015 build season, Cougars Gone Wired started selling Old Chicago Pizza Palz cards and team "Geared for Greatness" water bottles.

CSSD11 manages team expenditures. They ensure that funds are properly spent by requiring itemized and specific financial records. Coaches justify expenses to the district with input from student leaders and mentors.

The team connects with potential sponsors through mentors, parents, and community events. Leadership coordinates an interview process to determine presentation team membership. This group of students then presents to potential sponsors to detail the team's successes, to explain FIRST's mission, and to seek financial support.

Mentors are often acquired through these presentations. As noted in the "Relationships" section, the majority of student recruitment occurs at Coronado registration, community events, and the annual barbecue.

The FIRST experience inspires learning and growth as a team and as a business; encouragement of student enthusiasm for STEM remains the highest priority. The team maintains a "student-led" and "mentor-guided" operation. The "hands-off" mentor build policy paves the way for enduring relationships and encourages student STEM growth. To ensure an even distribution of tasks and to create an environment for personal growth and well-rounded members, the team requires both business and technical sub-team participation.



Relationships

Cougars Gone Wired recruits at Coronado registration, community events, and an annual informational barbecue. Preseason meetings focus on team building. Members bond and socialize during Village Inn's Pie Rush Wednesday. Members and alumni hold an annual party to bake cakes for the Kick-Off event. During build season, parents provide and serve a daily family-style meal program: Cougar Kibble. Technical VPs hold afterschool education sessions using past robots.

Dedicated and supportive mentors endure long build season hours alongside students. They impart guidance and knowledge, and guarantee a student-produced robot through a "hands-off" mentor build policy.

Sponsors are important team members. Their generous support allows the team to experience the array of FIRST opportunities. In return, sponsors are invited to events and celebrations, receive robot demos, and are featured on team shirts.

The summer and preseason are dedicated to student-initiated service projects including wildfire damage mitigation and reparation. The team perpetually stresses values of FIRST at community events, science festivals, charity walks, and Elks Lodge community dinners. It involves other FRC teams by including them in Mock Game, building a community practice field for each game, and hosting the annual Colorado Pre-Ship Scrimmage. Twelve Jr. FLL teams and 5 FLL teams were started to inspire local youth. In 2014, the team hosted the Southern Colorado FTC Qualifier, held its 3rd annual Southern Colorado Jr. FLL showcase, and began mentoring a local FTC team.

Deployment of Resources

The team's connections have multiplied over its seven years, enabling the acquisition of resources and expansion of impact. The most valuable resource is the membership of 68 students and 22 mentors which is dedicated to giving demos, mentoring younger students, and volunteering. Participation in Coronado High School events and work with national service programs attracts new audiences. At demos and festivals, the team encourages kids to drive the robots and engages in conversations with children, parents, and professionals to educate and attract them to STEM and the FIRST community.

Cougars Gone Wired started the first 5 Jr. FLL teams in southern Colorado, and has expanded to 12 teams across 4 elementary schools. To each team a 2996 member offers technical support and advice on program sustainability. Cougars Gone Wired donates resources to start these teams, and volunteers time to run the annual Southern Colorado Jr. FLL Showcase. In 2010, FTC Team 3635 was welcomed into the Cougars Gone Wired family. Since then, the team has mentored an FTC team, and hosted a 2014 FTC Qualifier.

Team members are required to participate on business and technical sub-teams. This distribution of intellectual resources has proven to engage students, teach practical skills, and prepare for future careers. By financing trips, team shirts, shop materials and entrance fees with sponsor donations and fundraisers, members pay only a low joining fee, and substantially reduced trip prices. This enables members to attend competitions and makes FIRST an accessible opportunity for all.

Future Plans

The finance sub team will complete fundraising and business submissions in the 2016 preseason to increase robot build involvement. It is seeking sponsorship of Colorado originated chains and non-STEM related companies, and plans to execute a method for identifying and rewarding sponsor levels. General leadership aspires to implement new solutions for team communication. The team began selling "Geared for Greatness" water bottles during the 2015 build season and doubled the initial investment. It hopes to expand this line of products to increase fundraising variety and profit.

The scouting team is implementing a paperless system to optimize the match scouting system and make it green. Cougars Gone Wired is exploring the possibilities of sponsorships with technology companies such as Google for donations of Chromebooks or tablets to help initiate this system.

The addition of new-member training workshops and leadership seminars will further develop the student mentor program introduced in the 2015 preseason.

Cougars Gone Wired participates in team bonding and stress relief through activities such as wheel barrow races and ultimate Frisbee, and plans to expand this fun and physical involvement.

In 2015, the team collected and sent donations to an orphanage in Puerto Rico. It intends to create STEM related children's books in Spanish to accompany more shipments of donations.

Cougars Gone Wired aims to partner with a Japan FRC Team, such as FIRST Team 5701, the Indigo Ninjas, to build relationships to start FIRST teams in Colorado Springs' sister city, Fujiyoshida, Japan.

Financial Statement

Entrance Fees	Utah Regional	$	4,000.00
	Colorado Regional	$	5,000.00
	Championship (Tentative)	$	5,000.00
Lodging	Utah Regional Hotel	$	5,300.00
	Colorado Regional Hotel	$	3,800.00
	Championship Hotel (Tentative)	$	7,500.00
Transportation	Bus for Utah Regional	$	3,100.00
	Bus for Championship (Tentative)	$	7,000.00
Build Season	Robot Materials (Prototype, Practice, Competition)	$	5,300.00
	Field Materials	$	1,400.00
	Miscellaneous	$	2,500.00
Community Outreach	FIRST Outreach	$	400.00
	Local Outreach	$	300.00
	Total	**$**	**50,600.00**

Risk Analysis

Strengths: 22 mentors including engineers, industry professionals, business owners, and educators; introduction of business-oriented mentors; definition of leadership roles; strong, positive FRC reputation; featured Coronado High School program; 68 members of gender, age, ethnic, and skill diversity; facilities including wood and metal shops, community room, computer labs on integrated network, aux gym for practice field and events, catering room for Cougar Kibble

Weaknesses: Developing additional corporate sponsors; utilizing business connections; developing future business and technical leadership; improving transition of VPs; communication for events and meetings; involving parents and utilizing parent skill sets

Opportunities: increasing interest in STEM and FIRST; women in engineering resources; promoting Gracious Professionalism outside of robotics; leadership skill development; scholarships, internships, networking; new member mentoring program

Threats: Economy's effect on sponsor resources; effects of FTC team loss; coaching turnover and changes including Mr. McLean's promotion and the loss of Dr. Wood

Risk Mitigation Plan: The above analysis mandated a collaboration of students, coaches and mentors to strategize methods for tackling program risk while growing success and maintaining strengths of leadership and diversity, including increasing the female to male ratio of students and mentors, and attracting an additional coach. This sustainability work group is responsible for planning future fund development and building relationships with community stem partners.

Pictures

The Team

Team History

2009 – Lunacy

Given the complexity of building a robot and the team's inexperience, the robot for 2009 Lunacy was built to be what the team jokingly called "Dozer" for its ability to do little but push other robots around on the field. Cougars Gone Wired experienced little competitive success on the first day of the Colorado Regional, but was re-energized after receiving the Website and Animation awards. The team returned intent on enjoying the rest of the time at competition, as it was clear Dozer would seed high enough to join in the elimination rounds. However, thanks to the kindness of the first seeded team, FIRST Team 399, and their partner, FIRST Team 1332, Cougars Gone Wired not only participated in the elimination rounds, but was part of the winning alliance and received the Rookie All-Star Award. The team competed in the Newton Division of the Championship competition in Atlanta, Georgia.

2010 – Breakaway

Inspired by the previous year's success, Cougars Gone Wired went into the 2010 Breakaway season aspiring to build a robot capable of competitively playing the game. The team chose to increase their level of competition by participating in multiple regionals. The Kansas City Regional was used to make significant improvements in preparation for the Colorado Regional. In Denver, the team made it to the semi-finals, and was awarded the Entrepreneurship, Industrial Safety, and Autodesk Excellence in Design awards.

2011 – Logo Motion

One of the most successful seasons to date was in the 2011 game *Logo Motion*. Cougars Gone Wired won the Entrepreneurship Award for the second year in a row and made it to the semi-finals in the Kansas City Regional. The team continued to the Championship competition with the acquisition of the Colorado Regional Chairman's award. The Colorado Regional also yielded a FIRST Dean's List Finalist Award to Scott Von Thun, and the Woodie Flowers Regional Award, presented to the team's "Big Kahuna", Mr. Bryce McLean. Cougars Gone Wired made it to the seventh seed in the Curie Division at the Championship competition in St. Louis, Missouri.

2012 – Rebound Rumble

Going into its fourth season, Cougars Gone Wired adopted a new plan from another FRC team: two identical robots, both built within the six week build season. The first robot was "bagged and tagged" and the second stayed behind. This gave the team extra time for driver practice, testing programs, resolving robot issues, and making improvements. This led to Cougars Gone Wired victory at the Colorado Regional as head of the top seeded alliance with teams 399 and 3807. The team then proceeded to the Archimedes Division at the World Championships, at which the team's CEO, Jasmine Kemble, was chosen as a Dean's List Winner.

2013 – Ultimate Ascent

Cougars Gone Wired made it to the Semi-Finals at the Kansas City Regional, and received the Imagery Award. At the Colorado Regional, the team won the Regional Chairman's Award and made it to the finals and was chosen as the Colorado Wildcard. At the Championship competition, Cougars Gone Wired made it further than any other Colorado team had before: the team made it to the semifinals in the Curie Division. The robot, Sebastian, died valiantly when a Jaguar failed mid-match.

2014 – Aerial Assist

The team experienced a rare success last season, and was named Regional Chairman's Award winner and Regional Winner at the Utah Regional, which was only intended as a practice regional. These achievements lead to a fun and enthusiastic second regional, and a Colorado Regional Spirit Award. Cougar Gone Wired was ranked eighth in the Curie division at the Championship competition, but malfunctioned during a qualification rematch and finished out the season in 24th place.

Awards History

2009

- Colorado Regional Website Award
- Colorado Regional Highest Rookie Seed
- Colorado Regional Rookie All-Star Award
- Colorado Regional Winners
- Colorado Regional Autodesk Visualization Award

2010

- Colorado Regional Industrial Safety Award
- Colorado Regional Entrepreneurship Award
- Colorado Regional Excellence in Design Animation Award

2011

- Kansas City Regional Entrepreneurship Award
- Colorado Regional Chairman's Award
- Colorado Regional Woodie Flower Mentor Award, Mr. Bryce McLean
- Colorado Regional Dean's List Finalist, Scott Von Thun

2012

- Kansas City Regional Spirit Award
- Colorado Regional Entrepreneurship Award
- Colorado Regional Winner
- Colorado Regional Woodie Flower Mentor Award, Mr. David Murphy
- Colorado Regional Dean's List Finalist, Jasmine Kemble

2013

- Kansas City Regional Imagery Award
- Colorado Regional Finalists
- Colorado Regional Chairman's Award

2014

- Utah Regional Winner
- Utah Regional Chairman's Award
- Colorado Regional Spirit Award

Tracking Growth

Cougars Gone Wired makes growth and improvement a priority. Over the past six years, the team has taken advice from and studied the practices of sponsors, local corporations, and other FIRST Robotics teams in order to expand boundaries and raise the bar. Large growth has been made in a short period of time by constantly setting goals and improving technical and business strategies.

Over the past six years, Cougars Gone Wired has gradually increased the number of people that are in involved in STEM and the FIRST program. Membership has increased by 200% since our first year, the result of recruitment efforts at Coronado High School's registration days, many community events such as Cool Science and the What If Festival, and word of mouth. The team has increased FIRST involvement by reaching out to elementary schools and middle schools to start Jr. FLL and FLL teams. This includes twelve Jr. FLL teams and five FLL teams in the local community. Various demonstrations throughout the community have generated interest in STEM and FIRST Robotics. Cougars Gone Wired plans to continue these efforts and expand beyond just the present community.

2008-2009 (FRC)

- Sponsors
- 1 Robot

2009-2010 (FRC and FTC)

- Community Outreach
- Mock Game
- Second Regional
- Sponsors
- 1 Robot

2010-2011 (FRC and FTC)

- Long Term Partnerships
- Community Outreach
- Mock Game
- Second Regional
- Sponsors
- 1 Robot

2011-2012 (FRC and FTC)

- FRC Scrimmage Event
- Cougar Kibble
- Long Term Partnerships
- Community Outreach
- Mock Game

- Second Regional
- Sponsors
- 2 Robots

2012-2013 (FRC and FTC)

- Start and run FLL and Jr. FLL teams
- FRC Scrimmage Event
- Cougar Kibble
- Long Term Partnerships
- Community Outreach
- Mock Game
- Second Regional
- Sponsors
- 2 Robots

2013-2014 (FRC and FTC)

- FTC Qualifier Event
- Start and run FLL and Jr. FLL teams
- FRC Scrimmage Event
- Cougar Kibble
- Long Term Partnerships
- Community Outreach
- Mock Game
- Second Regional
- Sponsors
- 2 Robots

2014-2015 (FRC)

- FTC Qualifier Event
- Start and run FLL and Jr. FLL teams
- FRC Scrimmage Event
- Cougar Kibble
- Long Term Partnerships
- Community Outreach
- Mock Game
- Second Regional
- Sponsors
- 2 Robots

Team Demographics

Chart 1 compares the mentor and student populations. The mentor to student ratio significantly increased for the 2015 season. Sponsor presentations and preseason adversity attracted additional mentor involvement.

Chart 1

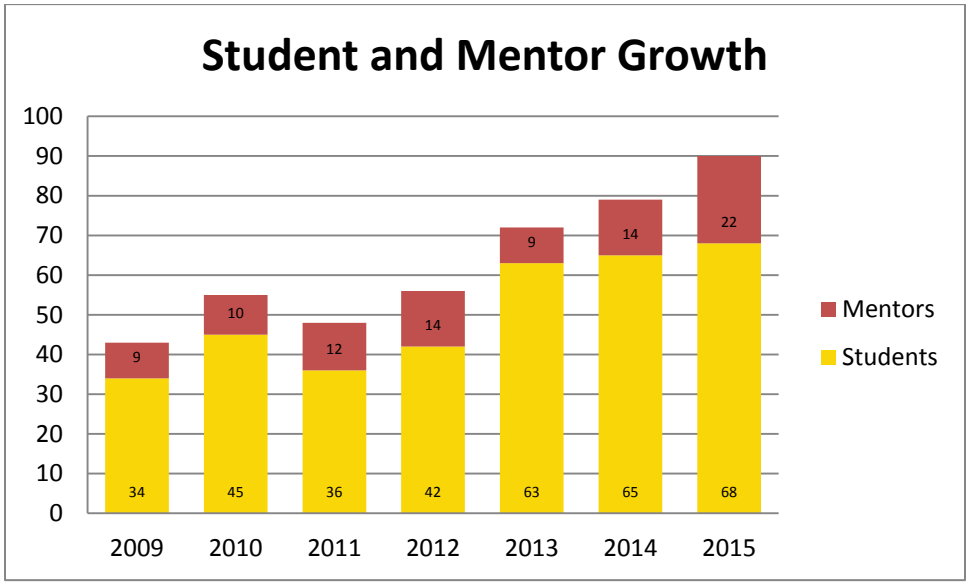


Chart 2 illustrates team growth and increase of younger membership. Leadership works to train these younger members to maintain their involvement through their high school career.

Chart 2

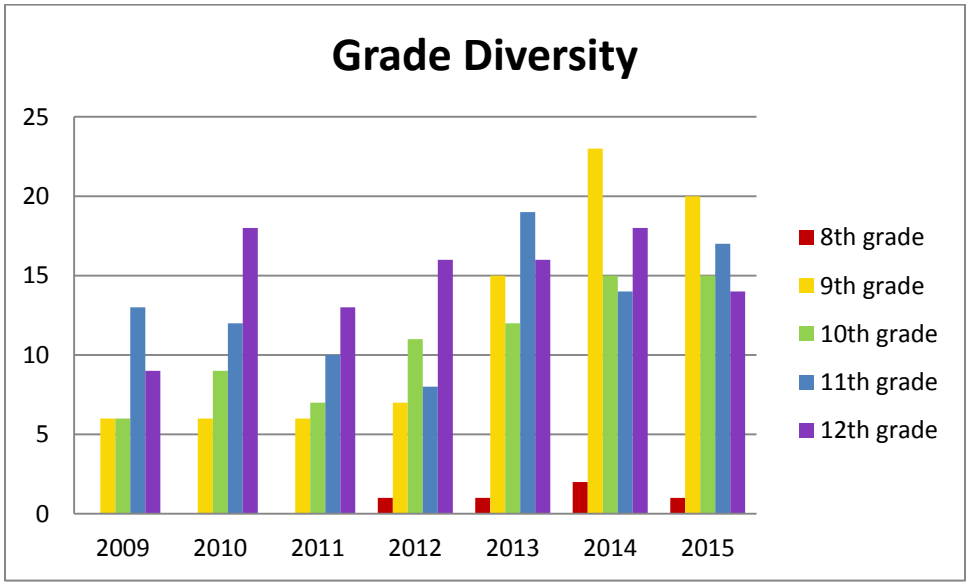


Chart 3 and Chart 4 express the student male to female participation. While there are more males on the team, more females hold leadership positions.

Chart 3

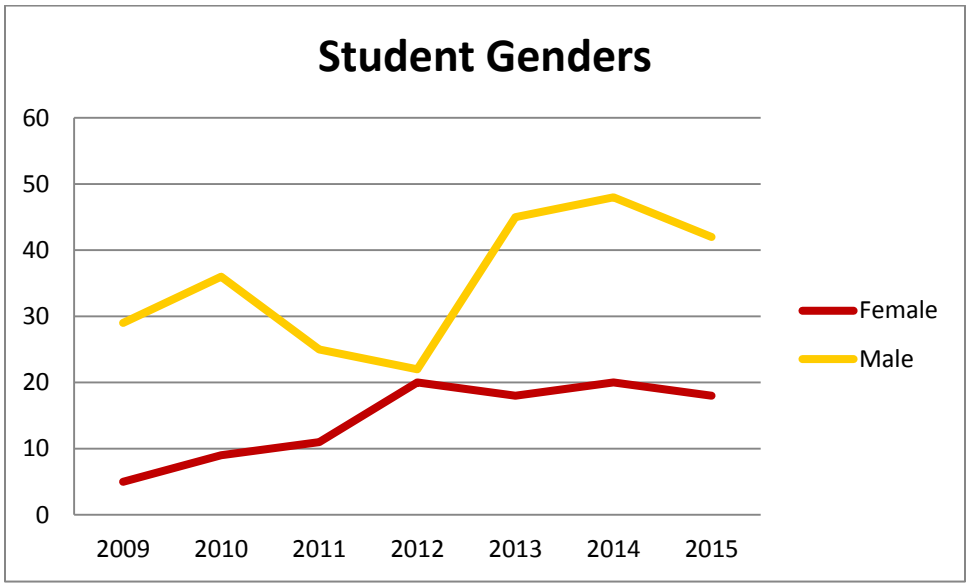
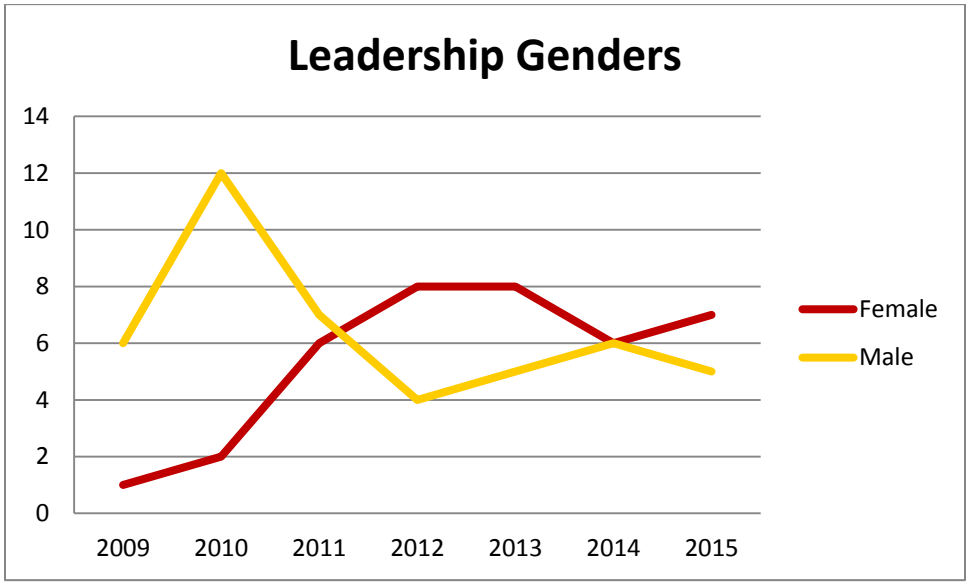
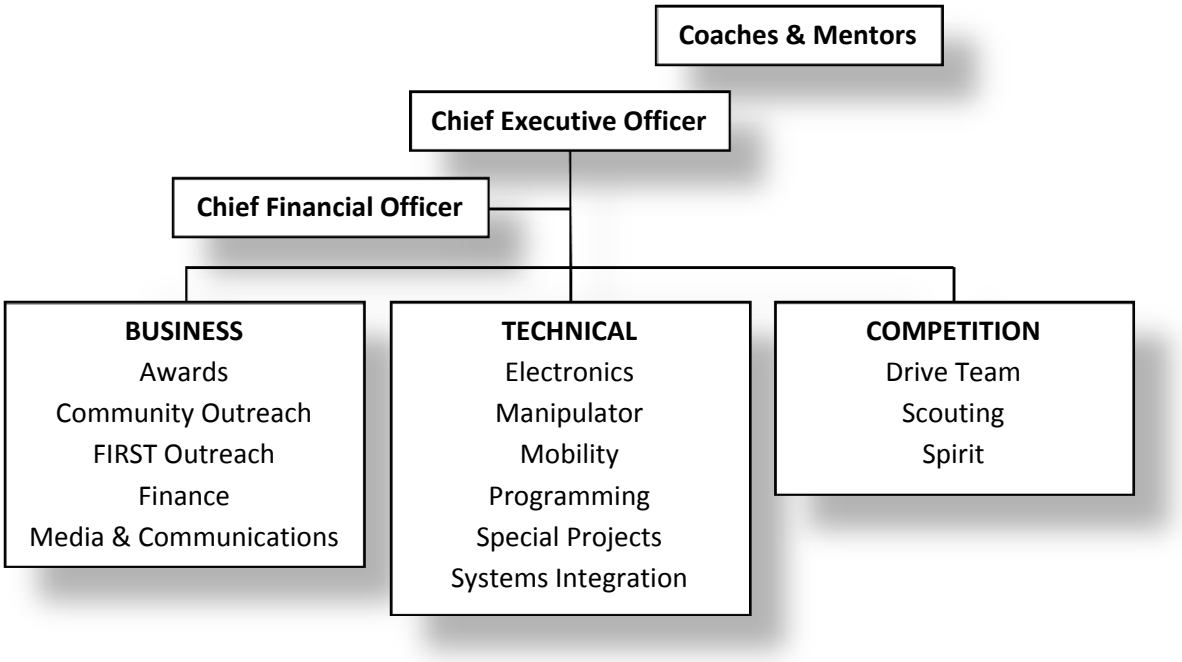


Chart 4



Operational Plan

Team Structure



Student Leadership

The FIRST experience inspires learning and growth as a team and as a business; encouragement of student enthusiasm for STEM remains the highest priority. Cougars Gone Wired maintains a strict "student-led" and "mentor-guided" operation. The "hands-off" mentor build policy has paved the way for enduring student-mentor relationships and encourages student STEM growth.

Leadership Positions and Requirements

Sub-teams are led by VPs who are responsible for ensuring that goals are executed well and on time. They are required to exemplify good role-model characteristics, participate wholly in all team activities, attend at least 90% of team events, and be present for weekly VP meetings.

To obtain leadership positions, students must go through an application process similar to that of job including submission of a high school transcript, resume, and cover letter. That is followed by individual interviews conducted by a panel of the team's mentors. The mentors then decide who is best for each position.

The leadership selection process occurs annually. Business leadership is selected in the spring to maintain community and STEM involvement throughout the summer, and technical leadership is selected in the fall to provide VPs with adequate time to train their sub-teams and prepare for build season.

Member Organization

Every member of the team is required to be a part of both a business sub-team and a technical sub-team. This policy not only ensures even distribution of tasks to build the robot, but creates an environment that encourages personal growth and well-rounded members.

Job Descriptions

Coaches & Mentors

Coaches and mentors provide guidance and supervision to the team. They consist of engineers, industry professionals, business owners, teachers, and professors that guide the team as a business, and through the design, fabrication and construction of the robot.

Student Leaders

Student leaders are in charge of their respective sub-teams. They are responsible for assuring the agenda and goals of the team are met, and the newer members are properly trained.

Chief Executive Officer (CEO)

The CEO oversees the overall progress of the team. Much like the VPs, he or she makes sure the team's deadlines are met. They are the spokesperson for community events and sponsor presentations.

Chief Financial Officer (CFO)

The CFO is also the Finance VP. Responsibilities include finding potential sponsors, organizing presentations, fundraising, and other student managerial tasks.

Business Sub-Team Leadership

- Awards VP
- Community Outreach VP
- FIRST Outreach VP
- Media & Communications VP
- Finance VP

Technical Sub-Team Leadership

- Electronics VP
- Manipulator VP
- Mobility VP
- Programming VP
- Systems Integration VP
- Special Projects VP(Safety Captain)

Competition Teams

The competition teams, Scouting, Spirit, and Drive, are different from the technical and business sub-teams. The Drive Team consists of four students: driver, manipulator, human player, and coach. These are selected through "tryouts" that occur during robot testing on the Saturdays between the end of build season and competition. The Spirit team includes all Cougars Gone Wired members, and a student leader is normally elected at the beginning of competition season to design and organize spirit gear, signs, and team cheers. Similar to Spirit, the Scouting team consists of most of Cougars Gone Wired. It is usually led by the FIRST Outreach VP, and includes of whichever students choose to participate in the scouting process at the competitions.

Business Sub-Teams

Awards

The Awards team applies for select awards each season including the Chairman's, Woodie Flowers, and Entrepreneurship awards. In cooperation with Media & Communications, they create the Chairman's video and ensure that all awards are submitted by their deadlines.

Community Outreach

The Community Outreach team is in charge of forming and maintaining relations with former and new sponsors, other FIRST teams, and organizations within our community. This sub team leads Cougars Gone Wired in utilizing our resources and manpower to give back to the community.

FIRST Outreach

FIRST Outreach VP is a new position that works alongside the Community Outreach sub team to lead the team in spreading the word and values of FIRST throughout the community. This includes mentoring Jr. FLL and FLL teams, hosting and organizing FIRST events, and doing demonstrations and presentations at local schools and libraries.

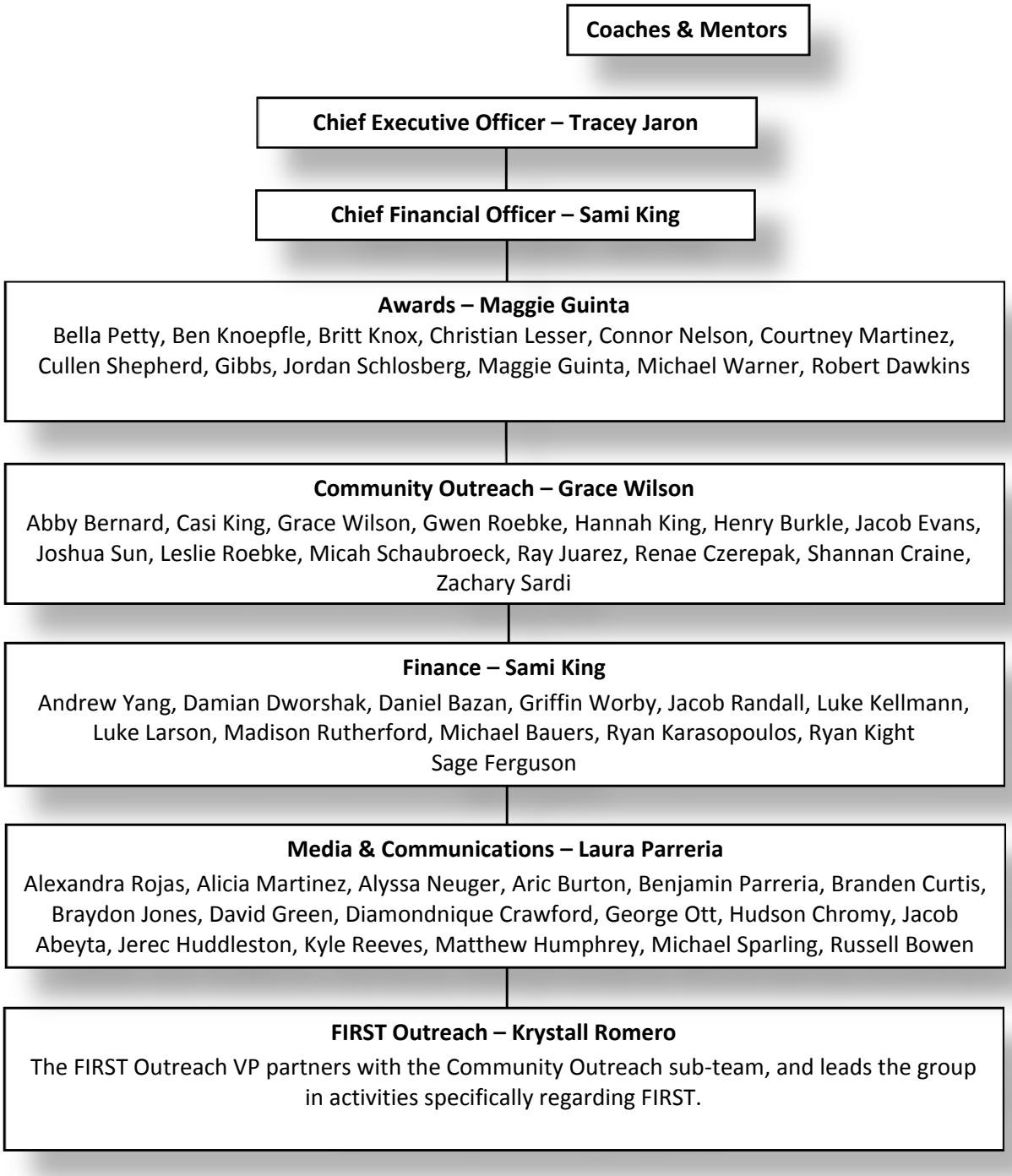
Media & Communications

Media & Communications maintains Cougars Gone Wired's website and social media for sponsors, the community, other FIRST teams, team members, and parents to access. Other responsibilities include utilizing graphic design skills for each year's T-shirt, taking photographs of community events, and filming and editing the Chairman's video.

Finance

Led by the CFO, the Finance team's primary function is to brainstorm, discuss, receive approval for, and execute fundraising ideas. Finance is also in charge of collecting and keeping all member, mentor, parent, alumni, and sponsor information organized and up to date to ease the contact process.

2015 Business Sub-Team Breakdown



Technical Sub-Team Tasks

Electronics

The Electronics team, working closely with the Programming team, designs the electronics board, wires the robot, and maintains all the batteries. They assure that all components of the electronics are safe and can support the load of the motors, sensors, and actuators.

Manipulator

The Manipulator team brainstorms, prototype, and oversees all manipulators of the robot. These manipulators control both game pieces and the robot in order to maximize on points and fit to the team's strategy, such manipulators include but do not exclude to shooters and pick-up systems.

Mobility

The Mobility team designs and fabricates the drive train of the robot as well as works closely with Systems Integration to design and fabricate the chassis.

Programming

The Programming sub team programs the robot to accomplish the team's autonomous and tele-operated strategy. It debugs and updates prior robot code, and uses sensors to make driver control easier and more effective.

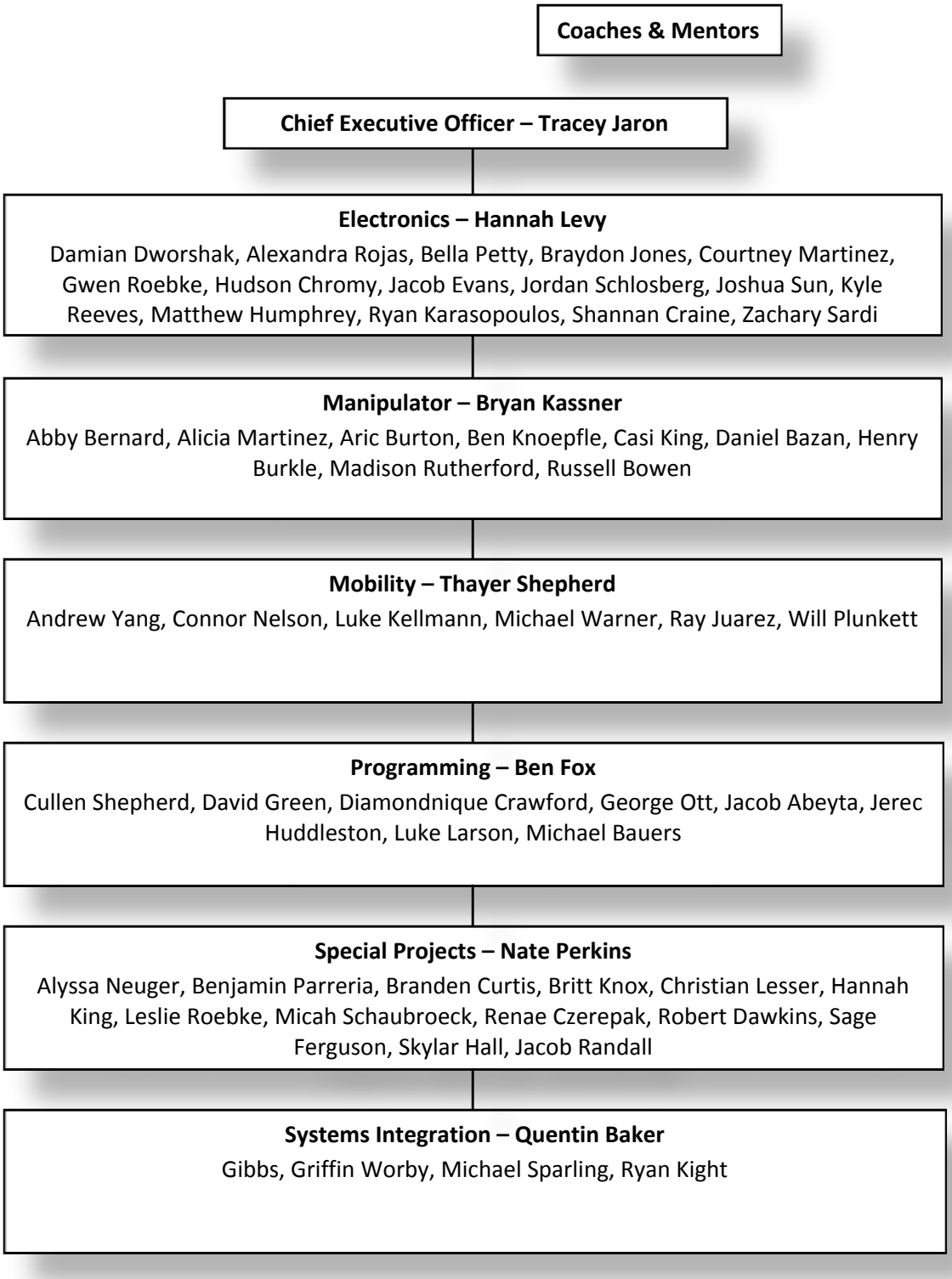
Systems Integration

Systems Integration sends representatives to all technical sub teams so that design and constraints are consistent. It then integrates all parts of the robot into a CAD, which is then sent to the team's manufacturer, Vertec.

Special Projects

Special Projects builds the field and manufactures all field elements necessary for the Cougars Gone Wired-hosted Pre-Ship Scrimmage. It is in charge of safety, closet cleanup, pit setup, and the crate packing.

2015 Technical Sub-Team Breakdown



Build Season Planning

Both business and technical teams work constantly to complete required business and community events, as well as build three robots (prototype, practice, and competition bot) during the six week build period. During this time there is an increased emphasis on the technical side of the team. Usually the CEO uses Microsoft Office Project to manage time; however due to the lack of access to the software this year the CEO kept everybody on schedule and meeting deadlines by reallocating people, changing work hours, and making decisions with the VP's without Microsoft Office Project as a tool.

Off-Season Planning

Between the months of April and January, the team is focused on growing and developing. This period is used for building and maintaining relationships within the community, raising funds, participating in community events, and making connections between team members to strengthen the team as a whole.

Cougars Gone Wired utilizes the preseason to ensure that every student has a chance to develop the skills necessary to be successful in FRC. The technical VP's hold classes outside of regular team hours to educate members on fundamental and in-depth concepts in preparation for build season.

The team requires members to be on both business and technical sub-teams to promote well-rounded individuals for participation inside and outside of FIRST.

Building Bonds

Team Bonds

Member Bonds

Cougars Gone Wired recruits at Coronado registration, community events, and an annual informational barbecue. Preseason meetings focus on team building and technical education. Members socialize outside of meeting hours weekly at Village Inn's Pie Rush Wednesday, and movie nights hosted by team members. These gatherings solidify the friendships between members, retaining and attracting new members to the Cougars Gone Wired family.

Alumni Bonds

The team's family atmosphere encourages alumni to come back and participate in kickoff, community outreach, team meetings, and competitions. Alumni are valuable to the team as mentors for sharing robotics experience, as well as the knowledge they have gained beyond high school. Cougars Gone Wired is unique in the strength of the bonds formed between members, alumni, and mentors, and the constant support between these groups, inside and outside of robotics. Events such as the annual Kick-Off Cake party gather the Cougars Gone Wired family and reinforce alumni's perpetual membership on the team.

Parent Bonds

Cougar Kibble

For the first few years of Cougars Gone Wired's existence, the students relied on local restaurants for sustenance during the busy hours of build season. For the 2012 build season, the parents banded together and organized a family-supplied and served meal program, Cougar Kibble.

Cougar Kibble has successfully fed our team of about 60 members every day of build season, including Saturdays. It has reduced weather and driving risk, and ensured nutritional, balanced diets for team members and mentors. This program is not only an asset to the welfare of students and productivity of work hours, but has blossomed into a facet of the team's family atmosphere.

Mentor Bonds

Over the years, Cougars Gone Wired has been graced with dedicated and supportive mentors. The "hands off" mentor build policy has created an atmosphere in which mentors can guide and share their knowledge, but still allow students to utilize their creativity and get hands on experience. This practice not only allows students to learn from the mentors, but for the mentors to also learn from the students as they overcome challenges together. Mentors endure the long hours alongside the team, solidifying the Cougars Gone Wired family atmosphere.

The team is extremely grateful for the bonds forged with, and the constant guidance and support from these benevolent and devoted mentors:

Patrick Bernard, Brett Bowen, Tom Burkle, Mike Donahue, Brian Fox, Grant Foy, Thomas Hastings, Gary Hilty, Cordt Kassner, Camille Kemble, Bryce McLean, David Murphy, Phil Royalty, Morgan Shepherd, Forrest Shields, Michael Sparling, Richie Vitiaelli, Matt Von Thun, Lynne Williams, Linda Wilson, Matthew Wilson, Brian Worby

Dr. John Wood (Woodie Flowers Submission)

Though FIRST team 2996, Cougars Gone Wired, has attracted 30 mentors over its 7 year career and continues to thrive on their support, only a few mentors have remained dedicated since the beginning. Dr. Wood, a member of this exclusive group, began his journey on the team by responding to an email asking local engineers to dedicate 90 hours over 6 weeks with no compensation other than the satisfaction of helping students engineer a robot. Many members of the local community declined, but driven by his passion as a United States Air Force Academy professor, an engineer, and a father, Dr. John Wood embraced the opportunity.

Since other mentors are only engineers, not educators, Dr. Wood's expertise as a teacher was essential to building a mentor team that could adapt advanced engineering and design concepts to a novice setting. By leading through example, Dr. Wood demonstrated how to bring composure to chaotic situations, ensure a 100% student-led effort, and demonstrate processes rather than solutions. This methodology bridged the communication gap between mentors and students, encouraging students to adopt an engineering perspective and mentors to be patient and facilitate student ideas. Ultimately, the team's effective communication and mentor hands off policy allow the team to address the multi-layer challenges appearing within each game.

Through USAFA, Dr. Wood acted as a liaison to provide supplemental opportunities for both individuals and the team. This relationship has contributed USAFA funding, contacts, and invitations to attend leadership seminars taught by cadets and present about STEM at a teacher boot camp. Associated companies, like Challenger Learning Center, have also opened doors for sponsorship and involvement in programs like Sea Perch.

Dr. Wood's influence went beyond his expertise as an engineer and teacher, and even beyond the benefits received through his contacts. As a father, he easily sensed students dealing with frustration and defeat in both the shop and in personal matters, going out of his way to smile, taking the time to talk, and make light of tough situations. Though he was a man of few words, his demeanor and sensitivity brought robotics emotional stability and the motivation to accept new challenges.

This year more than any, Dr. Wood's impact on the team has been felt. Because of his unparalleled contribution to team and because of the person he was and the inspiration he gave his students, team members, and family, Dr. Wood left the entire Colorado Springs and CGW community in shambles when he passed away in a horrific plane crash over the summer. The team, never given the opportunity to say goodbye or express appreciation for Dr. Wood, dedicates this season to his memory. Though he has passed, he is felt through his lab coat that he never took home, the

traditions he imparted, and the emphasis on communication and stability that he stressed. Even when he's not present, he drives the team and for that, Team 2996 will always be grateful.

Community Outreach

2014-2015 Outreach and Involvement

Event	Date	Hours	Category
Jenkins Middle School Demonstration	5-Jun-14	1	STEM Outreach
AHA Heart Walk Setup and Orientation	13-Jun-14	6	Volunteerism
AHA Heart Walk	14-Jun-14	5	Volunteerism
Library 21C Opening and Demonstration	21-Jun-14	6	STEM Outreach
Holmes Middle School Demonstration	26-Jun-14	1	STEM Outreach
Ruth Washburn Cooperative Nursery School yard work	18-Jul-14, 25-Jul-14, 1-Aug-14	18	Volunteerism
East Library Demonstration	25-Jul-14	1	STEM Outreach
Palmer Lake Town Hall and Village Green	29-Jul-14	3	STEM Outreach
Fountain Library Demonstration	1-Aug-14	1	STEM Outreach
BPO Elks Lodge 309 Clean-up	2-Aug-14	3	Volunteerism
BPO Elks Lodge 309 Charity BBQ	16-Aug-15	4	Volunteerism
Susan G. Komen Race for the Cure	7-Sep-14	5	Volunteerism
La Casa Luna De San Juan Orphanage Drive	21-Oct-14	9	Volunteerism
La Casa Luna De San Juan Orphanage Movie Night	24-Oct-14	3	Volunteerism
Coronado High School Fall Festival	25-Oct-14	3	School Service
Cheyenne Mountain Zoo's Boo at the Zoo	31-Oct-14	5	STEM Outreach and Volunteerism
Explore the Future 8th Grade Career Fair	4-Nov-14	3	STEM Outreach
Southern Colorado FLL Regional	8-Nov-14	11	FIRST Outreach
Southern Colorado Jr. FLL Showcase	13-Dec-14	3	FIRST Outreach
Elks Lodge Christmas Party	20-Dec-14	3.5	Sponsor Service
Sea Perch Competition	7-Feb-15	6	STEM Outreach
Colorado FRC Pre-Ship Scrimmage	14-Feb-15	6	FIRST Outreach
Coronado High School Homecoming Parade	12-Jun-13	6	School Service
Imagination Celebration's What If? Festival	18-Jul-13	2	STEM Outreach
Russell Middle School GT Night	30-May-13	2	STEM Outreach
Cool Science Festival	19-Jul-13	5	STEM Outreach
CSSD11 Administrators presentation	1-Aug-13	1	STEM Outreach
Elks Lodge Charity Ball	25-Sep-13	6	Sponsor Service
Sand Creek Library Demo	5-Oct-13	7	STEM Outreach
Jr. FLL Mentoring at Howbert Elementary	26-Oct-13	3	FIRST Outreach
Jr. FLL Mentoring at Madison Elementary	5-Nov-13	8	FIRST Outreach
Jr. FLL Mentoring at Trailblazer Elementary	9-Nov-13	10.5	FIRST Outreach
	Total	157	

The team's connections have multiplied over its seven years, enabling the acquisition of resources and expansion of impact. The most valuable resource is the membership of 68 students and 22 mentors which is dedicated to giving demos, mentoring younger students, and volunteering. Participation in Coronado High School events and work with national service programs attracts new audiences. At demos and festivals, the team encourages kids to drive the robots and engages in conversations with children, parents, and professionals to educate and attract them to STEM and the FIRST community.

International Outreach

Cougars Gone Wired's FIRST involvement has pushed the capacities of the community outreach sub-team, requiring a new FIRST outreach team to continue past FIRST initiatives and seek new connections. This new sub-team responded to Dean Kamen's call for international outreach. In October, a Cougars Gone Wired team member used her family in Puerto Rico to contact La Casa Cuna de San Juan Orphanage. Through a fundraiser movie night, the team was able to collect over 90 items like diapers, soap, and medical kits along with FIRST pamphlets translated in Spanish, directions on how to launch Jr. FLL teams, and a Jr. FLL Lego starter-kit to ship to the orphanage. The team hopes that this connection will lead to mentoring a team overseas in a few years.

FIRST Bonds

Cougars Gone Wired perpetually stresses the values of FIRST including Gracious Professionalism and Coopertition through community outreach as it strives to emulate the model of an ideal FIRST team.

Other FRC teams are invited to participate in activities throughout the year including Mock Game, and many community service events. During build season, the team builds an entire practice field which opens to teams every Saturday, and is used for the annual Cougars Gone Wired-hosted FRC Scrimmage. This scrimmage gives all FRC teams wanting to participate an opportunity to test robots and work with other teams. The 2014 Scrimmage was extremely successful, with 18 teams in attendance from all over Colorado and Wyoming.

Cougars Gone Wired started the first 5 Jr. FLL teams in southern Colorado, and has expanded to 12 teams across 4 elementary schools. To each team a 2996 member offers technical support and advice on program sustainability. Cougars Gone Wired donates resources to start these teams, and volunteers time to run the annual Southern Colorado Jr. FLL Showcase. In 2010, FTC Team 3635 was welcomed into the Cougars Gone Wired family. Since then, the team has mentored an FTC team, and hosted a 2014 FTC Qualifier.

School District Bonds

Cougars Gone Wired has taken the initiative to become more visible within the school district. A 2013 summer meeting between the team's articulate leadership, and the district's staff including the superintendent, middle school and high school executive directors, and head of the IT department allowed the team to address and resolve many issues with the district's technological and administrative policies which interfered with team efficiency and productivity. This also opened a communicative pathway to ease resolution of future difficulties.

This relationship has been utilized to spread FIRST and STEM within the community. The team had the opportunity to be the only student organization represented at the district's annual General Leadership Meeting. They allowed us to speak and promote FIRST and STEM to the audience of all district level department heads. Cougars Gone Wired was also featured in a nonprofit ad campaign which was shown in local movie theaters, intended to attract students to the school district

Coronado High School itself has graciously provided Cougars Gone Wired with work space and the utilization of the school's machinery and wood shop resources, which has been crucial to the team's existence and success. They also provide the team with space to host events which expand the outreach of FIRST in the Colorado Springs community. The team has also formed strong partnerships with many organizations within Coronado High School. A relationship with Student Council allows for advertising and mutual fundraiser support, and a connection with the catering class provides meals for the team on occasion.

Finances

2014-2015 Financial Analysis

The majority of the team's revenue comes from STEM-related corporate sponsors. The team raises money through collaborative fundraisers. During the 2015 build season, Cougars Gone Wired started selling Old Chicago Pizza Palz cards and team "Geared for Greatness" water bottles.

These new fundraisers resulted in double the profit of previous years. Increased revenue can be accounted for through the introduction of team-oriented products, and the sale of larger quantities of lower priced items rather than fewer high priced items.

Financial Statement

Entrance Fees	Utah Regional	$	4,000.00
	Colorado Regional	$	5,000.00
	Championship (Tentative)	$	5,000.00
Lodging	Utah Regional Hotel	$	5,300.00
	Colorado Regional Hotel	$	3,800.00
	Championship Hotel (Tentative)	$	7,500.00
Transportation	Bus for Utah Regional	$	3,100.00
	Bus for Championship (Tentative)	$	7,000.00
Build Season	Robot Materials (Prototype, Practice, Competition)	$	5,300.00
	Field Materials	$	1,400.00
	Miscellaneous	$	2,500.00
Community Outreach	FIRST Outreach	$	400.00
	Local Outreach	$	300.00
	Total	**$**	**50,600.00**

2015 Bill of Materials

This is a sample Bill of Material Template (BOM) for use in the 2015 *FIRST*(R) Robotics Competition Game, *RECYCLE RUSH*SM. All parts required by T11 should be entered into the BOM. The BOM helps Inspectors verify part use and legality on Robots. **This year teams do not have to report individual COTS items that are less than $1 USD each or are Kit of Parts items.**

2015 *FIRST* Robotics Competition
Bill of Materials

Team Name:		Team #:		Date:	
Event:		City:		State:	

Item	Description	Material	Source	Quantity	Measurement	Unit Price	Total Price
Major System Names Here	*Describe the Part (Axle, Bearing, Lifter, Solenoid)*	*What is it made from*	*Where did you buy it (Home Depot, AndyMark, Supply House, Etc.)*	*How Many*	*Piece, Inch, Etc.*	*Cost Per Unit ($)*	
Drivetrain:							
CIM Motor	Central Drive Train Motors	Various Mater.	AndyMark	2	Item	$28.00	$56.00
CIM Motor (KOP)	Central Drive Train Motors	Various Mater.	AndyMark	2	Item	$0.00	$0.00
Toughbox	Gear Assembly for Drive (12.75:1)	Al/Steel	AndyMark	2	Item	$66.00	$132.00
HiGrip Wheel	Basic Treaded Wheel, 6"	Polycarbonate	AndyMark	2	Item	$10.00	$20.00
Dual Omniwheel	Dual Metal Omniwheel, 6"	6061 Aluminum	AndyMark	2	Item	$100.00	$200.00
Pulley	Belt Drive Pulley	Polycarbonate	AndyMark	8	Item	$6.00	$48.00
Belt	Gates HTD timing belt	Kevlar/Rubber	AndyMark	4	Item	$16.00	$64.00
3/8" Hex Bolt	3/8-16x 4.25" Hex Bolt	6061 Aluminum	AndyMark	4	Item	$1.50	$6.00
3/8" Bearing	3/8" Hex Bore Bearing	Steel	AndyMark	14	Item	$5.00	$70.00
3/8" Hex Hub	375 Hex Hub	6061 Aluminum	AndyMark	4	Item	$10.00	$40.00
						Subtotals:	$636.00
Manipulator:							
CIM Motor (KOP)	Central Drive Train Motors	Various Mater.	AndyMark	2	Item	$0.00	$0.00
Gearbox (27:1)	Banebot Planetary Gearbox	Various Mater.	Banebots LLC.	1	Item	$123.25	$123.25
Gearbox (36:1)	Banebot Planetary Gearbox	Various Mater.	Banebots LLC.	1	Item	$125.75	$125.75
#35 Chain	#35 ANSI Roller Link Chain	Steel	AndyMark	3	10 ft	$12.00	$36.00
#35 Attachment	#35 Roller Chain Attachment Link	Steel	McMaster-Carr	26	Piece	$2.09	$54.34
17-Tooth Sprocket	#35 17-Tooth Sprocket	Steel	McMaster-Carr	2	Item	$10.63	$21.26
32-Tooth Sprocket	#35 32-Tooth Sprocket	Aluminum	AndyMark	8	Item	$14.00	$112.00
Steel Axel	3/8" Steel Keyed Axel	Steel	AndyMark	1	30 Inches	$36.00	$36.00
3/8 Collar Clamp	3/8" Collar Clamp	6061 Aluminum	AndyMark	4	Item	$3.00	$12.00
							$0.00
						Subtotals:	$520.60
Electronics:							
Talon SR	Talon SR Motor Controller	Various Mater.	Cross The Road Electronics	2	Item	$65.00	$130.00
Talon SR (KOP)	Talon SR Motor Controller	Various Mater.	Cross The Road Electronics	4	Item	$0.00	$0.00
US Dig. E4P Kit	Kit of Two 360 Encoders and Cables	Various Mater.	AndyMark/US Digital	1	Kit	$79.00	$79.00
Reed Switch	Magnetic Positional Sensor	Various Mater.	DigiKey	2	Item	$3.01	$6.02
Magnet	Trip Device for Reed Switch	Rare Earth Mag.	Hardware Specialty Co.	1	Set	$15.00	$15.00
Lexan Sheet	Approx. 25 Sq. Inches	Polycarbonate	Home Depot	1	Sheet	$24.06	$24.06
							$0.00
							$0.00
						Subtotals:	$254.08
Sheet Metals:							
4'x10' Metal Sheet	Sheet of Aluminum	.125" 5052 Al	Vertec Tool Inc.	1	Piece	$259.20	$259.20
2'x4' Metal Sheet	Sheet of Aluminum	.125" 5052 Al	Vertec Tool Inc.	1	Piece	$72.20	$72.20
							$0.00
						Subtotals:	$331.40
Misc:							
Corrugated Plastic	White Corrugated Signboard	Polycarbonate	Home Depot	1	Sheet	$10.28	$10.28
							$0.00
							$0.00
						Subtotals:	$0.00
						Totals:	**$1,742.08**

Sponsors

Sponsors are important team members. Their generous support allows the team to experience the array of FIRST opportunities. In return, sponsors are invited to events and celebrations, receive robot demos, and are featured on team shirts.

Many STEM related sponsors, specifically Aeroflex, Vertec, and Spectranetics, offer educational tours for Cougars Gone Wired leadership and the presentation team which demonstrate the value and real-life applicability of skills learned through FIRST programs.

Presentation Team

Leadership coordinates an interview process to determine presentation team membership. This group of students then presents to potential sponsors to detail the team's successes, to explain FIRST's mission, and to seek financial support.

The team connects with potential sponsors through mentors, parents, and community events. Mentors assist in scheduling presentations with current and potential sponsors.

The 2014-2015 presentation team consists of five females and two males. Four members are primary presenters, and the other three are less-experienced speakers that are rotated into to familiarize them with the presentation process in preparation for future years. This year's group of students was particularly successful in attaining new sponsors and securing funding beyond the 2015 season.

Team Fundraising Growth

Cougars Gone Wired strives to raise approximately $5,000 annually through fundraisers. During the off-season, the team sold the Hexbugs and FIRST E-Watt Saver lightbulbs remaining from previous seasons. It incorporated many new items into student fundraising this year including FUNdraisers of Colorado coupon books, Old Chicago Pizza Palz cards, and “Geared for Greatness” water bottles.

2009-2012

- Hexbugs
- FIRST Green e-watt saver lightbulbs

2013

- Hexbugs
- FIRST Green e-watt saver lightbulbs
- “Mind Seizure” and “Ghoul’s Gulch” haunted house tickets.

2014

- Hexbugs and FIRST Green e-watt saver lightbulbs
    - Leftovers from last year
    - Sold at Holiday Bazaar
- FUNdraisers of Colorado coupon books
- Old Chicago “Pizza Palz” cards
- “Geared for Greatness” water bottles

Future Plans and Goals

Business

Executive Leadership

- Develop the pass-down process and improve the flow of information through the transition of leadership
- Increase communication during the summer to set a more solid foundation to go into the school year with
- Expand and improve the new-student mentor program to ensure that the all students are prepared for build season

Community Outreach

- Develop data collection system for hours and attendance of community outreach events
- Improve new member attendance at community outreach events
- Take responsibility for informing new members on team history
- Continue international outreach and foster relationship with La Casa Cuna de San Juan orphanage

FIRST Outreach

- To specify a FIRST Outreach sub-team independent of the Community Outreach sub-team to more effectively delegate tasks and improve FIRST involvement
- Utilize the summer to initiate FIRST outreach and form new Jr. FLL and FLL teams prior to the start of the school year
- Make contact with Colorado Springs' sister city, Fujiyoshida, Japan, to start FIRST teams and develop STEM oriented relationships

Awards

- To have a cohesive rough draft of the Chairman's essay prior to kickoff
- Obtain footage of summer and preseason community outreach events

Media and Communications

- Media and Communications Submit for the Media & Technology Innovation Award
- Devise a Media Plan that strategizes marketing and internet advertising on the team's website and social media
- Use social media to more effectively spread the FIRST message

Finance

- Maintain the contact database initiated this year to ease communication with team members, alumni, and past and current sponsors
- Frequently update the business plan to keep a cohesive document which accurately summarizes the team's business goals, development, and organization

- Dedicate a section of the business plan specifically to sustainability analysis to perpetuate learning from past experiences and set concrete goals for the future

Technical

Programming

- Improve programmer preseason training
- Involve more members of the programming sub-team and utilize source control merging

Systems Integration

- Train team members in Autodesk Inventor, Solidworks, and PTC Creo
- Inventory and reorganize current hardware resources to prepare for build season
- Ensure full technical documentation of all sub-teams' activity by assigning Systems Integration members as recorders for each respective sub-team

Special Projects

- Use preseason time to educate members on equipment and power tool safety, and to update the safety handbook and kit
- Encourage more team spirit and continue producing new spirit gear and signs
- Produce mini field model for game after kickoff as it was beneficial to strategizing this year

Manipulator

- Utilize the preseason to train individual creativity for brainstorming
- Create more specific design matrices to improve the prototyping process
- Specify a breakdown of the manipulator sub-team to ease delegation and improve productivity when facing multiple tasks

Mobility

- Complete chassis and drive train design by the end of the first week of build season
- Finish the prototype no more than two days after the final design is decided on
- After chassis completion, delegate sub-team members to other sub-teams to assist however possible

Electronics

- Work to communicate more effectively with other sub-teams to improve efficiency
- Calculate the weight of all necessary components to mitigate weight-related issues
- Improve the organization of electronics-related supplies
- Maintain a welcome environment that helps members enjoy learning about electronics

Risk Analysis

Strengths: 22 mentors including engineers, industry professionals, business owners, and educators; introduction of business-oriented mentors; definition of leadership roles; strong, positive FRC reputation; featured Coronado High School program; 68 members of gender, age, ethnic, and skill diversity; facilities including wood and metal shops, community room, computer labs on integrated network, aux gym for practice field and events, catering room for Cougar Kibble

Weaknesses: Developing additional corporate sponsors; utilizing business connections; developing future business and technical leadership; improving transition of VPs; communication for events and meetings; involving parents and utilizing parent skill sets

Opportunities: increasing interest in STEM and FIRST; women in engineering resources; promoting Gracious Professionalism outside of robotics; leadership skill development; scholarships, internships, networking; new member mentoring program

Threats: Economy's effect on sponsor resources; effects of FTC team loss; coaching turnover and changes including Mr. McLean's promotion and the loss of Dr. Wood

Risk Mitigation Plan

The above analysis mandated a collaboration of students, coaches and mentors to strategize methods for tackling program risk while growing success and maintaining strengths of leadership and diversity, including increasing the female to male ratio of students and mentors, and attracting an additional coach. This sustainability work group is responsible for planning future fund development and building relationships with community stem partners.

Contact Information

Website

- team2996.com

Team Email

- cougars.gonewired@gmail.com

Facebook:

- facebook.com/cougarsgonewired

Main Contacts:

- Gary Hilty
  Title: Head Coach
  Email: hiltygl@d11.org
  Phone: (719) 328-3754

Team Meeting Information:

- Coronado High School
  Off Season – Wednesdays from 5 to 7
  Build Season – Monday through Friday from 4 to 7:30, Saturdays from 8:30 to 4

Sponsorship Information:

- Checks should be made payable to “Coronado High School”
- Mailing Address:
  Coronado High School
  1590 W Fillmore
  Colorado Springs, Colorado
  80904
- Federal ID Number: 84-600-1179