



Business Plan

2017

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Executive Summary

Team Mission Statement

FIRST Team 2996 Cougars Gone Wired strives to combine a constant pursuit of knowledge with a commitment to the community and the expansion of FIRST. We strive to be a role model for other teams by focusing on building students while building robots, having fun while working hard, and doing our best while helping others.

Team Origin

Cougars Gone Wired began in August of 2008, as a small group of 20 students meeting in room 407 of Coronado High School in Colorado Springs. Since then, the team has expanded to over fifty members, and more than twenty dedicated mentors.

One of the greatest challenges our team faces is the annual battle for sponsorship. Cougars Gone Wired is funded primarily by small donations, most of which come from local businesses. For example, our annual budget is \$41,000 and our average donation is \$500 from 27 sponsors. To acquire these, our team members go out into the community, making presentations about the values and impact of FIRST and how assisting our team supports the next generation of engineers and technology managers. While we are very grateful for all we receive, depending primarily on these donations means that our income constantly fluctuates and we start new every season in the unknown. To overcome this challenge, our Finance Sub-team works tirelessly to fundraise and promote our name. This year, our team set out to create an annual fundraiser to boost our income. One of our long-standing sponsors, the BPO Elks Lodge 309, offered to host a dinner, the proceeds of which would be donated to the team.

We also strive to reduce our costs for our members. For example, team parents provide transportation to regional events. Parents also provide nightly free meals for the team during build season, helping team members to stay healthy and keep costs of eating out down. Eating together also builds our family atmosphere, which is one of the best aspects of our team.

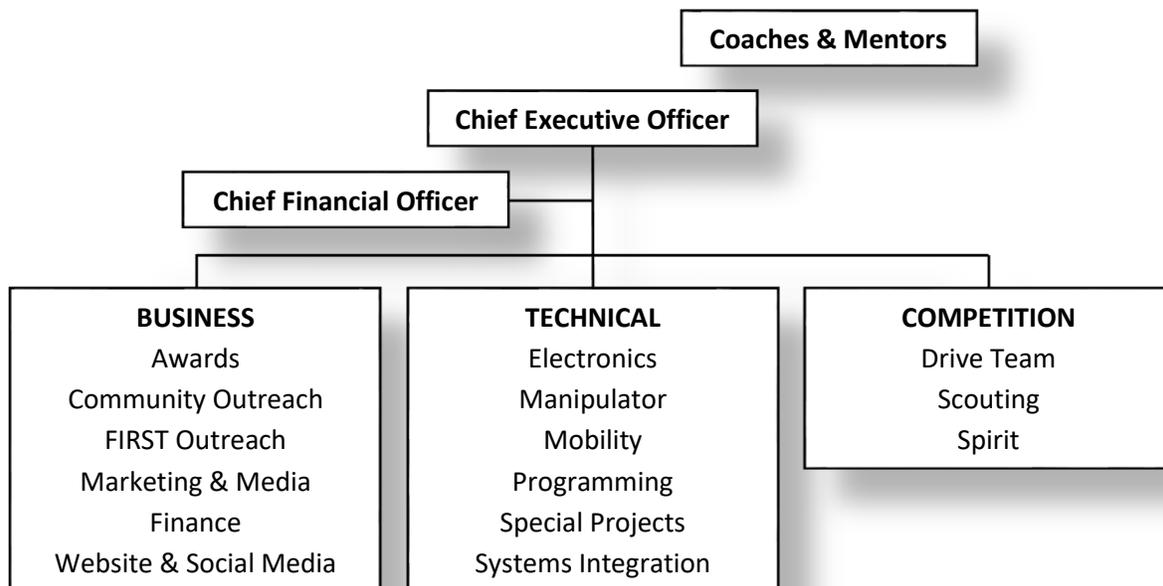
Organizational Structure

Our Chief Financial Officer (CFO) manages all fundraising. This year we started two innovative fundraising outreach events – a summer camp and a dinner. We started a STEM summer camp for middle school students, providing us with another chance to work with the community and provide us with another source of income. We also established a new annual dinner at Elks Lodge 309. We use their facilities and our team members serve dinner for Elks members and the community at large. Food is donated by local businesses.

As a student organization, the school district audits our books annually. Student leaders and mentors are responsible for justifying expenses. We as a team ensure that all supplies are purchased at the best price, and we also recycle materials as much as possible, including using parts from previous robots.

Our sponsor pool comes from connections to our community, through mentors' jobs, students' parents, or people we meet at demonstrations. The CFO establishes a presentation team which presents a proposal to businesses; including how our team and FIRST works, current goals, and benefits of being a team sponsor. In addition to financial contributions, several of our mentors have been recruited through these meetings.

From our STEM summer camp to our demonstration at the 8th grade open house, we begin recruiting even before students reach high school and teaching what FIRST means. As the school year approaches, we exhibit our robots at local high school registrations. To welcome students to the CGW family, we host a barbeque at the beginning of the school year.



Relationships

Our focus during the fall semester is attracting new members. We host a barbeque at the beginning of the school year to develop a sense of community. Over the course of the fall semester, the experienced members teach basic shop skills, our design process, and the business aspects of running the team to newcomers. Technical Vice Presidents (VPs) teach their teams about the systems that have been used in the past. Toward the end of the semester, the entire team takes part in a 3 day “Mock Game” in which we simulate the first week of build season so everyone is prepared for kick-off. This process of experienced members teaching the newcomers creates relationships, helping everyone feel they are part of the team.

We currently have 22 mentors, many of whom joined after attending demos or company presentations. Others were friends of current mentors, parents of students, or team alumni. Our mentors enjoy teaching and passing on their experience and most will stay on the team for years.

Sponsorships are also acquired through demonstrations or company presentations. Contributions are acknowledged by printing donor names on our team shirts and robots, and advertising them at our statewide scrimmage. With some sponsors, like the charity organization BPO Elks Lodge 309, these relationships go even farther. The Elks have been generous donors for several years, and we volunteer to help them with grounds maintenance, charity events, and party preparations. This opportunity creates a sense of community beyond the borders of our team and our school.

Deployment of Resources

Our primary method of engaging the community in FIRST robotics is through demonstrations. Due to our team's reputation, CGW is invited to attend the most established STEM and community events in the Colorado Springs area including the What If? Festival, Cool Science Festival, and Boo at the Zoo.

Additionally, we look for opportunities to demo our robots and interact with elementary and middle school children at schools and libraries. Our team was invited to present about STEM and FIRST to the Denver Tech Summit – a conference of technical companies from across Colorado. During the past year, we attended 21 events in addition to starting our own STEM summer camp for middle schoolers.

Our team continues to look for ways to increase our FIRST outreach. We raised funds to buy one FLL starter kit for a school in Mexico. We mentor five FLL Jr. teams from two schools. Seven teams attended our annual FLL Jr. Expo – including three teams that were started this year.

All team members learn both technical and presentation skills because they are required to serve on both technical and business subteams. We encourage students to stretch themselves and try new things, something that they are eager to do again once they see the results of their hard work.

Friendships within the team flourish as students work together on our main project—building a successful, competition-worthy robot. Working hard to produce results as a team introduces us to the fulfillment of a career in engineering and the satisfaction of a completed product.

Future Plans

With a new subteam created in 2015 dedicated to FIRST Outreach, we plan to start and mentor more FLL Jr., FLL, and FTC teams in the future. We hand out flyers at our community events with information on FLL Jr., and will continue to host our annual FLL Jr. Expo.

Our new middle school summer camp introduces kids to FIRST and engages them in STEM activities. We developed a five year plan to expand the program to multiple summer camps, which improves our community relations and gives our team members more chances to improve as leaders while developing future Team 2996 members.

Changes within the organization disrupted our sponsorship program – e.g., we had a lack of communication from last year’s CFO to this year, which required our new CFO to recreate most of our outreach materials. Now our finance team is developing a more organized approach to creating and maintaining sponsorships. We are building a new presentation team to keep sponsors up to date with our team’s accomplishments and our progress through build and competition season. It is our objective to create more personal and ongoing relationships with companies over multiple years.

We are working on a comprehensive plan to extend our media presence. Videos summarizing our community demonstrations, giving weekly build season updates, and providing other information are posted to our YouTube Channel while our Social Media and Website subteam keeps our Facebook, Twitter, Instagram and LinkedIn accounts up to date.

Financial Statement

Income:

| Source | Revenue |
|--------------------|-----------------|
| Corporate Sponsors | \$32,441 |
| Fundraisers | \$5,675 |
| Private Donations | \$1,582 |
| Student Fees | \$1,729 |
| Total: | \$41,427 |

Expenditures:

| Source | Expenses |
|-------------------------------|-----------------|
| Community Outreach | \$1,438 |
| Colorado Entrance Fee | \$5,000 |
| Utah Entrance Fee | \$4,000 |
| Field Materials | \$1,715 |
| Fundraiser Expenses | \$2,218 |
| Lodging for Colorado Regional | \$6,600 |
| Lodging for Utah Regional | \$5,400 |
| Miscellaneous | \$2,355 |
| Robot Materials | \$7,693 |
| Total: | \$36,419 |

Risk Analysis

Strengths:

- 52 members of diverse gender, age, ethnicity, and skill level; family atmosphere
- Program is led by students, mentors advise but remain hands-off; leadership roles are well defined
- 22 mentors including engineers, industry professionals, business owners, and educators; active parental involvement such as providing meals daily through build season (Cougar Kibble) and transport to regional events
- Strong support from our home school, Coronado High School
- Work facilities include wood and metal shops, community room, computer labs on an integrated network, auxiliary gym for practice field and events

Weaknesses:

- Developing and maintaining corporate sponsors
- Fundraising
- Improving transition of VPs
- Communication for events and meetings

Opportunities:

- Increasing interest in STEM and FIRST, especially in younger generations
- Increasing women's involvement in engineering
- Promoting Gracious Professionalism outside of robotics
- Leadership skill development
- Scholarships, internships, and networking
- New member mentoring program

Threats:

- Economy's impact on sponsor resources

Risk Mitigation Plan: We are working to identify potential leaders in the group and develop them into future VPs. We also are organizing our lists of sponsors and companies who have expressed an interest in our team to make it easier to contact them. We are working to increase the percentage of female mentors, and expanding our involvement with women's engineering organizations like the Society of Women Engineers (SWE) and National Association of Women in Construction (NAWIC).

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 team was unable to continue competing due to a Jaguar failure mid-match.

2014 – Aerial Assist

The team was incredibly successful last season as it was named both Regional Chairman’s Award winner and Regional Winner at the Utah Regional, even though it 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.

2015 – Recycle Rush

Due to the change in head coach and loss of a long-term mentor, the team faced difficulty entering the 2015 season. The team persevered and ranked 4th at the Utah Regional and won the Engineering Inspiration Award, guaranteeing us a spot in championships. At the Colorado Regional the team won the Quality Award as well as ranking 12th. At championships, the team was in the Curie division once more and seeded 52nd.

2016 – Stronghold

The team’s original head coach returned starting the season with a feeling of optimism. However, a week of snow days created scheduling challenges. This year, they attended a new regional in Flagstaff, Arizona which allowed them to change their routine and connect with new teams. CGW won Engineering inspiration at their home regional in Denver, which carried them to Championships in the Carson division.

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

2015

- Utah Regional Engineering Inspiration Award
- Colorado Regional Quality Award

2016

- Engineering Inspiration Award
- FIRST Dean's List Finalist, Ryan Kight

Tracking Growth

Cougars Gone Wired makes growth and improvement a priority. Over the past eight 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 challenging goals and improving technical and business strategies.

Over the past eight years, Cougars Gone Wired has gradually increased the number of people that are involved in STEM and the FIRST program. Membership has increased 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 and middle schools to start five FLL Jr. teams across three schools. A week-long robotics summer camp was also started for middle school students. Various demonstrations throughout the community have generated interest in STEM and FIRST Robotics.

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

2014-2015 (FRC)

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

2015-2016 (FRC)

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

2016-2017 (FRC)

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

Team Demographics

Chart 1

Chart 1 compares the mentor and student populations. Sponsor presentations and preseason activity attracts additional mentor involvement.

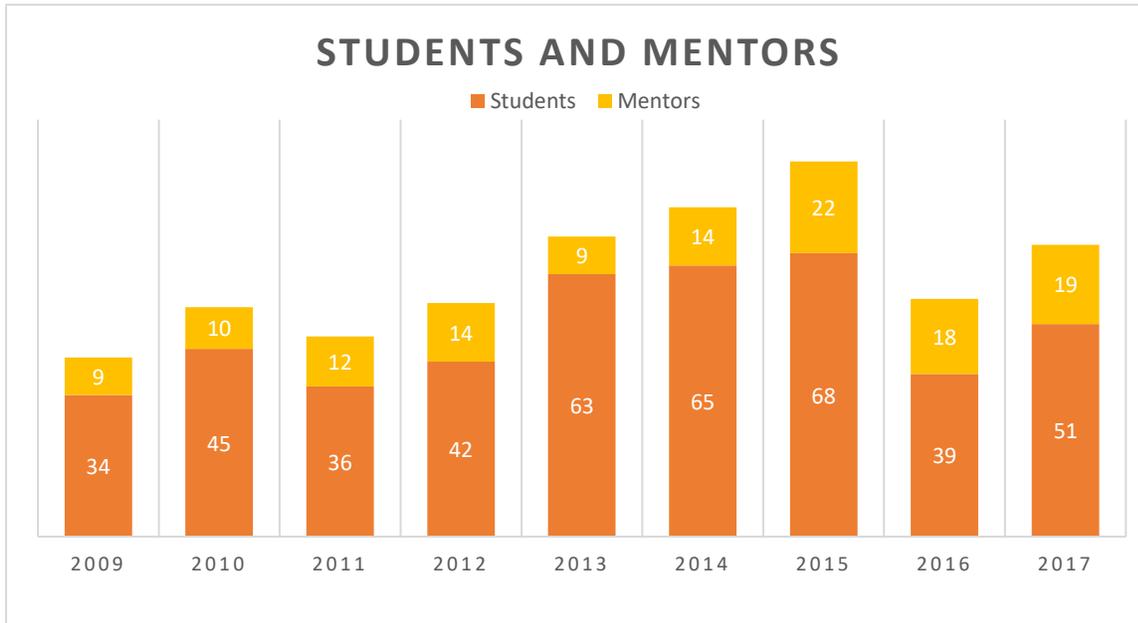


Chart 2

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

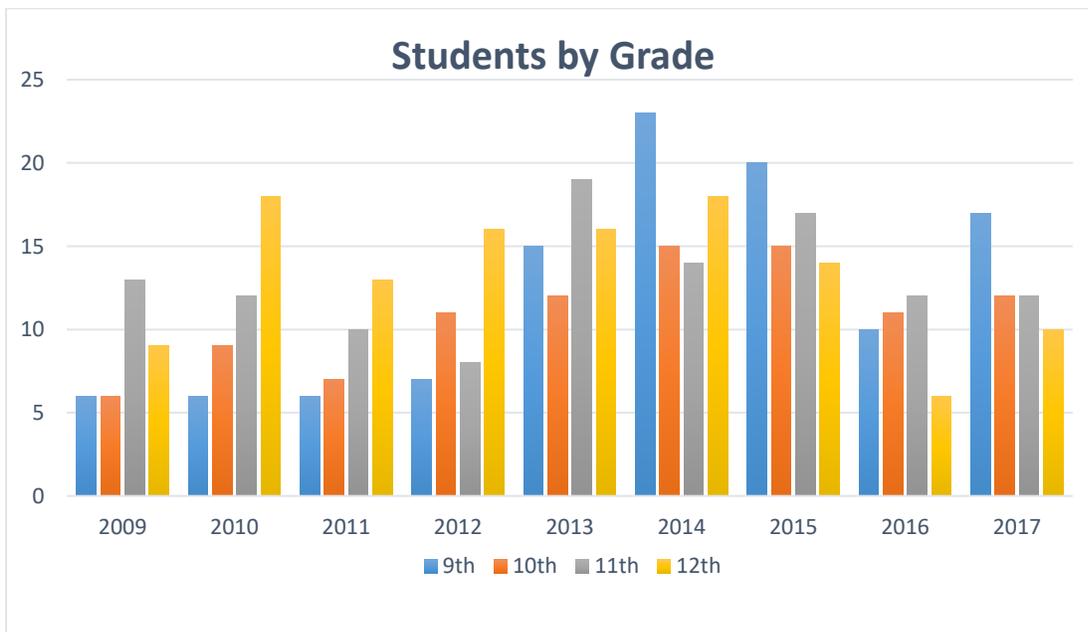


Chart 3

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.

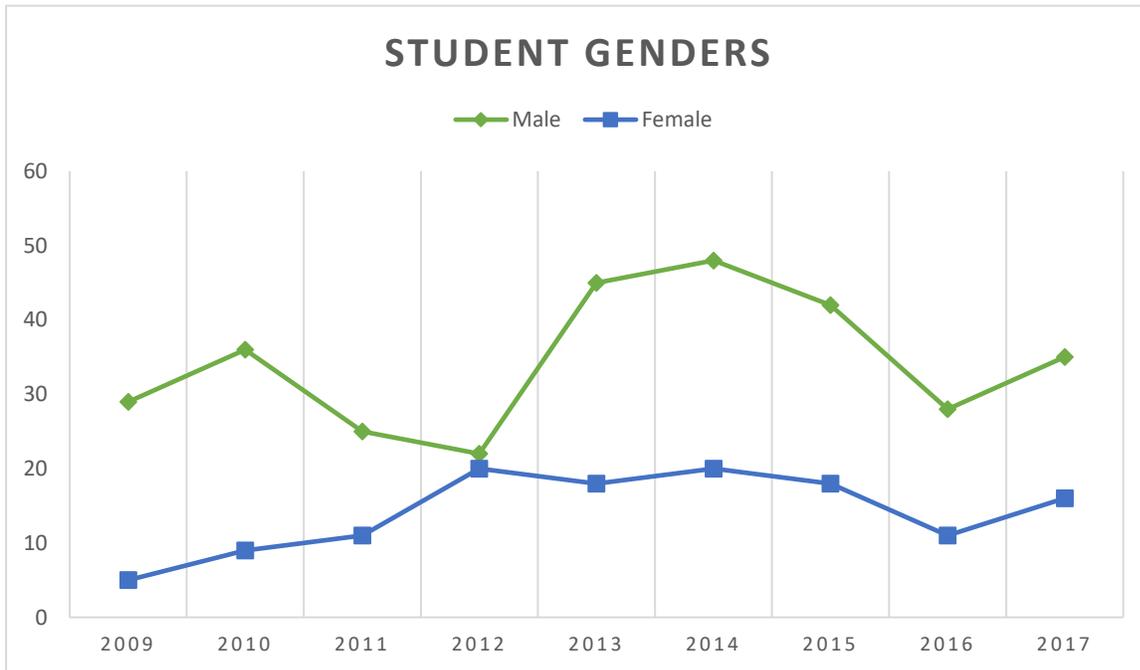
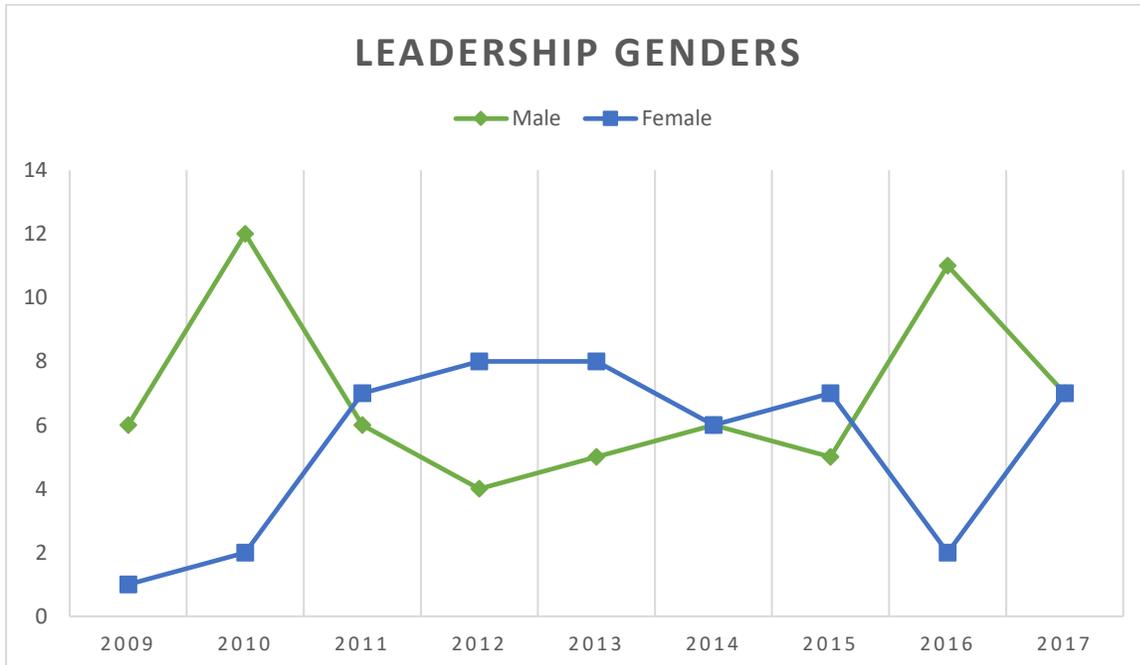
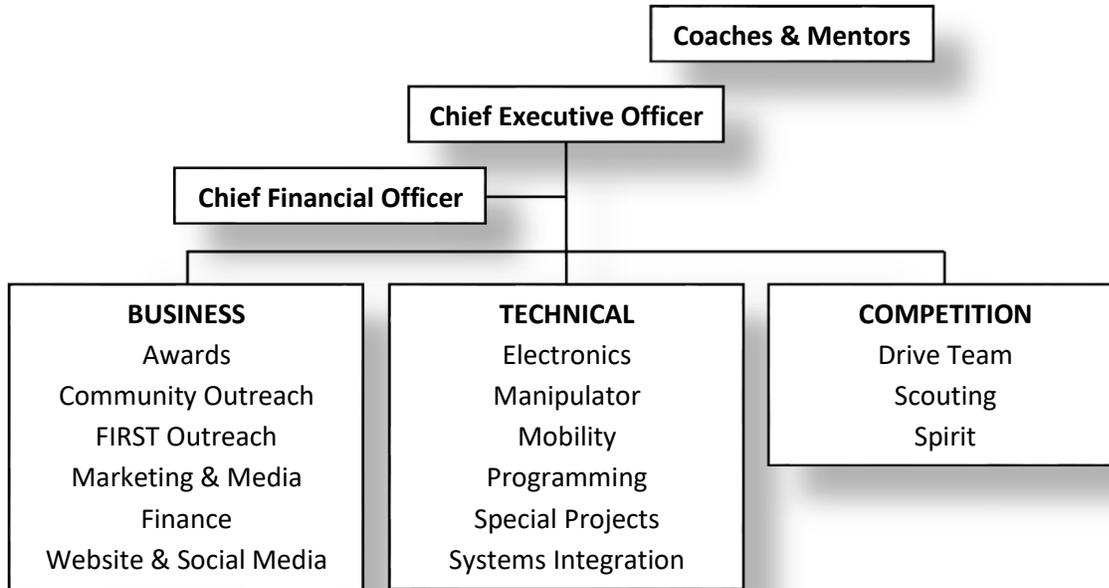


Chart 4



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 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 a job interview 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. Technical leadership is selected in the fall to provide VPs with adequate time to train their sub-teams and prepare for build season.

Job Descriptions

Coaches and Mentors

Coaches and mentors provide guidance and supervision to the team. They consist of engineers, industry professionals, business owners, and teachers that advise the team through the design, fabrication and construction of the robot. They also guide the business decisions that lead our team to success.

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 that 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.

Chief Technical Officer (CTO)

The CTO is also the Systems Integration VP. Responsibilities include creating the 3D CAD model of the robot, and directing the activities of the technical side of the team.

Business Sub-Team Leadership

- Awards VP
- Community Outreach VP
- FIRST Outreach VP
- Finance VP
- Marketing & Media VP
- Website & Social Media VP

Technical Sub-Team Leadership

- Electronics VP
- Manipulator VP
- Mobility VP
- Programming VP
- Systems Integration VP
- Special Projects VP

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 Saturdays between the end of build

season and competition. The Spirit and Scouting teams include most CGW members. Volunteers design and organize spirit gear, signs, and team cheers. The Scouting team is led by a student VP.

Business Sub-Teams

Awards

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

Community Outreach

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

Finance

Led by the CFO, the Finance Sub-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 contact information organized and up to date.

FIRST Outreach

FIRST Outreach VP works alongside the Community Outreach Sub-team to spread the word of FIRST throughout the community. This includes mentoring FLL Jr. and FLL teams, hosting and organizing FIRST events, and doing demonstrations and presentations at local schools and libraries.

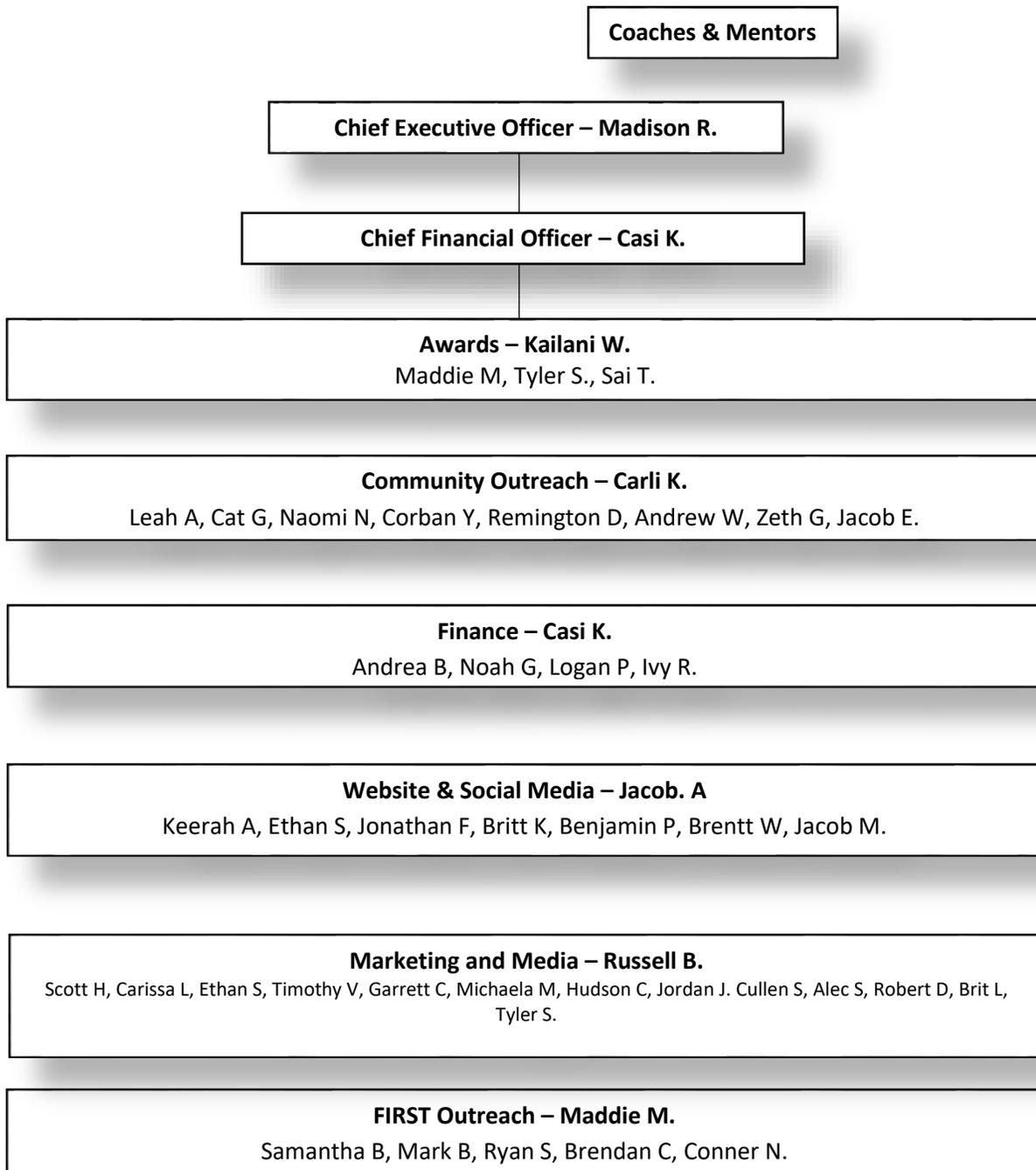
Marketing & Media

Marketing and Media is in charge of getting the team's name out to the public. They do this through many different types of media such as the team's YouTube channel. They are responsible for creating the Chairman's video with the Awards sub-team, as well as designing the different graphics, tee shirts, and posters.

Website & Social Media

Website & Social Media maintains the information sections for Cougars Gone Wired's website and social media. They are primarily responsible for photo documentation of the team. This team reports competition results and informs the public of upcoming events.

2016 Business Sub-Team Breakdown



Technical Sub-Team Tasks

Electronics

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

Manipulator

The Manipulator Sub-team brainstorms, prototypes, and oversees all manipulators of the robot. These manipulators control both game pieces and the robot in order to maximize points and follow the team's strategy. Examples of manipulators include shooters and pick-up systems.

Mobility

The Mobility Sub-team designs and fabricates the drive train and chassis of the robot and works closely with Systems Integration.

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.

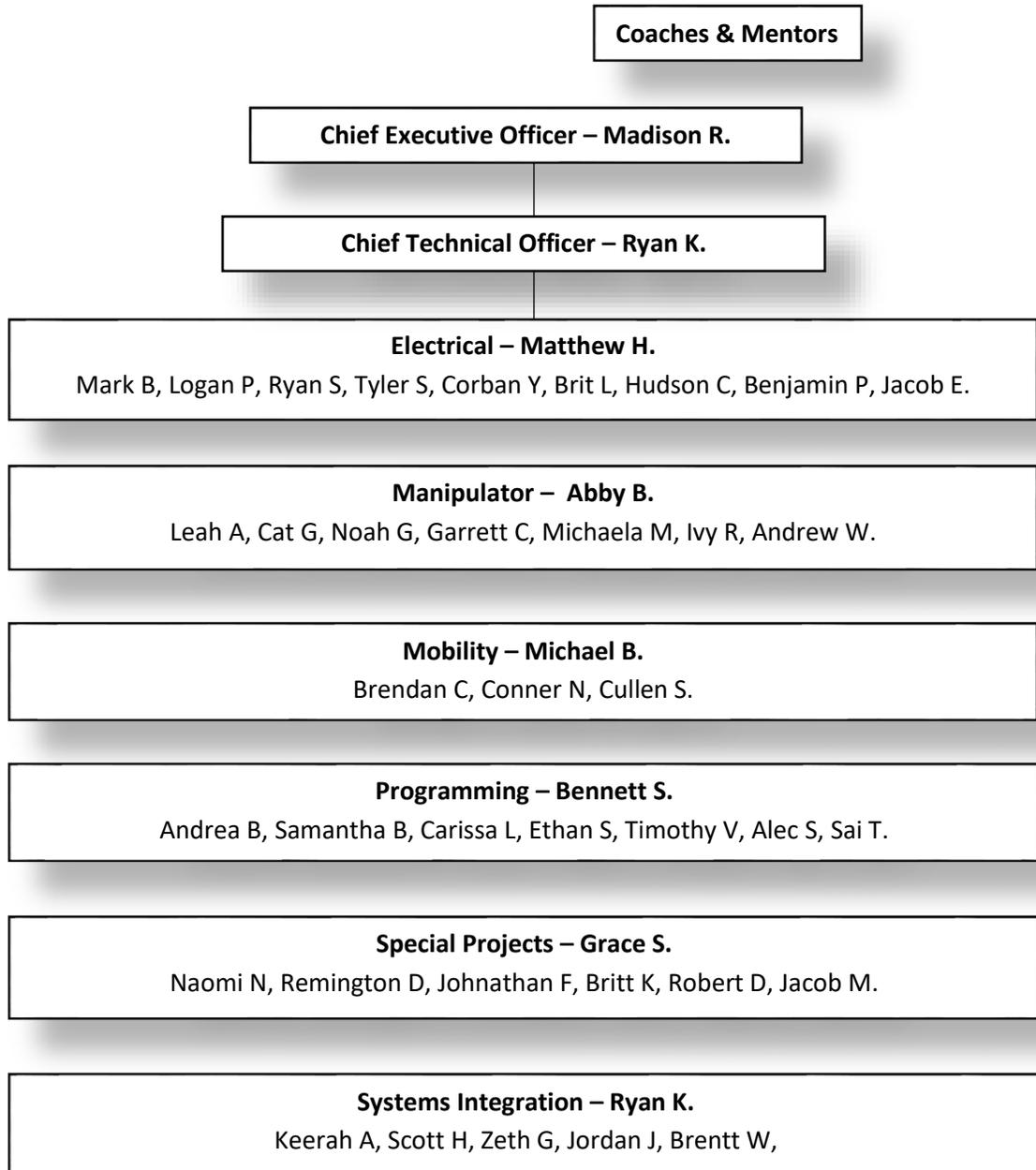
Special Projects

The Special Projects Sub-team 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 crate packing.

Systems Integration

Led by our CTO, the Systems Integration Sub-team 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 drawing, which is then sent to the team's manufacturer, Vertec.

2016 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. The CEO uses Microsoft Office Project to make sure everyone stays on track with the season's goals.

Off-Season Planning

Between the months of April and January, the team is focused on growing, teaching, 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.

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 and barbeques 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 50 members every day of build season, including Saturdays. It has reduced weather and driving risk, and ensured nutritious, balanced diets for team members and mentors. This program is a benefit to the welfare of students, increases the productivity of work hours, and has enhanced 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 and the constant guidance and support from these benevolent and devoted mentors.

Dr. John Wood (Woodie Flowers Submission 2015)

Father, educator, mentor. These words are immortalized in Room 407 in honor of a mentor who stayed with us, FIRST Team 2996 Cougars Gone Wired, from our humble beginnings, for as long as he was able. As an Air Force Academy professor and engineer, Dr. Wood taught countless skills to team members while ensuring that all efforts remained entirely student led. His teaching expertise bettered the communication between students and mentors, and he worked as a liaison between the team and the USAFA, assisting us in maintaining sponsorship as well as providing students with opportunities to participate in and attend leadership seminars. In the summer of 2014, the team received news that Dr. Wood and his wife passed away in a plane crash in Iowa. It has been almost 3 years since his sudden passing, but Team 2996 will always be grateful for the assistance he gave us, for his dedication to teaching, and for the immense impact he had on our students,.

Community Outreach

2016-2017 Outreach and Involvement

| Event | Date | Volunteer Hours | Category |
|--------------------------------------|-----------|-----------------|----------------------|
| Edison Elementary Demo | 20-May-16 | 8.0 | STEM Outreach |
| Elks Lodge Clean Up | 21-May-16 | 60.0 | Sponsor Volunteerism |
| CO Deaf & Blind School | 24-May-16 | 10.0 | STEM Volunteerism |
| AHA Heart Walk Setup and Orientation | 3-Jun-16 | 16.5 | Volunteerism |
| AHA Heart Walk | 4-Jun-16 | 42.0 | Volunteerism |
| STEM Summer Camp | 6-Jun-16 | 90.0 | STEM Outreach |
| | 7-Jun-16 | 85.0 | |
| | 8-Jun-16 | 80.0 | |
| | 9-Jun-16 | 75.0 | |
| | 10-Jun-16 | 70.0 | |
| REACH Demo | 20-Jun-16 | 51.0 | STEM Outreach |
| | 27-Jun-16 | 18.0 | |
| Care and Share | 14-Jul-16 | 11.0 | Volunteerism |
| Fountain Library Demo | 15-Jul-16 | 27.0 | STEM Outreach |
| East Library Demo | 22-Jul-16 | 38.5 | STEM Outreach |
| Ice Cream Social and Demo | 22-Jul-16 | 21.0 | STEM Outreach |
| Westside Library Demo | 30-Jul-16 | 69.0 | STEM Outreach |
| Care and Share | 6-Aug-16 | 17.5 | Volunteerism |
| Palmer Registration | 10-Aug-16 | 96.0 | School Service |
| | 11-Aug-16 | 42.0 | |
| Coronado High School Registration | 12-Aug-16 | 199.0 | School Service |
| | 16-Aug-15 | 147.0 | |
| Chipeta Elementary School Demo | 16-Aug-16 | 40.0 | STEM Outreach |
| Trailblazer Elementary School Demo | 16-Aug-16 | 42.0 | STEM Outreach |
| Freshman Orientation | 18-Aug-16 | 38.0 | School Service |

| | | | |
|--|---|-------|----------------------|
| Elks Lodge Margaritaville | 20-Aug-16 | 166.0 | Sponsor Volunteerism |
| Back to School Bash | 1-Sept-16 | 91.0 | School Service |
| Boys and Girls Club Demo | 8-Sept-16 | 4.0 | STEM Volunteerism |
| Fox21 Newscast- "What If" Festival Preview | 8-Sept-16 | 15.0 | STEM Outreach |
| Detz Café Ticket Sales | 9-Sept-16 | 39.0 | Volunteerism |
| "What If" Festival | 10-Sept-16 | 279.0 | STEM Volunteerism |
| Homecoming Float Project- Build Day | 23-Sept-16 | 189.0 | School Service |
| Coronado Homecoming Parade | 24-Sept-16 | 180.0 | School Service |
| Cool Science Festival at UCCS | 8-Oct-16 | 306.0 | STEM Outreach |
| Chipeta FLL Jr. | Tuesdays & Thursdays from 4-Oct-16 to 10- Nov-16 | 33.0 | FIRST Volunteerism |
| Howbert FLL Jr. | Tuesdays & Thursdays from 11-Oct-16 to 10-Nov-16 | 10.0 | FIRST Volunteerism |
| Elks Lodge Fundraiser Dinner | 15-Oct-16 | 265.0 | Fundraising |
| Senator Representative Visit | 17-Oct-16 | 37.5 | STEM Outreach |
| Denver Tech Conference | 19-Nov-16 | 25.0 | STEM Outreach |
| Boo at the Zoo | 22-Oct-16 | 154.0 | Volunteerism |
| Old Colorado City Safe Trick or Treat | 31-Oct-16 | 25.0 | Volunteerism |
| FLL Jr. Showcase | 10-Nov-16 | 84.0 | FIRST Volunteerism |
| Southern Colorado FLL Qualifying Event | 13-Nov-16 | 110 | FIRST Volunteerism |
| Space Foundation Birthday Party | 13-Nov-16 | 10.5 | STEM Outreach |
| 8 th Grade Career Fair | 15-Nov-16 | 16.0 | STEM Outreach |
| Elks Lodge Charity Ball | 19-Nov-16 | 80.0 | Sponsor Volunteerism |

| | | | |
|-----------------------------------|--------------|----------------|----------------|
| Jackson Elementary Demos | 19-Dec-16 | 9.0 | STEM Outreach |
| Colorado Pre-Ship Scrimmage Setup | 17-Feb-17 | 154.0 | FIRST Outreach |
| Colorado Pre-Ship Scrimmage | 18-Feb17 | 519.0 | FIRST Outreach |
| | Total | 4,194.5 | |

The team’s connections have multiplied over its eight years, increasing our impact. The most valuable resource is the membership of 52 students and 20 mentors who are 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 while team members engage in conversations with children, parents, and professionals to educate and attract them to STEM and the FIRST community.

International Outreach

In order to spread the values of FIRST overseas and assist growing STEM programs that include minorities, Cougars Gone Wired utilized a team member’s connection to send a LEGO Mindstorms EV3 kit to an all-girls school in Merida, Yucatan, Mexico. Nueva Viva is a school trying to grow its STEM programs. To help out, we gathered team funds to provide them with the kit and Spanish manuals. We hope to establish them as an FLL team in the future.

FIRST Bonds

Cougars Gone Wired stresses the values of FIRST including Gracious Professionalism and Coopertition. During build season, the team constructs a full-sized practice field, which is set up every Saturday for any local team to practice on. All regional FRC teams are invited to the Colorado Pre-Ship Scrimmage, which is held the Saturday before Stop Build Day. This is a valuable opportunity to test robots and practice working in alliances. The 2017 Scrimmage was extremely successful, with 20 visiting teams in attendance from all over Colorado and Wyoming.

In the past year, Cougars Gone Wired started 3 new FLL Jr. teams at both elementary schools and a local Boys & Girls Club. We mentored a total of 5 teams, with CGW team members coming in twice a week during the fall semester. They assisted teachers in running the programs and taught kids not only how to build their projects but about the opportunities available in FIRST. Cougars Gone Wired also covered the registration cost for one of the teams. At the end of the program, we hosted our fifth annual FLL Jr. Showcase at Coronado, where the kids can show off their hard work and parents can learn more about FIRST programs.

Cougars Gone Wired also volunteers every year at the Southern Colorado FLL Qualifier, and a team member continued to mentor an FLL team in Black Forest.

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 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 meeting has continued to provide clear communication with District administration.

Our relationship with District administration 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 provides Cougars Gone Wired with work space and use of the school's machinery and wood shop resources, which has been crucial to the team's success. They also provide the team with space to host events which expand the outreach of FIRST in the Colorado community. The team has 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's parent/sponsor appreciation night.

This past year, Coronado's automotive classes were eliminated and, as a result, we inherited part of the auto shop facility. This allows us to have a half-field set up throughout build season and more storage space.

Cougars Gone Wired sets up displays at district events, such as the District 11 8th Grade Career Fair, and at registrations at multiple D11 high schools.

Finances

2016-2017 Financial Analysis and Statement

The majority of the team's revenue comes from STEM-related corporate sponsors.

| Source | Expenses |
|-------------------------------|-----------------|
| Community Outreach | \$1,438 |
| Colorado Entrance Fee | \$5,000 |
| Utah Entrance Fee | \$4,000 |
| Field Materials | \$1,715 |
| Fundraiser Expenses | \$2,218 |
| Lodging for Colorado Regional | \$6,600 |
| Lodging for Utah Regional | \$5,400 |
| Miscellaneous | \$2,355 |
| Robot Materials | \$7,693 |
| Total: | \$36,419 |

2017 Bill of Materials

| Item | Description | Material | Source | Quantity | Measurement | Unit Price | Total Price |
|--------------------------------|---|--------------|---------------------|----------|--------------|-------------------|-------------------|
| Drive Train & Climb | | | | | | | |
| Colson 4"x2" Caster | 4" Rubber Caster | Rubber | VEX Pro | 4 | part | \$14.99 | \$59.96 |
| VEX Mecanum | VEX Mecanum Wheel | Rubber | VEX Pro | 4 | part | \$39.99 | \$159.96 |
| Bimba Square Flat II | .785" Stroke Pneumatic Piston | Aluminum | Bimba | 4 | part | \$109.99 | \$439.96 |
| VEX 18 Tooth Pulley | 18 tooth belt pulley | Aluminum | VEX Pro | 4 | part | \$9.99 | \$39.96 |
| VEX 36 Tooth Pulley | 36 tooth belt pulley | Aluminum | VEX Pro | 4 | part | \$14.99 | \$59.96 |
| Toughbox Mini | AndyMark gearbox | Plastic | AndyMark | 4 | part | \$77.00 | \$308.00 |
| Toughbox Mini Shaft | Shaft for the gearbox | Steel | AndyMark | 4 | part | \$11.00 | \$44.00 |
| CIM-Coder | Encoder that attaches to a CIM | Plastic | AndyMark | 4 | part | \$42.00 | \$168.00 |
| Solenoid | Single Actuating Solenoid | Metal | AndyMark | 4 | part | \$69.99 | \$279.96 |
| Talon SRX | Talon motor controller | Magic | VEX Pro | 5 | part | \$89.99 | \$449.95 |
| ViAir Air Compressor | 88CFM ViAir Air Compressor | More Magic | AndyMark | 1 | part | \$69.99 | \$69.99 |
| Banebot P80 gearbox | Banebot Planetary gearbox | Steel | Banebot | 1 | part | \$135.00 | \$135.00 |
| 22 tooth sprocket | Chain sprocket | Steel | AndyMark | 1 | part | 11.00 | \$11.00 |
| 12 tooth sprocket | Chain sprocket | Steel | AndyMark | 1 | part | \$8.00 | \$8.00 |
| | | | | | | Subtotals: | \$2,233.70 |
| Intakes: | | | | | | | |
| Banebot RS550 | Small Banebot Motor | Metal | Banebot | 1 | part | \$7.20 | \$7.20 |
| P60 Banebot Gearbox | Planetary gearbox for RS550 | Steel | Banebot | 1 | part | \$64.50 | \$64.50 |
| 35T gear | 35T steel flex hub gear | Steel | AndyMark | 2 | part | \$8.99 | \$17.98 |
| Flat Belt | Orange Urethane Flat Belt | Urethane | McMaster | 24 | foot | \$5.16 | \$123.84 |
| Polycarbonate | .125" thick Polycarbonate Sheet | Polycarb | E-Plastics | 0.5 | 2'x4' Sheet | \$24.98 | \$12.49 |
| ABS Printed Plastic | Extruded plastic for flat belt pulleys | ABS | Stratasys | | cubic inch | | \$0.00 |
| 20" Hex Axle | 20" Aluminum Shaft | Aluminum | VEX Pro | 2 | part | \$11.99 | \$23.98 |
| Talon SRX | Talon motor controller | Magic | VEX Pro | 1 | part | \$89.99 | \$89.99 |
| Surgical Tubing | Black Surgical Tubing | Rubber | Amazon | 5 | feet | \$1.99 | \$9.95 |
| Bimba Cylinder | 2" stroke Pneumatic Piston | Metal | Bimba | 2 | part | \$30.00 | \$60.00 |
| ABS Printed Plastic | Extruded plastic for round belt pulleys | ABS | Stratasys | | cubic inch | | \$0.00 |
| Solenoid | Single Actuating Solenoid | Metal | AndyMark | 1 | part | \$69.99 | \$69.99 |
| | | | | | | Subtotals: | \$479.92 |
| Shooter & Hopper: | | | | | | | |
| WCP 775Pro | West Coast Products 775 Pro Motor | Metal | VEX Pro | 1 | part | \$17.99 | \$17.99 |
| Vex CIM-Ile Gearbox | Gearbox for 775 Pro | Plastic | VEX Pro | 1 | part | \$29.96 | \$29.96 |
| 4" Compliant Wheel | Squishy wheel | Rubber | AndyMark | 4 | part | \$8.00 | \$32.00 |
| Deflector Cover | Carbon Fiber Sheet | Carbon Fiber | | | cubic foot | | \$0.00 |
| Encoder | Encoder that attaches to a CIM | Plastic | AndyMark | 1 | part | \$42.00 | \$42.00 |
| Talon SRX | Talon motor controller | Magic | VEX Pro | 3 | part | \$89.99 | \$269.97 |
| | | | | | | | \$0.00 |
| 32" Hex Axle | 32" Aluminum shaft | Aluminum | VEX Pro | 1 | part | \$11.99 | \$11.99 |
| ABS Printed Plastic | Extruded plastic for the Auger | ABS | Stratasys | | cubic inch | | \$0.00 |
| Polycarbonate | 3/32" Polycarbonate Sheet | Polycarb | E-Plastics | 2 | 2'x4' Sheet | \$19.58 | \$39.16 |
| | | | | | | | \$0.00 |
| | | | | | | Subtotals: | \$443.07 |
| Sheet Metal: | | | | | | | |
| 1/8" Sheet Metal | 1/8" thick 5052 Aluminum | Aluminum | Online Sheet Metals | 1 | 4'x10' sheet | \$314.80 | \$314.80 |
| 1/16" Sheet Metal | 1/16" thick 5052 Aluminum | Aluminum | Online Sheet Metals | 1 | 4'x8' sheet | \$129.60 | \$129.60 |
| | | | | | | Subtotals: | \$444.40 |
| | | | | | | Totals: | \$3,601.09 |

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

The CFO 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.

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. Last summer, the team conducted its inaugural robotics summer camp for middle school students.

2012

- Hexbugs
- FIRST Green E-Watt Saver LED Light Bulbs

2013

- Hexbugs
- FIRST Green E-Watt Saver LED Light Bulbs
- "Mind Seizure" and "Ghoul's Gulch" haunted house tickets.

2014

- Hexbugs and FIRST Green E-Watt Saver Light Bulbs
 - Leftovers from last year
 - Sold at Holiday Bazaar

2015

- FUNdraisers of Colorado coupon books
- Old Chicago "Pizza Palz" cards
- "Geared for Greatness" water bottles

2016

- Old Chicago "Pizza Palz" cards
- Mexican-themed Fundraiser with BPO Elks Lodge 309

Future Plans and Goals

Business

Executive Leadership

- Improve the flow of information through the transition of leadership
- Increase communication during the summer to build team cohesiveness going into the school year
- Expand and improve mentorship of new students, ensuring all students are prepared for the coming season
- Expand the summer camp program into a flourishing fundraiser

Community Outreach

- Improve new member attendance at community outreach events
- Diversify the events the team attends, adding new while maintaining the old
- Take responsibility for informing new members on team history

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
- Expand outreach to FTC and FLL, while still expanding FLL Jr.
- Further develop our relationship with Nueva Vida FLL Jr. in Merida, Yucatan, Mexico

Awards

- To have a cohesive rough draft of the Chairman's essay prior to kickoff
- To increase team involvement in the Chairman's writing process

Media, Website, and Marketing

- 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
- Submit a team parody
- Increase news coverage

Finance

- Maintain and improve the contact database rebuilt this year to improve communication with past and current sponsors
- Continually update the business plan to keep a cohesive document which accurately summarizes the team's business goals, development, and organization
- Increase the participation of underclassmen to better prepare future leaders of the finance team

Technical

Systems Integration

- Better divide work time between practice and competition robot
- 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

Programming

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

Special Projects

- Use preseason time to educate members on equipment and power tool safety, and to update the safety handbook and kit
- Encourage team spirit and continue producing new spirit gear and signs
- Produce mini field model for game after kickoff, as it was beneficial to creating our strategy 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
- Improve the organization of electronics-related supplies
- Maintain a welcome environment that helps members enjoy learning about electronics

Contact Information

Website

- team2996.com

Team Email

- cougars.gonewired@gmail.com

Social Media:

- facebook.com/cougarsgonewired
- twitter.com/frc2996
- instagram.com/cougarsgonewired
- youtube.com/frc2996
- firstinspires.org/

Main Contacts:

- Bryce McLean
Title: Head Coach
Email: Bryce.mclean@d11.org
Phone: (719) 328-3759

Team Meeting Information:

- Coronado High School
Off Season – Wednesdays from 5 to 8
Build Season – Monday through Friday from 5 to 8, Saturdays from 9 to 4

Sponsorship Information:

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