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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

Ten years ago, the head coach Bryce Mclean wanted to provide engineering students with a competitive outlet and a place to showcase their talents outside of school. He chose to move from being head coach of Varsity Football to head coach of Robotics. What began as 34 unsure but eager students in room 407 at Coronado High School in Colorado Springs, Colorado has now grown into an enthusiastic student-led team of 55. Team 2996 started with one robot and a goal: to just make it move. Throughout the years, CGW has increased from building one robot to two, and has increased its community service to 27 events. Last year at the Denver Regional, the team decided to create the Business Exchange, a forum where teams can swap ideas and ask for advice from other teams.

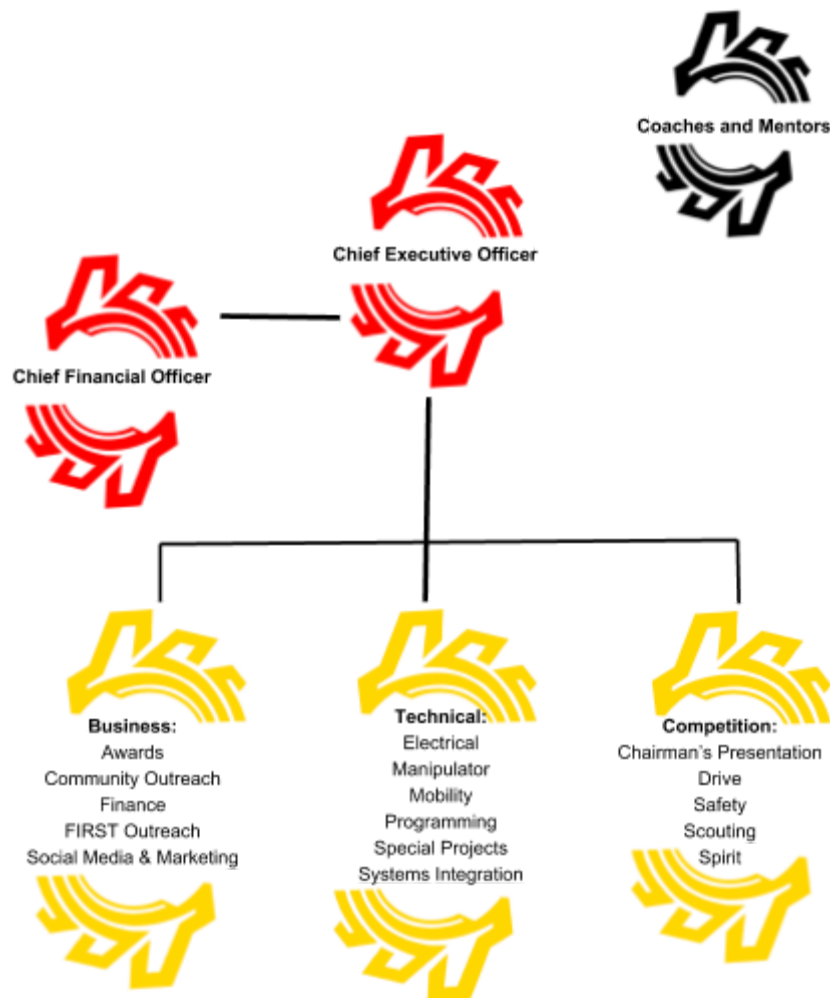
The biggest challenge the team faces is ensuring funds. The majority of team funds are put towards lowering the cost of traveling and attending competition because CGW feels that it is important for the entire team to attend each FIRST competition. Funds are derived primarily from small donations, most of which come from local businesses. For example, the average donation is \$500 from 27 sponsors. While grateful for all that is received, depending primarily on these donations means that CGW's income constantly fluctuates and every season starts in the unknown. To overcome this challenge, the Finance Sub-team works tirelessly to fundraise. One of the most successful ideas is the fundraiser dinner. Started in 2016, it brings in around \$5000 annually.



Organizational Structure

CGW's main fundraisers include a dinner the team hosts with B.P.O. Elks Lodge 309 and a VEX summer camp for middle schoolers. Another primary source of income is the team's 27 sponsors. A substantial portion of 2996's funds pay for the entrance fee, the transportation, and the hotel for different FIRST Competitions. The goal is to have the entire team experience the competitions first hand without worrying about the cost. A large number of sponsors are recruited through demonstrations and presentations. The team travels to major STEM festivals around Colorado Springs including What If? and Cool Science. To maintain contact, sponsors are invited to regular events including kickoff, scrimmage, and an official sponsor dinner. These sponsors serve as a primary form of recruitment of mentors, the 2nd being through students' parents.

Team 2996 gains the interest of new members by keeping a constant presence at Coronado and recruiting freshman from booths at both the 8th Grade Open House and Freshmen Orientation. CGW constantly strives to practice Gracious Professionalism and Coopertition, especially during build season. The team is organized to ensure that everyone has a say in and agrees upon a final game plan for the year's competition. Within these student-led sub-teams, students grow in both business, leadership and STEM facets. As a student organization, the district audits the financials for the team. All students and mentors must justify all spending before making purchases. In order to prevent unneeded expenditures on the robot, parts from past robots are reused.



Relationships

At the beginning of the fall semester Team 2996 focuses on attracting new members, no matter their experience level. A barbecue is hosted before meetings to develop a better sense of community. Toward the end of the semester, the entire team takes part in a 3 day “Mock Game” - a simulation of the first week of build season to prepare everyone for kick-off.

Currently CGW has 18 mentors, many of whom are engineers, industry professionals, business owners, and educators. Some join the team because of pre-existing, outside connections with current mentors, parents, students, and/or team alumni, and stay with the team for many years because of the strong bonds that are formed.

Sponsorships are acquired through demonstrations and company presentations, through which companies have stayed dedicated sponsors. The team’s gratitude is acknowledged through advertisements on team shirts, robots, and at CGW’s statewide scrimmage. The Pikes Peak Chapter 356 of the National Association of Women in Construction has been a dedicated sponsor for many years. Their first meeting is held at Coronado and many women look forward to seeing the final robot at scrimmage. With some sponsors, like the charity organization B.P.O. Elks Lodge 309, relationships go past just donations. Along with being generous donors for several years, they allow the team to host a fundraiser dinner at their facility. In return, Team 2996 volunteers help them with grounds maintenance, charity events, and party preparations, creating a sense of community beyond the borders of the team and school.

Deployment of Resources

CGW engages the community by traveling to different events and spreading the message of the team and FIRST. These events include the Boys and Girls Clubs of Colorado Springs, various STEM festivals, and Cheyenne Mountain Zoo’s “Boo at the Zoo.” At these events, the team holds “hands-on” demonstrations with past years’ robots. This is accomplished by CGW’s established reputation of being a mature and responsible club and living in a welcoming community.

Coronado High School has a large STEM program and is gracious enough to grant permission for CGW to organize all of its activities there. This allows the team to host a summer camp for middle schoolers to inspire future generations of FRC students. The camp introduces them to STEM concepts and allows them to partake in a competition modeled after FIRST. To inspire even younger students, every year CGW hosts the annual Southern Colorado FLL Jr. Showcase in the school’s cafeteria.

CGW ensures all team members get the most of their FIRST experience by having a multiple sub-team structure. Team 2996’s large student and mentor base allows for students to participate in various projects throughout the year. During the summer the business sub-teams are busy with community events and fundraising, while the technical teams focus on all things robot in build season. During competition, students on the scouting sub-team learn from other teams to discover ways to improve and grow CGW. The goal is to instill Gracious Professionalism and Cooperation through all team members.

Future Plans

CGW has two primary goals over the next three next years for the team: to better prepare new members for build season and to gain momentum for the Business Exchange. Training programs were developed during the summer season and deployed just before build season. Through this, Team 2996 hopes to extensively train its new members, easing them into build season while allowing seasoned veterans to pass on their knowledge. Started by Business VPs last year, the Business Exchange was modeled after the Chairman's Exchange. The idea is to have an open discussion about teams' strengths and weaknesses of their business structure. CGW plans to further develop this forum and introduce it to other regional competitions.

The team, primarily the Media and Finance sub-teams, hope to bridge a connection with sponsors through the team's social media pages. Using YouTube, the Media sub-team uploads videos every week in order to show sponsors and other members of the community all that we are doing. These updates also include events outside of build season.

Within the community, the team is always looking to travel to different events all over Colorado. The hope is to reach out to non-STEM locations to further spread FIRST. The Community Outreach sub-team wishes to improve upon not only the hours of community outreach but the quality of the outreach completed. Partnering with the FIRST Outreach sub-team, they will reach out to local community groups and schools to set up demonstrations and FLL Jr. teams.

Risk Analysis

Strengths:

- Large Team - 55 dedicated students with diverse gender, age, ethnicity, and skill level
- Student Lead - Program is led by students, mentors advise but remain hands-off
- Defined Roles - Leadership roles are defined, head coach and mentors teach leadership techniques
- Mentors - 18 mentors including engineers, industry professionals, business owners, and educators
- Sponsors - Several repeat sponsors to help keep the team moving forward
- Build Space - Several spaces are available to the team. This includes wood and metal shops, community room, computer labs, and auxiliary gym for practice field and events

Weaknesses:

- Fundraising - Need to build a process to help with planning and implementation from year to year
- Leadership Transition - Need to write a program to transition a leadership role from an outgoing VP to an incoming VP
- Archiving Information - Write a record management program/schedule so it can be used from year to year as students graduate
- Communication - Need to find a better platform to communicate to the team and community about events and meetings

Opportunities:

- Mentor Program - Goal is to increase interest in STEM and FIRST, especially in younger generations
- Gender Roles - Goal to attract more female to the engineering side and attract more males to the business side to gain new perspectives in building and input
- Overseas - Goal is to create a bond with teams around the world
- Scholarships and Internships - Goal is to offer opportunities to our students into the next segment of their lives
- Networking - Have better visibility in the community not only as a robotic team but a team that gives back

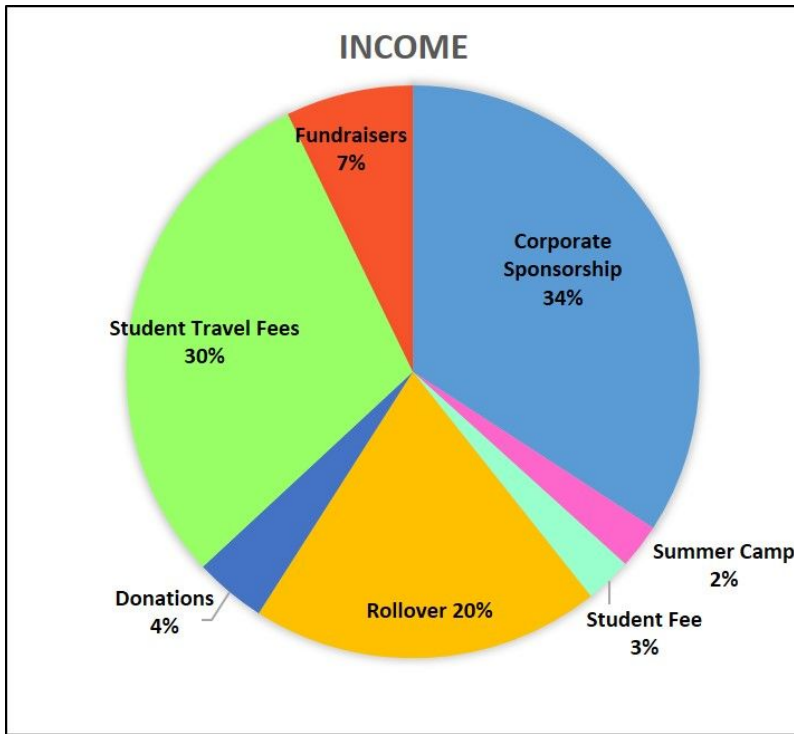
Threats:

- Resources - Lack of documentation of best practices and failures from year to year. Also, contacts, demographics, and basic team information could hinder the team performance,
- Leadership Transition - Lack of a written program to transition a leadership role from an outgoing VP to an incoming VP can cause disruption. This is loss of valuable plan and build time and community outreach time.
- Sponsors - Economy's impact on sponsor resources
- Interest - Lack of interest in incoming student and growth could become stagnant

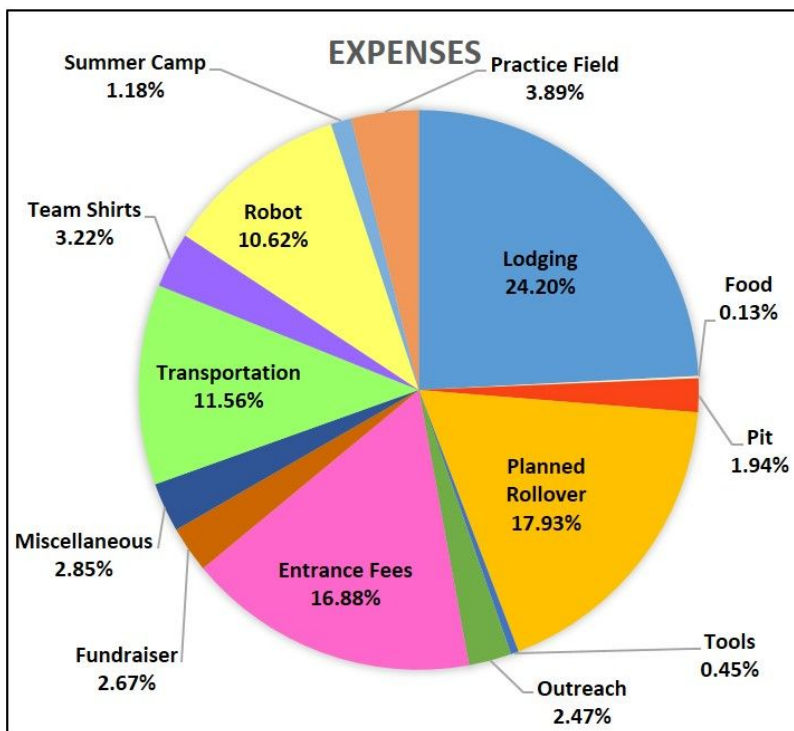
Strengths <ul style="list-style-type: none">•Large diversified team•Leadership roles are well defined•Mentors from many various careers•Several repeat Sponsors•Large versatile workspace available	S	W	Weaknesses <ul style="list-style-type: none">•Fundraising•Leadership transition plan•Record management program•Communication
Opportunities <ul style="list-style-type: none">•Develop a mentor program•Destroy gender stereotypes•Create bonds w/teams around the world•Offer Scholarships•Better visibility in the community	O	T	Threats <ul style="list-style-type: none">•Lack of documentation of historical data•Leadership Transition•Sponsorship•Lack of Interest

Risk Mitigation: Team 2296 is planning next year's fundraisers early by reaching out to sponsors and setting up fundraising events. This will secure the financial stability for the upcoming season. Record management has been identified as a top item for the leadership team to design. Lacking information from past years have wasted a lot time in fact finding; a group of outgoing VP's are gathering the past year's data and recording them in shared files. The last risk is lack of interest by perspective team members. CGW will be scouting for new team members throughout the year by live demonstrations, videos, and overall family atmosphere.

Financial Statement



Income	
Corporate Sponsorship	\$ 28,346.00
Summer Camp	\$ 2,100.00
Student Fee	\$ 2,179.00
Rollover	\$ 16,341.53
Donations	\$ 3,356.85
Student Travel Fees	\$ 24,655.00
Fundraisers	\$ 5,960.64
Total:	\$ 82,939.02



Expenses	
Lodging	\$ 20,070.30
Planned Rollover	\$ 14,872.09
Entrance Fees	\$ 14,000.00
Transportation	\$ 9,590.25
Robot	\$ 8,808.58
Practice Field	\$ 3,224.90
Team Shirts	\$ 2,671.00
Miscellaneous	\$ 2,361.20
Fundraiser	\$ 2,217.90
Outreach	\$ 2,049.48
Pit	\$ 1,611.91
Summer Camp	\$ 981.08
Tools	\$ 370.09
Food	\$ 110.24
Total:	\$ 82,939.02

The Team

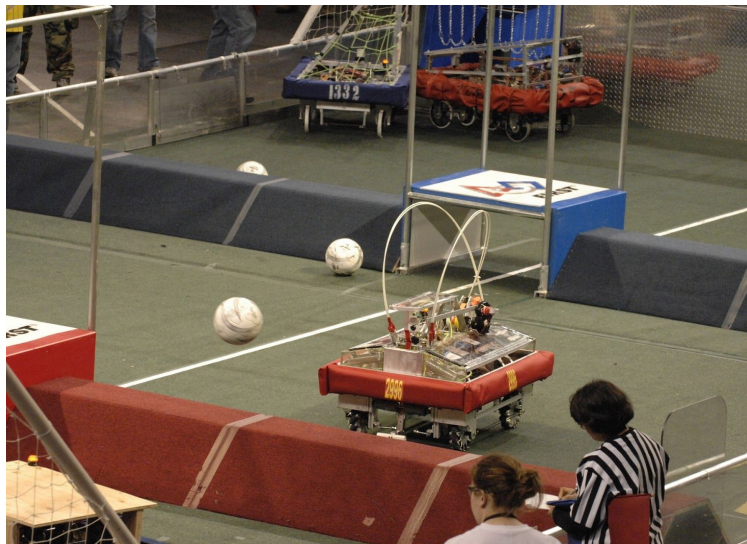
Team History

2009 – Lunacy: Dozer

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 (CGW) 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 with the intent to enjoy 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 teams (FIRST Team 399 and FIRST Team



1332) CGW not only participated in the elimination rounds, but was part of the winning alliance. CGW received the Rookie All-Star Award. The team competed in the Newton Division of the Championship competition in Atlanta, Georgia.



2010 – Breakaway: Sparky

Inspired by the previous year’s success, CGW 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. The team was also awarded the Entrepreneurship, Industrial Safety, and Autodesk Excellence in Design awards.

2011 – Logo Motion: Grab ‘n’ Go

One of the most successful seasons to date was in the 2011 with the game Logo Motion. CGW won the Entrepreneurship Award for the second year in a row and made it to the semi-finals in the Kansas City Regional. The Colorado Regional also yielded the Woodie Flowers Regional Award to the team’s “Big Kahuna”, Mr. Bryce McLean. A FIRST Dean’s List Finalist Award was presented to Scott Von Thun at this regional. The team continued to the Championship competition with the acquisition

of the Colorado Regional Chairman’s award. Cougars Gone Wired made it to the seventh seed in the Curie Division at the Championship competition in St. Louis, Missouri.



2012 – Rebound Rumble: RDR

Going into its fourth season, CGW 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 CGW 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: Sebastian

CGW 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, made it to the finals and was chosen as the Colorado Wildcard. At the Championship competition, CGW 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: Kirby

The team was incredibly successful 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. CGW won the Colorado Regional Spirit Award and was ranked eighth in the Curie division at the Championship competition. Unfortunately CGW experienced a malfunction during a qualification rematch and finished out the season in 24th place.

2015 – Recycle Rush: Gunther

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 by ranking 4th at the Utah Regional and winning the Engineering Inspiration Award, guaranteeing us a spot in championships. At the Colorado Regional the team ranked 12th and won the Quality Award. At championships, the team was in the Curie division once more and seeded 52nd.



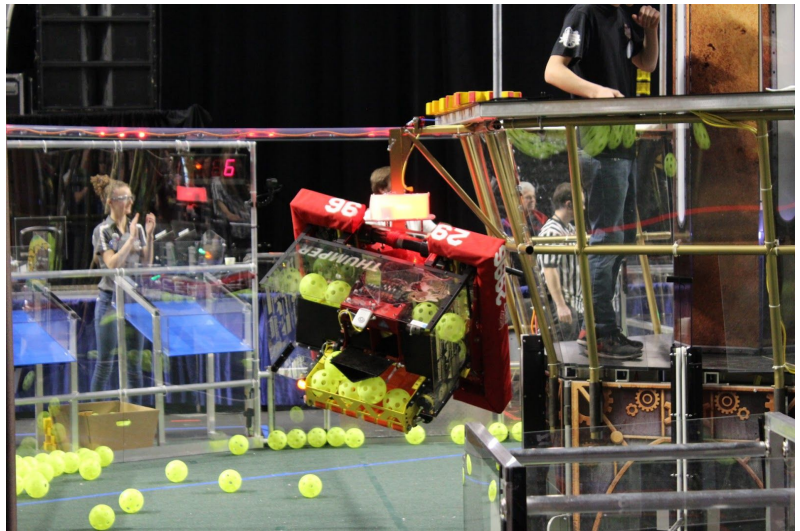


2016 – Stronghold: Underscore

Bryce McLean returned as head coach, starting the season off with a feeling of optimism. However, a week of snow days created scheduling challenges. These challenges did not slow the team down and they were able to build a powerful robot. CGW attended a first year regional in Flagstaff, Arizona. This allowed the team to change their routine and connect with new teams. CGW won Engineering Inspiration award at their home regional in Denver, which carried them to Championships in the Carson division.

2017 – Steamworks: Thumper

FIRST launched Steamworks with a new challenge - human players competing on the field. Our team members were excited to see how this game would play out. During build season, things didn't go as planned and the parts from Vertec were delayed. Not having any parts, the team decided to modify the schedule. CGW took two days to rest then extended the weekday schedule by one hour; instead of meeting for three hours every night, we met for four. Once the parts were in and Thumper was assembled, the team competed at both the Utah and Colorado Regionals. CGW ended the season with the Engineering Inspiration, Safety, and Creativity Awards. Just like the year prior, the Engineering Inspiration gave the team the extra push it needed to get to Champions.



Awards History

2017

- Colorado Regional Engineering Inspiration Award
- Colorado Regional Safety Award
- Utah Regional Creativity Award
- FIRST Dean's List Finalist, Madison Rutherford

2016

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

2015

- Utah Regional Engineering Inspiration Award
- Colorado Regional Quality Award

2014

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

2013

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

2012

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

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



2010

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

2009

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

Tracking Growth

Cougars Gone Wired has taken the time throughout the past ten years to celebrate the successes, learn from the failures, and absorb the advice from mentors, alumni, and leaders in the community. CGW has learned best practices from other FIRST teams and are excited to share this knowledge with junior FLL and Rookies teams.

Cougar Gone Wired started ten years ago with one robot, 20 team members, and a goal to just make the robot go. Throughout the years we have increased from one robot to building two. We increased our community service hours as we have found it important to give back. Last year at the Denver Regional, the team decided to create the Business Exchange, a forum where teams swap ideas and seek advice from other teams

In the years we did not grow in numbers, we grew in structure and strengthened our team. In our fourth year, we started our annual scrimmage. We wanted to give teams the access to a full scale field for testing their robots before bag-&-tag. CGW strives to grow the event by increasing the attendance and improving the overall efficiency and organization. This competition quality field is the only of its kind in Colorado.

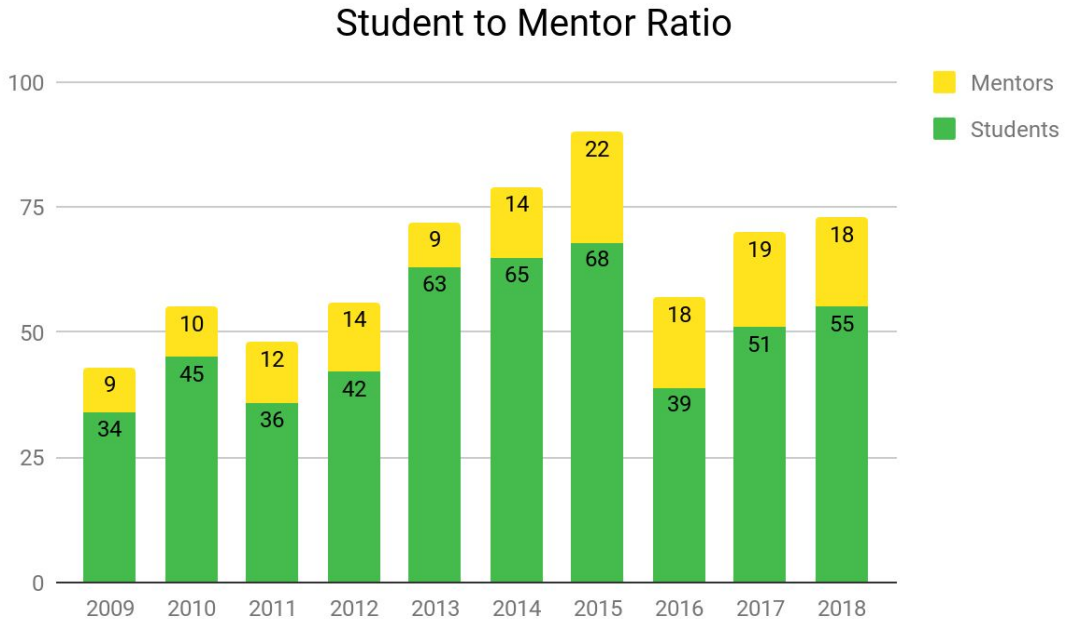
Over the past nine years, Cougars Gone Wired has gradually increased the number of people that are involved in STEM and the FIRST programs. This is the result of recruitment efforts at Coronado High School's registration day, various community events such as Cool Science and the What If? Festival, demonstrations, and word of mouth. The team has also increased FIRST involvement by reaching out to elementary and middle schools starting seven FLL Jr. teams across three schools. As of 2016, Cougars Gone Wired also hosts a VEX summer camp for incoming 7th-9th graders.

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Robot	1	1	1	2	2	2	2	2	2	2
Sponsors	X	X	X	X	X	X	X	X	X	X
Regionals	1	2	2	2	2	2	2	2	2	2
Outreach Hours	10	82	120	NR	NR	NR	164	146	246	160.5
Mock Game		X	X	X	X	X	X	X	X	X
Cougar Kibble				X	X	X	X	X	X	X
Scrimmage				X	X	X	X	X	X	X
FLL Jr. Teams					5	NR	NR	3	7	6
Business Exchange									X	X

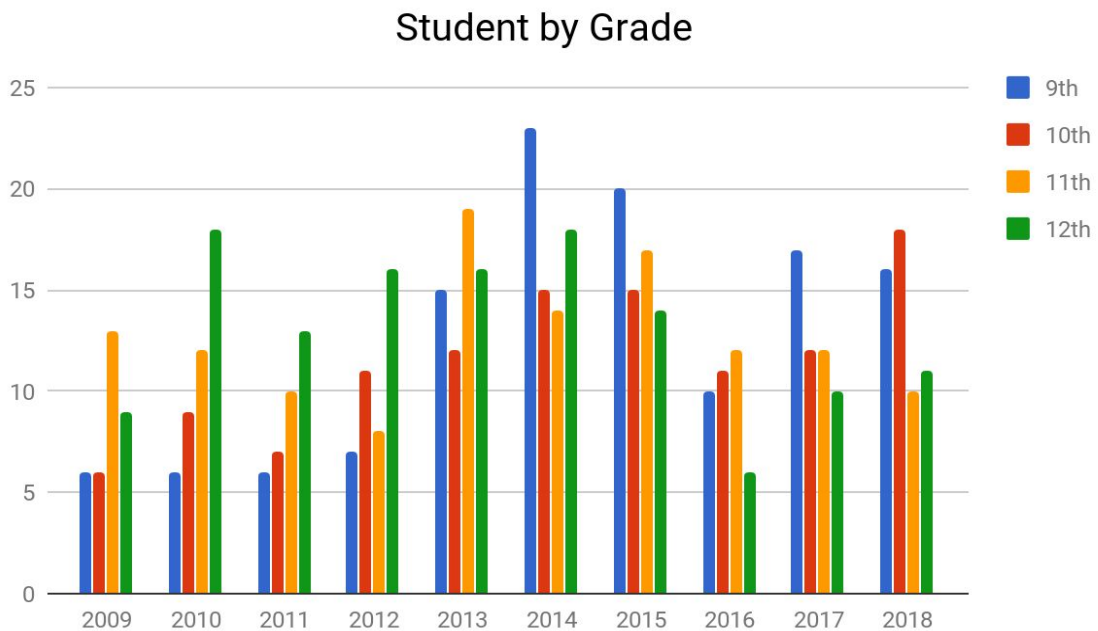
NR - No Records

Team Demographics

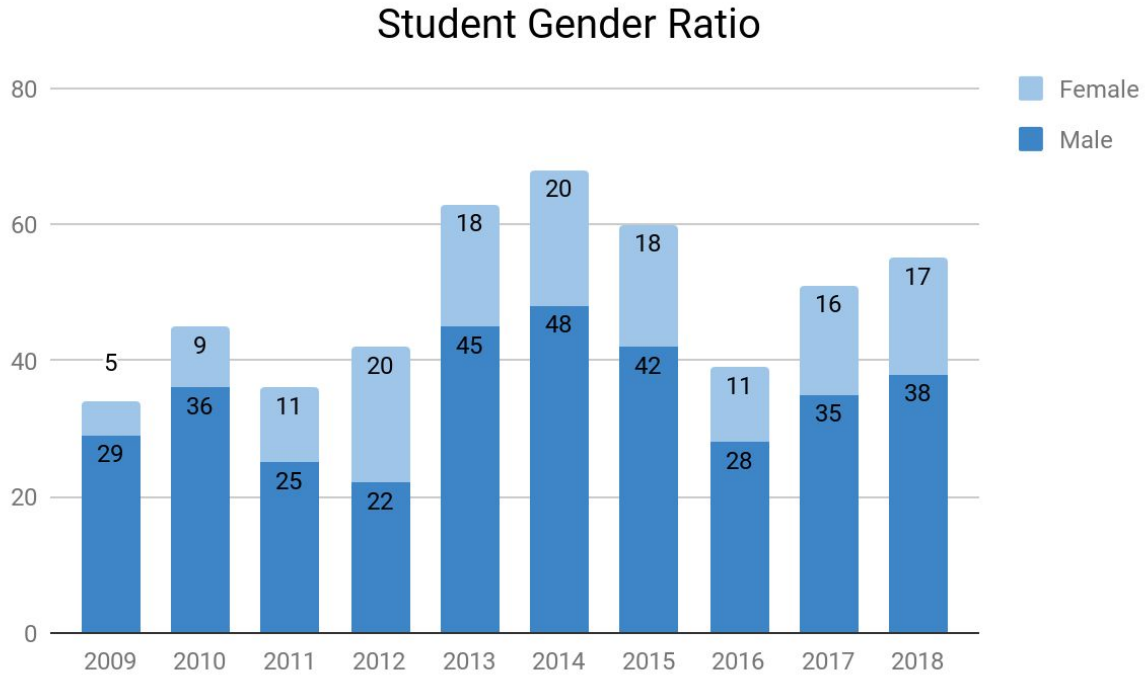
Student to Mentor Ratio - compares the mentor and student populations. Sponsor presentations and preseason activity attracts additional mentors. Students are recruited through demonstrations in the community, as well as school events.



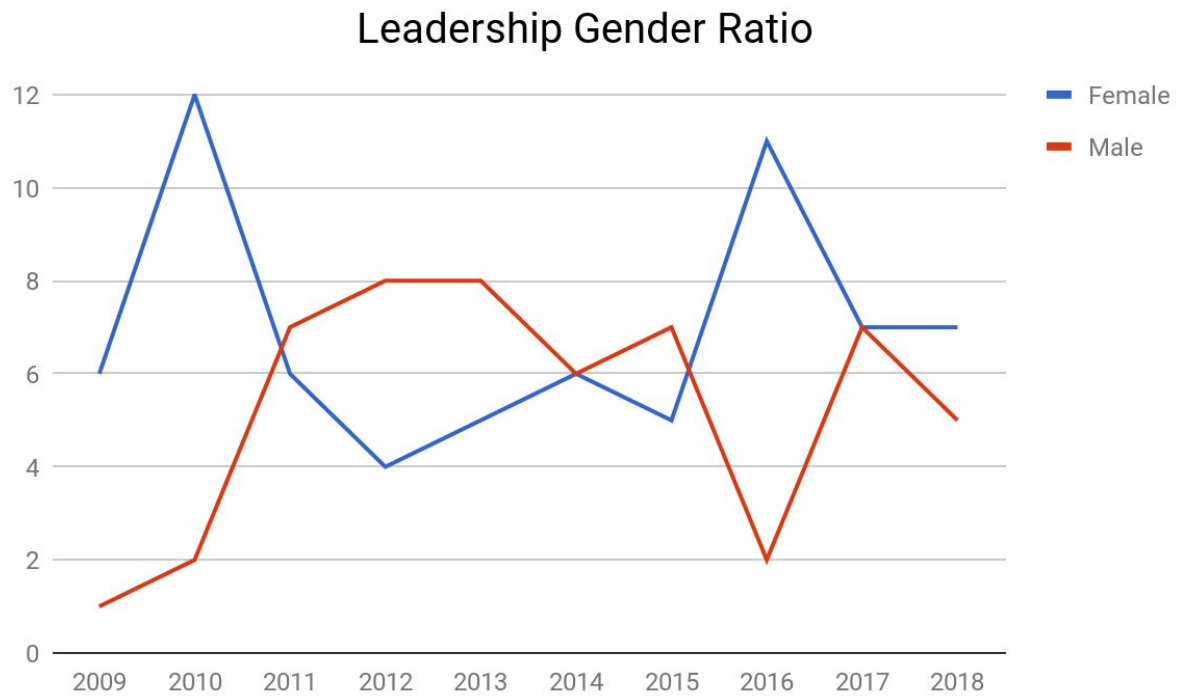
Student by Grade - illustrates team membership and shows the increase of younger membership. Leadership works to train these younger members to maintain their involvement through their high school career



Student Gender Ratio - expresses the male to female student participation ratio. While there are more males on the team, more females hold leadership positions.



Leadership Gender Ratio - demonstrates the female to male participation ratio in leadership. Currently, the business leadership is primarily female, while technical is male.



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 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-Teams

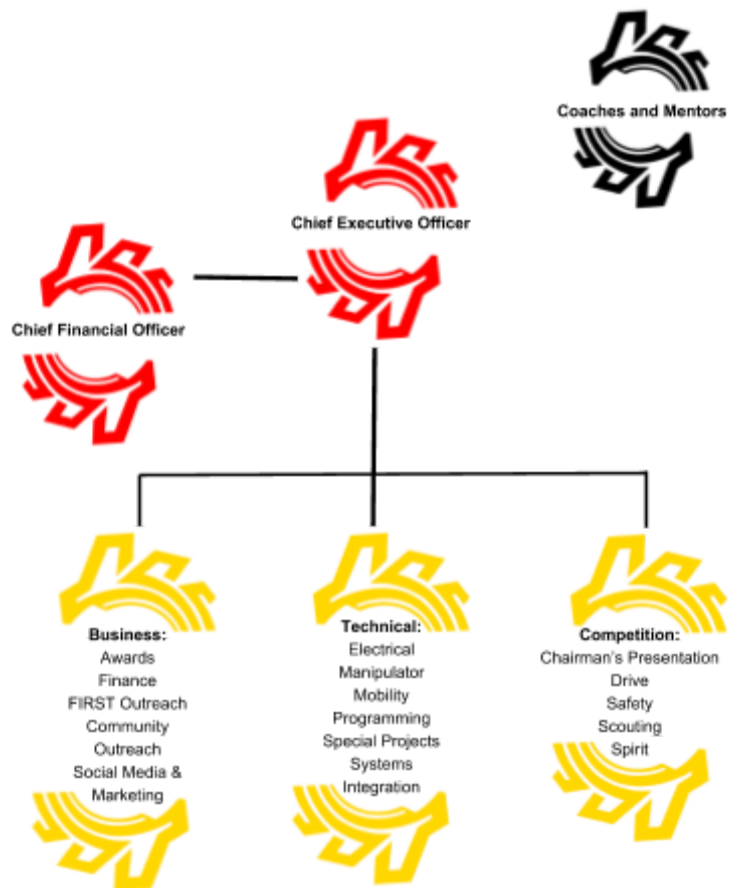
- Awards
- Community Outreach
- FIRST Outreach
- Finance
- Social Media & Marketing

Technical Sub-Teams

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

Competition Sub-Teams

- Chairman's Presentation
- Drive
- Scouting
- Scouting
- Spirit



Business Sub-Teams

Awards

The Awards subteam applies for select awards each build season, specifically the Chairman's Award and Woodie Flowers Award. They create the Chairman's Video in conjunction with Social Media & Marketing, write the Chairman's Essay & Executive Summaries, and organize the Chairman's presentation, as well as write the Woodie Flowers essay. Awards ensures that every award is submitted by the deadline. For the 2018 season, they are also working on a Crystal Apple submission to recognize our head coach Bryce McLean's dedication to both the team and his students.

Community Outreach

The Community Outreach subteam is in charge of organizing different robot demonstrations, volunteer events, and presentations in our community. This subteam must ensure that Cougars Gone Wired has everything it needs for these events and record when the event was, who attended, and who to contact about the event for future reference. All of these records are then put into a table where the team's total service hours are calculated.

Finance

The finance subteam is led by the Chief Financial Officer (CFO). They organize fundraisers, maintain sponsor relationships, write the Business Plan and prepare for the Entrepreneurship Award. The Finance Subteam organizes the sponsor presentation team and keeps information on current sponsors up-to-date. Build season is spent writing the Business Plan.

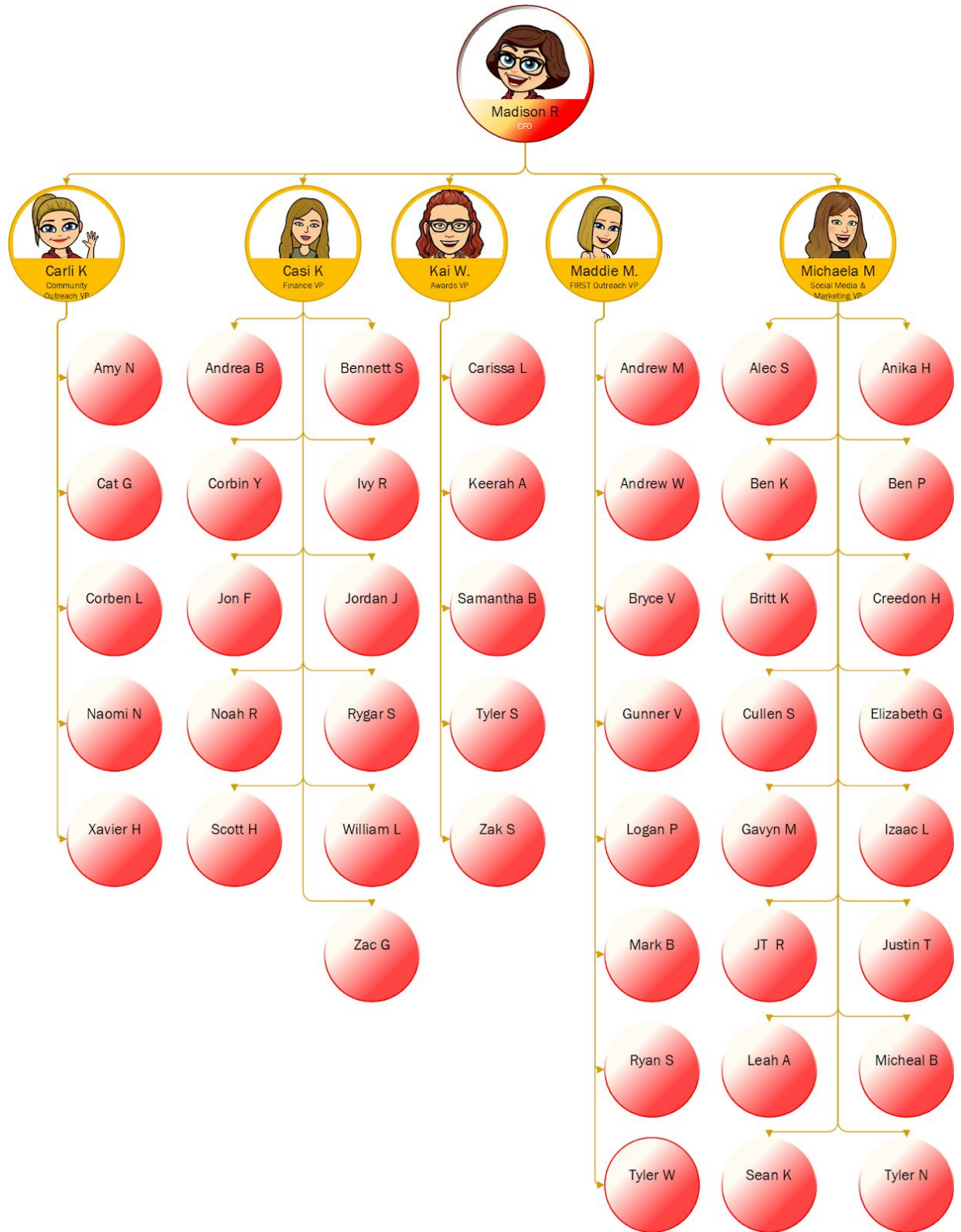
FIRST Outreach

The FIRST Outreach subteam works alongside the Community Outreach Subteam to organize FIRST-specific events in our community, such as starting and mentoring FLL Jr. and FLL teams and hosting the FLL Jr. showcase.

Social Media & Marketing

The Social Media & Marketing subteam is in charge of creating the Cougars Gone Wired website and ensuring all the information is up-to-date. They also update and post on the team's social media accounts (Facebook, Twitter, LinkedIn, Snapchat, Instagram) for students, sponsors, parents, other FIRST teams, and the community. They are responsible gathering footage from community events throughout the off-season, working with the Awards subteam to create the Chairman's video, and posting the final version of the film on the team YouTube channel. They are also responsible for designing the various graphics including tee shirts and posters.

2017-2018 Business Sub-Team Organization Chart



Technical Sub-Teams

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. During competition, they also manage the pneumatics and charging the batteries.

Manipulator

The Manipulator subteam designs the part of the robot that interacts with the field. They start brainstorming designs as soon as the strategy is finalized, and split up into smaller groups to prototype the top designs for different mechanisms. These manipulators control both game pieces and the robot in order to maximize points and follow the team's strategy. Often, if a game has too many manipulators required, mobility will take on one.

Mobility

The Mobility Sub-team designs and fabricates the drivetrain and chassis of the robot. They also assemble the gearboxes and balance the torque and speed. If a game has too many manipulators required, mobility will take on one, most often the climbing mechanism.

Programming

The Programming Sub-team programs the robot to accomplish the team's autonomous strategy and move in the tele-operated period. It debugs and updates prior robot code along with using sensors to make driver control easier and more effective. Recently, the Programming subteam transitioned from LabView to Java.

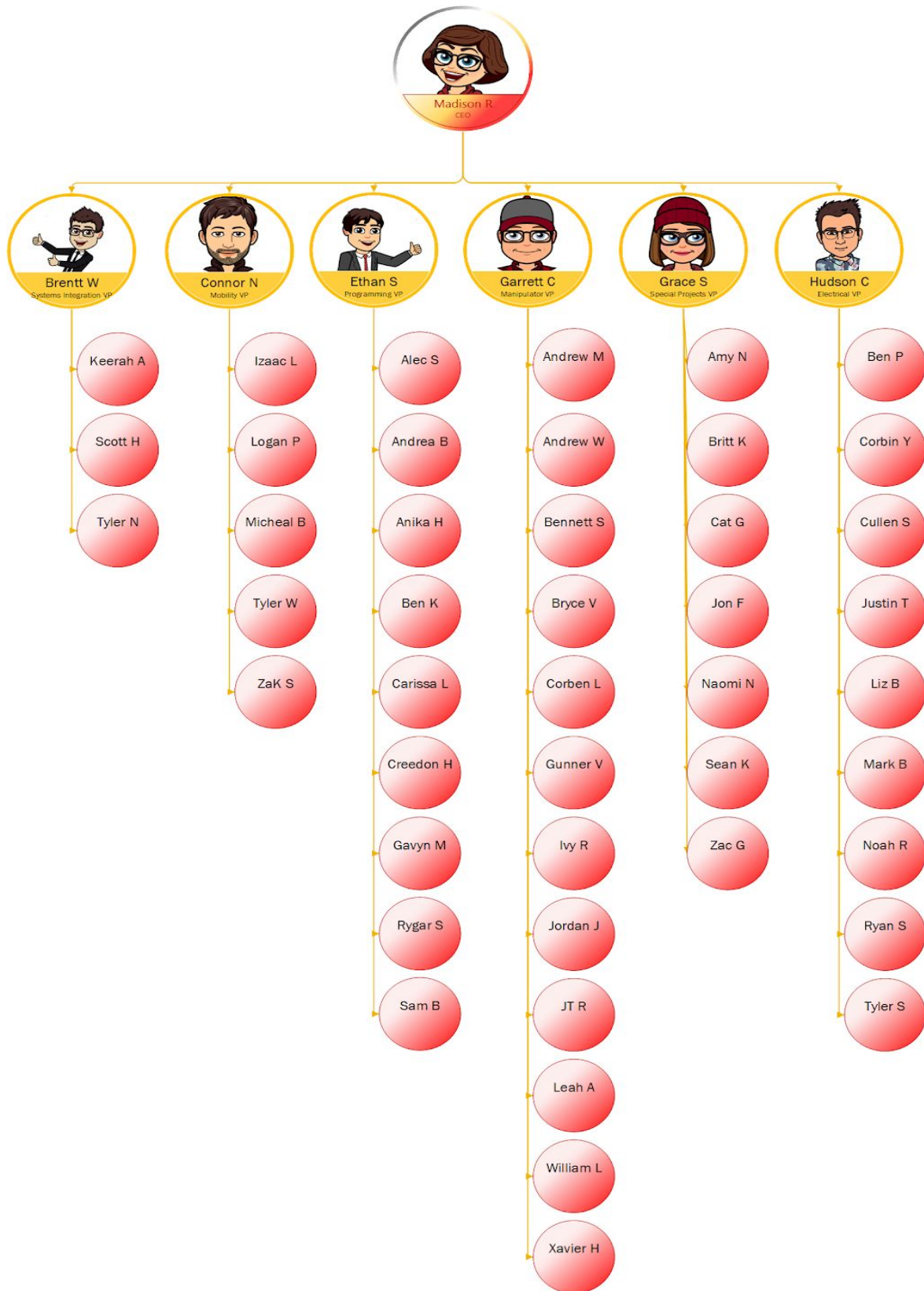
Special Projects

The Special Projects Sub-team works with everything except the robot. Their main project is building a full-scale field for the Cougars Gone Wired-hosted Pre-Ship Scrimmage. They are also in charge of setting up for scrimmage, as well as staffing and training other team members for the event. At the Colorado Regional, Special Projects maintains the practice field as other teams use it. At all competitions, Special Projects builds and maintains the pit, as well as packs the crate. Year-round, they lead closest cleanup.

Systems Integration

The Systems Integration Sub-team oversees the complete robot-making process by sending representatives to all technical sub-teams, ensuring fluid communication and consistency throughout the design and build process. They make the final calls on robot design and work to include all needed mechanisms while staying within the constraints. SI then integrates all robot parts into a CAD drawing to be sent to the team's manufacturer, Vertec. They work with Vertec throughout the design process so the robot parts can be manufactured quickly and accurately, so minimal modification is required for assembly.

2017-2018 Technical Sub-Team Breakdown



Competition Sub-Teams

Chairman's Presentation Team

Representing CGW in a formal presentation as part of the Chairman's Award submission is the Chairman's Presentation Team. Comprised of six students, three presenters and three alternates, they must memorize a set presentation and deliver it coherently while dressed in formal business attire.

Drive Team

Drive Team consists of five students: driver, manipulator, human player, technician, and coach. These are selected through tryouts that occur during robot testing on Saturdays between the end of build season and competition.

Safety Captain

Safety Captain is responsible for assuring that the whole team demonstrates safe behavior while working in the shop and pit. They manage the safety binder full of information on hazardous materials and administer mandatory safety tests. At competition, the Safety Captain also presents the team safety plan to safety advisors.

Scouting Team

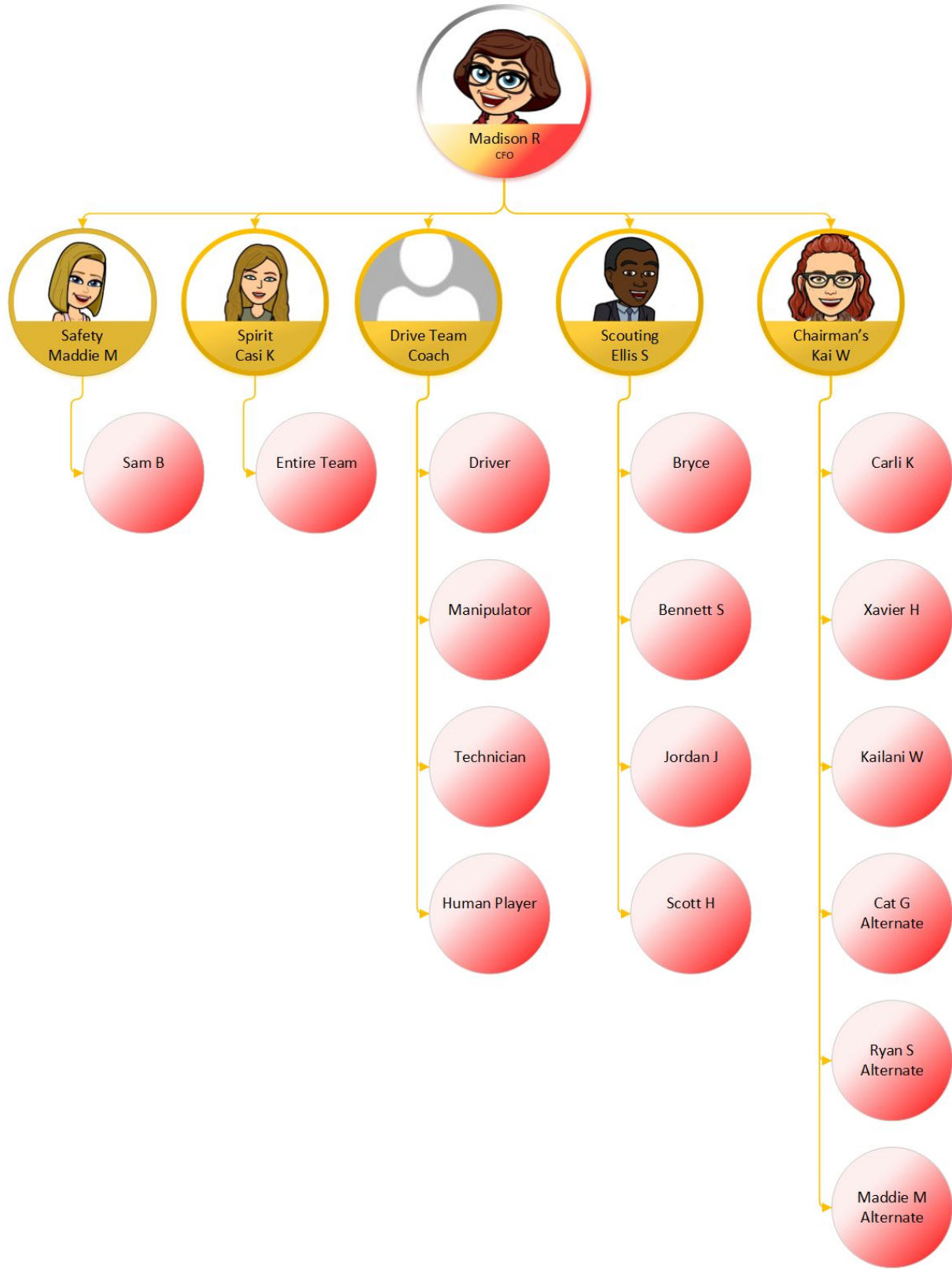
Led by a Scouting VP, the Scouting Team involves all of CGW. Their task is to compile match results at competition. This data is later used by Drive Team to determine match strategies as well as alliance partners for finals.

Spirit Captain

The Spirit Sub-team also enlists the entire CGW team. Led by the Spirit Captain, the volunteers design and organize spirit gear, signs, and team cheers. They are also in charge of teaching the entire team the "Mormon Dance", which is the dedicated spirit dance that Team 2996 is now known for. The spirit captain leads the team cheers providing support to all the members of Drive Team.



2017-2018 Competition Sub-Team Organizational Chart



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.

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

The team is extremely grateful for the bonds formed and the constant guidance and support from generous and devoted mentors. Cougars Gone Wired is unique in the strength of the bonds formed between members, alumni, and mentors, along with the constant support between these groups, inside and outside of robotics.

Member Bonds

Cougars Gone Wired recruits at Coronado registration, community events, and an annual informational barbecue. Pre-season meetings focus on team building and technical education. A rite of passage that has formed throughout the years is the night before Scrimmage. The team builds a life size field for other teams around Colorado to practice on. Since we are using the school's facilities, CGW has to wait until the last activity utilizing the gym finishes before we start building the field. This is an intense team builder lasting into the early hours in the morning. Members socialize outside of meeting hours weekly at Village Inn's Pie Rush Wednesday and movie nights hosted by team members. These events solidify the friendships between members while retaining and attracting new members to the Cougars Gone Wired family.

Alumni Bonds

The team's family atmosphere encourages alumni to return and participate in kickoff, community outreach, team meetings, and competitions. Alumni are valuable to the team as mentors because they share their robotics experience, as well as their knowledge gained beyond high school. Events such as the annual Kick-Off Cake Party gathers the Cougars Gone Wired family and reinforces the alumni's perpetual membership on the team.

Parent Bonds

For the first few years of Cougars Gone Wired's existence, the students relied on local restaurants and grocery stores 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.

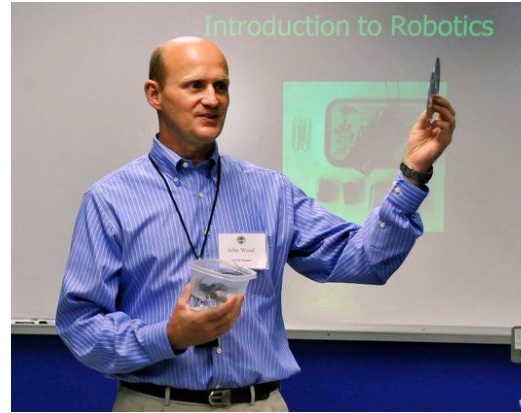
Cougar Kibble has successfully fed our team of over 70 members and mentors every day of build season, including Saturdays. This program benefits the welfare of students, increases the productivity of work hours, and enhances the team's family atmosphere.

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, while still allowing 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 learn from the students as they overcome challenges together. Mentors endure the long hours alongside the team, solidifying the Cougars Gone Wired family atmosphere.

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 4 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 Bonds

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 that had been interfering 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 an audience of all district level department heads. CGW was also featured in a nonprofit ad campaign shown in local movie theaters which was intended to attract students to the school district. D11 board members have also donated out pocket to Cougar Kibble so meals can be provided daily for the students during build season. Cougars Gone Wired also sets up displays at district events, such as the District 11 Career Fair for 8th Graders, and at registrations at multiple D11 high schools.

Coronado High School provides Cougars Gone Wired with work space and the 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. A year ago Coronado’s automotive classes were eliminated. 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. Team 2996 has formed strong partnerships with many organizations within Coronado High School. A relationship with Student Council allows for advertising and mutual fundraiser support, while a connection with the catering class has provided meals for the team’s parent/sponsor appreciation night.

FIRST Bonds

Cougars Gone Wired stresses the values of FIRST including Gracious Professionalism and Coopertition. All regional FRC teams are invited to the Colorado Pre-Ship Scrimmage, which is held the Saturday before Bag & Tag. 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. After Bag & Tag, the field is then assembled on the Saturdays leading up to competition, an invitation is extended to all teams to practice.

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 also about this different 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 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.

Started in 2017, the team decided to create the Business Exchange, a forum where teams can swap ideas and ask for advice from other teams. The Business Exchange was modeled after the Chairman's Exchange with the idea of having an open discussion about teams' strengths and weaknesses in their business structure.

International Bonds

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.

Local Bonds

The team's connections have multiplied over its ten years, increasing our impact. The most valuable resource is the membership of 55 students and 18 mentors who are dedicated to volunteering their time and energy to give demos and mentor younger students. New audiences are attracted through work with national service programs and participation in Coronado High School events.

For a large amount of the team's community outreach, we travel all over Colorado. These events include the Boys and Girls Clubs of Colorado Springs, various STEM festivals, and Cheyenne Mountain Zoo's "Boo at the Zoo." At these demos, 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. This year the team completed a total of 161.5 hours. Although the 2016-2017 hours are presented as total amount of man-hours, in order to properly show the impact of Team 2996, the community service hours are now displayed as team hours.

2017-2018 Outreach and Involvement

Event	Category	Date	Hours
Elk's Lodge Clean Up	Volunteerism	5/21/17	4
AHA Heart Walk Preparation and Organizing	Volunteerism	6/1/17	2
AHA Heart Walk Set-up and Orientation	Volunteerism	6/2/17	2
AHA Heart Walk Event	Volunteerism	6/3/17	3.5
M.A.D. Robotics Summer Camp	STEM Outreach	6/5/17 - 6/9/17	30
Scott and Taylor Elementary Adventure Club	STEM Outreach	6/19/17	6
Boys and Girls Club Demo	STEM Outreach	6/28/17	5
REACH Demo	STEM Outreach	6/29/17	3
Antelope Trails and Frontier Elementary Adventure Club	STEM Outreach	7/7/17	6
Freedom and Prairie Hills Elementary Adventure Club	STEM Outreach	7/11/17	3
Carver and Penrose Elementary Adventure Club	STEM Outreach	7/17/17	6
Colorado Springs Therapeutic Recreation Program	STEM Outreach	7/19/17	3
Fountain Library Summer Reading Party	STEM Outreach	7/21/17	4
East Library Summer Reading Party	STEM Outreach	7/28/17	4
Chipeta and Jackson Elementary Adventure Club	STEM Outreach	8/4/17	7
Chipeta Registration	STEM Outreach	8/15/17	3
What If? Festival	STEM Outreach	9/9/17	8
El Pomar Boys and Girls Club	STEM Outreach	9/29/17	4
Dinosaur Resource Center - Fun With Science Day	STEM Outreach	10/7/17	8
Cool Science	STEM Outreach	10/14/17	8.5
3D Academy Art Show	STEM Outreach	10/20/17	5
CGW Fundraiser Dinner	Volunteerism	10/21/17	8
Black Forest Home School FTC Club	STEM Outreach	10/26/16	2.5
Boo at the Zoo	Volunteerism	10/28/17	6
Safe Trick or Treat	Volunteerism	10/31/17	4
Black Forest Home School FTC Club	STEM Outreach	11/9/17	2.5
FLL Qualifier	STEM Outreach	11/11/17	9
Jr. FLL Showcase	STEM Outreach	11/13/17	4.5
		Total:	161.5

Finances

2016-2017 Financial Statement

Cougars Gone Wired runs year-round, so our expenditures don't stop until the end of the school year. Because of this we put last year's business statements into the business plan in order to show a full year of finances.

<u>Income:</u>	
Corporate Sponsorship	\$28,346.00
Summer Camp	\$2,100.00
Student Fees	\$2,179.00
Rollover	\$16,341.53
Donations	\$3,356.85
Student Travel Fees	\$24,655.00
Fundraisers	\$5,960.64
Total:	\$82,939.02

<u>Expenses</u>	
Lodging	\$20,070.30
Planned Rollover	\$14,872.09
Entrance Fees	\$14,000.00
Transportation	\$9,950.25
Robot	\$8,808.00
Practice Field	\$3,224.90
Team Shirts	\$2,671.00
Miscellaneous	\$2,361.20
Fundraiser	\$2,217.90
Outreach	\$2,049.48
Pit	\$1,611.91
Summer Camp	\$981.08
Tools	\$370.09
Food	\$110.24
Total:	\$82,939.02

2018 Bill of Materials



This is a sample Cost Accounting Worksheet (CAW) for use in the 2018 FIRST[®] Robotics Competition Game, FIRST POWER UP[™]. The CAW helps Inspectors verify part use and legality on Robots. Teams do not have to report individual COITS items that are less than \$5 USD each or are Kit of Parts Items.

2018 FIRST Robotics Competition							
Bill of Materials							
Team Name:	Cougars Gone Wired	Team #:	2996	Date:	2/23/2018		
Event:	Salt Lake City Regional	City:	Salt Lake City	State:	Utah		
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 (\$)	
Drive Train:							
	CIM Motor	Miscellaneous	AndyMark	2	pcs.	\$27.99	\$55.98
	Sonic Shifter	Miscellaneous	AndyMark	1	pcs.	\$279.00	\$279.00
	160T Belts	Rubber	West Coast Products	4	pcs.	\$10.49	\$41.96
	1/2in Bearing Hub	Aluminum	AndyMark	2	pcs.	\$19.50	\$39.00
	.75" bore, .5" stroke Air Cylinder	Miscellaneous	Bimba	3	pcs.	\$32.00	\$96.00
	3D Printed Parts	Plastic	Coronado High School	2,788	in^3	\$4.00	\$11,15
	8'x4'x.125" Aluminum 6061	Aluminum	VERTEC	2	pcs.	\$385.92	\$771.84
	8'x4'x.0625" Aluminum 6061	Aluminum	VERTEC	2	pcs.	\$227.52	\$455.04
						Subtotals:	\$1,749.97
Lift Tower:							
	3" by 1.75" Square Tubing	Aluminum	MetalsDepot	6	Feet	\$72.38	\$72.38
	1/2" bore, 4" stroke Air Cylinder	Miscellaneous	Bimba	2	pcs.	\$37.90	\$75.80
	Mounted Pulleys	Steel	McMaster-Carr	3	pcs.	\$7.38	\$22.14
	AS-78 Line Samps Rope	Miscellaneous	Annapolis Performance Sailing	20	Feet	\$0.40	\$8.00
						Subtotals:	\$178.32
Arm System:							
	Banebot 550 Motor	Miscellaneous	Banebots	2	pcs.	\$7.25	\$14.50
	P60 Banebot Gearbox (64:1)	Miscellaneous	AndyMark	2	pcs.	\$66.50	\$133.00
	18T Pulley	Plastic	West Coast Products	8	pcs.	\$9.99	\$79.92
	60T Belt	Rubber	West Coast Products	2	pcs.	\$5.49	\$10.98
	1/2" ThunderHex	Aluminum	VEX Pro	36	Inch	\$13.99	\$13.99
	150T Belt	Rubber	West Coast Products	2	pcs.	\$9.99	\$19.98
	4" Compliant Wheels	Rubber	AndyMark	4	pcs.	\$8.00	\$32.00
						Subtotals:	\$304.37
Electronics:							
	Talon SRX Speed Controller	Miscellaneous	AndyMark	6	pcs.	\$90.00	\$540.00
	Clippard Air Tank	Miscellaneous	AndyMark	5	pcs.	\$14.00	\$70.00
	Gyroscopic Sensor	Miscellaneous	AndyMark	1	pcs.	\$99.00	\$99.00
	Camera	Miscellaneous	AndyMark	1	pcs.	\$32.00	\$32.00
	Double Valve Solenoid	Miscellaneous	AndyMark	3	pcs.	\$52.00	\$156.00
						Subtotals:	\$897.00
						Totals:	\$3,129.66

Sponsors

Sponsors are important team members and are the main income for Team 2996. 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, website, pit, and robot.

Many STEM related sponsors, specifically Vetec and Harris 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.

The Pikes Peak Chapter 356 of the National Association of Women in Construction (NAWIC) has been a dedicated sponsor for many years. Their first meeting of the year is held at Coronado and many women look forward to seeing the final robot at scrimmage. Some of the women also run businesses that are also sponsors for the team.

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. Our main fundraisers this year included mexican-themed dinner at BPO Elks Lodge 309 hosted by the team, an inaugural robotics summer camp for middle school students conducted by the team, and the selling of 10th anniversary t-shirts.



Future Plans and Goals

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
- Increase female involvement on the team, especially the technical side

Business

Awards

- To construct a rough draft of the Chairman's essay before build season starts
- To increase team involvement in the Chairman's writing process – get them excited about writing the award as the team is about building a robot

Community Outreach

- Reach out to new places for Community Events and diversify the purpose for STEM
- Have more team members attend our events and encourage them to reach out to the people in the community.
- We want to have a strong and positive reputation of our team and how we contribute to the community in an inspirational way.

Finance

- Increase underclassmen participation is my biggest priority. Bookkeeping and management responsibilities are much easier with multiple people
- Continually update the business plan to keep a cohesive document which accurately summarizes the team's business goals, development, and organization

FIRST Outreach

- To encourage the FIRST sub-team to grow beyond their comfort zone
- Expand outreach to FTC and FLL, while still expanding FLL Jr.
- Further develop our relationship with Nueva Vida FLL Jr. in Merida, Yucatan, Mexico

Social Media & 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 effectively spread the FIRST message
- Create a music video
- Increase news coverage

Technical

Electronics

- Design a plan to be prepared for any issues that may arise during competition
- Label electronics-related components on the robot to easily diagnose issues
- To continue to improve through innovation

Manipulator

- Utilize the preseason to improve organization
- Create an introductory program for new members so they are not overwhelmed

Mobility

- Conduct training with team members on difficult tools i.e. Sonic Shifter
- Familiarize team members with the mechanical realm of the robot i.e. gearboxes
- Reachout to underclassmen and train for any mechanical issues they may arise

Programming

- Improve programmer knowledge of Java to contribute to the robot code
- Involve more members of the programming sub-team in coding the robot

Special Projects

- Use practice materials to help new members on carpentry and power tool safety
- Streamline the field-building procedures

Systems Integration

- Model multiple drivetrains in Autodesk Inventor
- Create a plan to choose a modeled drivetrain and modify it in the first week of build season

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/
- <https://www.thebluealliance.com/team/2996>

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 5pm to 8pm
Build Season – Monday through Friday from 5pm to 8pm, Saturdays from 9am to 4pm

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
- 501(c)(3) available