

## Chairman's Award - Team 4944

### Team Number

4944

### Team Name, Corporate/University Sponsors

Chevron/Grand Junction Business Incubator/Native Navigation/Capco, Inc./Williams & Hi Fives Robotics

### Briefly describe the impact of the *FIRST* program on team participants with special emphasis on the 2016/2017 year and the preceding two to five years

24 Current Members: - 100% plan to go college, 92% for a STEM field - 84% want to continue w/ FIRST after high school - 37% believe FIRST has helped them to choose a STEM Career Our 10 Alumni: - 4 are active FIRST Volunteers; currently mentor FLL teams and volunteer at FLL, FTC, and FRC Regionals - 9 are studying in a STEM field - Attend colleges including Harvard, Harvey Mudd, & CalPoly (\$40k STEM scholarship) - One Dean's List Finalist attends U.Rochester on a \$60k FIRST Scholarship

### Describe the impact of the *FIRST* program on your community with special emphasis on the 2016/2017 year and the preceding two to five years

- Over 1.4k volunteering hrs. for FIRST - 6/10 Grand Valley high schools have FRC participation through 4944 - 16/16 local FLL teams started, mentored or assisted by 4944 - Cooperative relationship with Riverside Educational Center to introduce STEM to underserved kids - 150+ people reached directly through 10 student-led STEM camps and workshops in 2015 and 2016. - 60+ Outreach Events reaching est. 21k+ people directly - Hundreds of people reached at 2nd Grand Junction FLL Qualifier

### Team's innovative or creative method to spread the *FIRST* message

- 4944 is currently partnering with Central High School to develop a year-round FIRST-based curriculum to introduce local CHS students to STEM in a new form with participation in FTC - We hosted student-led Arduino, Build your own 3D printer, Java Programming, and Lego Robotics camps with 150+ participants - Teaching our STEM camps and promoting the values of FIRST as part of the Western Colorado Community College summer camps program, need-based scholarships are available

### Describe examples of how your team members act as role models and inspire other *FIRST* team members to emulate

Student Led: All aspects of the team are led by students with mentor guidance Efficient: Sub-teams where student leads are chosen increase efficiency. Student-leads are role models that guide their team during and beyond build season Inclusive: Team includes members from almost every school, private & public, in our area, offering need-based scholarships to encourage participation Passionate: Members spend many after-school hours at our facility because they are dedicated to the FIRST experience

### Describe the team's initiatives to help start or form other FRC teams

Our strategy for FRC growth is to plant seeds through the expansion of Jr. FLL, FLL & FTC. These actively programs will be integrated with FRC to create a feeder program to FRC. This will help us maintain The Hi Fives and in the future start another FRC team in the Grand Valley.

### Describe the team's initiatives to help start or form other *FIRST* teams (including Jr.FLL, FLL, & FTC)

The Hi Fives: - started 8 FLL teams in the Grand Valley, including the first 2 - started 4 Jr. FLL teams in 2016 - hosted our 1st Jr. FLL Expo. in December 2016 and will host a 2nd Jr. FLL Expo. in April 2017 - started and mentor the only FTC team in the Grand Valley since 2015 - ran and hosted the 2nd Grand Junction FLL Qualifier, which spread the message of FLL to hundreds of parents, teachers and students

### Describe the team's initiatives on assisting other *FIRST* teams (including Jr.FLL, FLL, FTC, & FRC) with progressing through the *FIRST* program

The Hi Fives: -Helped grow FLL in the Grand Valley since 2012, mentoring 14 teams & assisting 16 teams -Ran and host Grand Junction FLL Qualifier, assisting 16 Western Colorado teams. -For 2 yrs. 50+ team members and parents volunteered 100s of hrs. at this event -Assisted at the 2014 Mountain States FLL Qualifier as judges and referees -

Assisted FRC Team 1332 for two build seasons with machining, CAD design and programming -Helped 5 Jr. FLL teams with Lego Kits and 4 with funding

**Describe how your team works with other *FIRST* teams to serve as mentors to younger or less experienced *FIRST* teams (includes Jr.FLL, FLL, FTC, & FRC teams)**

- FIRST Team 4944 students have mentored 14 out of 16 Grand Valley FLL teams and hosted numerous STEM workshops for members of these teams, and provided machinery and work space for two FLL seasons. - Hosted annual Drive-In Movie and Canned Food Drive for FRC, FTC and FLL bonding. - Hi Fives students mentor the first Grand Valley FTC team providing guidance with CAD and programming Hi Fives students mentored 4 Jr. FLL teams.

**Describe your Corporate/University Sponsors**

Chevron: financial & mentorship: 4 seasons CAPCO: financial, mentorship, materials, equipment: 4 seasons GV Business Incubator: facilities & mentorship: 4 seasons NASA: financial: 2 seasons ACWC: financial: 2 seasons City of Grand Junction: financial, community support: 2 seasons WCCC: Use of machine shop, including tools and some materials and facility to host STEM Summer Camps, 2016. Williams grant attained for joint funding for FRC and Jr. FLL teams.

**Describe the strength of your partnership with your sponsors with special emphasis on the 2016/2017 year and the preceding two to five years**

Four mentors who are employed by our sponsors have provided 1500+ hours of mentorship. The Western Colorado Business Incubator has provided facilities for working, hosting camps and events, since 2013. CAPCO, Chevron, and the Business Incubator have been eager to teach new skills like machining, marketing strategies, public speaking, providing donations of money, time, resources, and materials. We host a Spaghetti Dinner to thank our sponsors as well as reveal the robot to them.

**Describe how your team would explain what *FIRST* is to someone who has never heard of it**

FIRST a life changing program where students learn teamwork, dedication, and discover the potential of STEM. FIRST instills students and mentors with goals to improve their character, have community-oriented minds, and gain real-world experience to improve themselves and others. To us, FIRST is not just about building a robot, but about spreading STEM to improve the future of our community.

**Briefly describe other matters of interest to the *FIRST* judges, if any**

-4944 is made up of 30% girls and minorities -In two years, we have won 2 Rookie All-Star Awards, 2 Highest Rookie Seed Awards and 1 Creativity Award -Have been featured in DenverPost, Salt Lake City Tribune, and FIRST Robotics Facebook page. -Hi Fives students and mentors were instrumental in founding GJMakerSpace, making up over 50% of its volunteers during the first 6 months. -Our team members were even featured on the official FIRST Robotics Facebook page due to our colorful imagery!

**Team Captain/Student Representative that has double-checked this submission.**

Edgar Corona

**Essay**

FIRST Team 4944, The Hi Fives makes its home in Grand Junction, Colorado. With a population of 150,000 people, the Grand Junction community has struggled to develop an economic base independent of the boom and bust cycles of the energy sector. When the need for resources is gone, so are the jobs.

Meanwhile, manufacturing, engineering, and computer science jobs are few and far between. The need to educate and prepare future generations in STEM areas is especially important to allow sustainable industries to take root. In the fall of 2012, a group of 8 high school teens, with support from family and the community founded the first FRC team in the Grand Valley. Our name, "The Hi Fives", represents the five high schools founding members attended in Mesa County School District 51.

Founded under the nonprofit charter of the Riverside Educational Center, The Hi Fives inspired excitement and passion at many events in the community through promotion of FRC, FLL and FTC. The community embraced The Hi Fives, as people of all ages were captivated by the opportunities provided by FIRST Robotics for their sons, daughters, and friends. During our first year, we won two Rookie All Star Awards as a result of our extensive community outreach efforts.

In 2014, as a result of our rapid growth during our rookie year, our team grew its own identity as a IRS nonprofit 501 (c) (3) organization, and found our new home in a cooperative relationship with Western Colorado's Business Incubator, who graciously donated 1,000 square feet of workshop and meeting space.

Today, The Hi Fives continue to spread the positive enthusiasm and contagious energy that started with only 8 students three and half years ago. Our membership now includes 24 students from six high schools, and our name is better represented by "the five key ways" we are making a difference in our community:

### 1. Starting and Growing FIRST in the Grand Valley

The Hi Fives started the first Grand Valley FLL team in 2012. Since then, we have assisted 16 FLL teams, 14 of which were mentored by Hi Fives members, and 8 were started by Hi Fives members.

As a result of incredible FLL growth, The Hi Fives now host an annual Grand Junction FLL Qualifier, now for two years. Sequentially, FIRST Robotics and FLL now reaches hundreds more Grand Valley students, parents, and teachers and involves over 50 Team 4944 members volunteering hundreds of hours towards its success.

In 2016 two Hi Fives members spearheaded the effort to grow Jr. FLL locally, resulting in the formation of 14 new teams in one year, 4 of which the Hi Fives formed and mentored, all of which we have assisted. The rapid growth has resulted in the hosting of not one but two Expos for the 2016-2017 season. The Hi Fives have led the training of coaches for these younger teams, by hosting 2 cross-FIRST interest and training meetings, and 2 Jr. FLL trainings sessions in 2016. These efforts continue to be student-led, as students plan, coordinate, execute, and provide guidance for Jr. FLL coaches and teams.

Giving back to our roots at the Riverside Educational Center, in 2015 we started and mentored the first Grand Valley FTC team at REC, providing guidance in Computer Aided Design and programming. Currently, we are working on forming 1 more FTC team in 2017.

Although we continue to grow, our focus remains on the relationships we've developed with the younger kids in our community through our year-round outreach and joint activities with FTC, FLL, and Jr. FLL.

"At the FLL Qualifier, team spirit was strong, and our passion to inspire these little kids that would one day be stepping into our shoes was too." -Andrea, Senior, Programming Team

### 2. Performing Year-Round Outreach

When the competition season ends, our team does not stop working. We promote the message and spirit of FIRST to people of all ages and backgrounds by performing year-round demonstrations to a wide variety of audiences. We reach thousands of community members, from nursing homes and elementary schools, to summer extended-hours programs and business open houses, to parades and farmer's markets. Grand Valley schools, businesses and organizations are excited by the message of FIRST and are proud to host The Hi Fives at their events and fundraisers.

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Hi Fives students and mentors were instrumental in founding GJMakerSpace, Western Colorado's first Maker Space, where our students and mentors have volunteered hundreds of hours helping Grand Junction's innovators realize their ideas in a creative, collaborative, non-profit work environment, teaching them how to use CAD, 3D printers and microcontrollers, holding workshops, and helping to ensure the MakerSpace's sustainability and future growth. Our students and mentors made up over half of GJMakerSpace's volunteer base during its first six months, and continue to be an active part of its volunteer community.

Our commitment to spreading the message of FIRST in Western Colorado, along with our distinct, vivid branding and imagery has resulted in us being featured in over 25 broadcast and print articles, with colorful images of Hi Fives team members featured in the Denver Post and the Salt Lake City Tribune. Our team members were even featured on the official FIRST Robotics Facebook page!

"Not only have I had a lot of fun but I've gained opportunities to reach out to our community through volunteer work" - Emily, Junior, Programming Team

### 3. Hosting Student-Led Camps in Our Community

The Hi Fives have spent thousands of hours volunteering at dozens of outreach events during the past two years. In

particular, we spent over 300 hours planning and leading STEM-based camps for kids of all ages, including a three day summer Arduino and Robotics Camp, where 17 participants built and programmed arduino-powered robots. In January and July of 2016, we held two 3-D Printer camps, where 90 participants got to build their own inexpensive 3D printer over the course of two days, a Java Programming camp, which provided an introduction to Java through exercises and competitions, and two Lego Robotics camps, which gave students an accelerated introduction into the FLL season.

This summer, we will continue to host these student-led camps through the Western Colorado Community College Summer@WCCC camp program.

"It was the 3D Printer Camp and the Hi Fives members that sparked my interest in STEM and made me want to join the team." -Colby Burnham, Freshman, Build Team

#### 4. Initiating Innovative Partnership with WCCC and Central High School in 2017

In the Fall of 2015, The Hi Fives initiated a partnership with Western Colorado Community College to create a for-credit, FIRST-based curriculum with coursework including machining, welding, CAD, programming, marketing, web and graphic design.

We are now building a partnership with Central High School, to provide funds for the creation of 1 FTC, 2 FLL teams and 3 Jr. FLL teams in underserved schools. This FTC partnership will allow students to gain the experiential learning benefits of STEM, as the school is looking to integrate a FIRST curriculum into their classes. Additionally, this will allow students to get credit for taking FTC preparatory classes and for being FIRST ambassadors by mentoring FLL and Jr. FLL.

It is our goal that WCCC and CHS will become the home bases for the growth of FIRST in Grand Junction, a place where students can learn the skills relevant to FIRST year round, and provide each other support in line with the FIRST mission.

"The creation of FIRST-based coursework at Central High School is a first for the Grand Valley and will create a foundation for sustained growth for years to come." -Chris, Mentor

#### 5. The Change We See In Our Members

Hi Fives alumni become confident and knowledgeable citizens whose impact extends well beyond the limits of FRC, into college and into the world of our 10 alumni, nine have gone into a STEM field, and four are active FIRST Volunteers: mentoring inner city FLL teams and volunteering at FLL, FTC, and FRC qualifiers and regionals. Our alumni have graduated from the Hi Fives to attend schools such as Harvard, CalPoly, Harvey Mudd, Brigham Young University and University of Rochester to pursue STEM careers in neuroscience, mechanical engineering, computer science, and optical engineering. One received a \$60,000 FIRST Scholarship in 2014. In 2016, one of two of our mentors made it into America's Greatest Makers by presenting their 3D-printed-fashion-accessories learning kit to initiate young girls in STEM at a younger age.

Team 4944 members are encouraged to become mentors to our peers. We learn reliability, we delegate, and we appreciate the importance of one another.

We are student-led, from robot design, construction and programming, from fundraising to leading summer camps, mentoring FLL teams, and refereeing at FLL Qualifiers. Student leads act as mentors to their teammates and work with each other to ensure the success of our program. In their own way, each team member builds each other up and we grow as a whole.

Due to relationships developed through participation in the Hi Fives, our students have been given access to life changing activities outside FIRST Robotics. For example, two of our team members traveled to Pomona, California in 2015 to compete in the DARPA Robotics Challenge Finals as members of Team Grit, and two of our members were chosen to intern for the Colorado Space Business Roundtable.

We encourage our members to strive for achievement, and aid them in doing so by providing a safe, fun environment to explore their interests and leave their comfort zones as members of a supportive family that will always be there for them with a Hi Five.

"The Hi Fives have shown me that I have so much more potential than I thought I could ever reach" -Dennis, Senior, Safety and Build Team

