

Chairman's Award - Team 4944

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2020 - Team 4944

Team Number

4944

Team Name, Corporate/University Sponsors

&Hi Fives Robotics

Briefly describe the impact of the *FIRST* program on team participants within the last five years.

Team 4944 has shown great impact on our students as we have created a place where we have learned to trust each other. We have become a family that sticks together. We successfully transitioned 100% of our seniors to higher education, and 90% of our students have gone into STEM jobs. Our alumni don't walk away from the team after their senior year, but continue to help through mentor-ship no matter where they are. As a team have created a family that lasts longer then the years in high school.

Describe the impact of the *FIRST* program on your community within the last five years.

Team 4944 has helped to create change within our community by assisting the GJ makerspace, funding the only FIRST scholarship within Colorado, developing the Grand Valley Robotics board to manage and assist the growth of all levels of FIRST, creating a relationship with our local school district innovative coordinator to get elementary and middle schools to have a FIRST and STEM curriculum, and beginning work with the Grand Junction Economic Partnership to make a internship program.

Describe the team's methods for spreading the *FIRST* message in ways that are effective, scalable, sustainable, and creative.

Team 4944 organized a community event, The Grand Valley Robotics Expo, where youth creators could shine along with valley professionals. We invited all FIRST teams in the valley to demonstrate their projects to the community. The Hi-Fives continue to spread FIRST at local farmers markets, business demos, PBS Kids Fest, seasonal festivals, and camps enabling over 100,000 points of contact. We also partner with Central High School and other D51 schools to develop a FIRST-based curriculum.

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

Team 4944 has seen a shift over the past few years as our robotics program has matured. Now most of our senior members spend a considerable amount of time on teaching and mentoring the newer students to the program. We are also reaching out to other Colorado FRC programs to not only learn from them, but to see how we can inspire and share our knowledge outside of the team.

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

Our mission to grow AND maintain FIRST in Western Colorado, FIRST team 4944 has provided FIRST Team 1332 with financial aid of over \$4,000 dollars and continued mentor assistance. Team 4944 is also working with Rangely High School and Aspen High School, both of whom have expressed interest in starting an FRC team.

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

Team 4944 has brought FIRST to the Grand Valley by starting, coaching, mentoring or volunteering over 50 FIRST teams. We are close to our goal of having a FIRST team in every school in the Grand Valley. Due to the popularity and success of the programs our goal is to create the first FTC tournament to be hosted in Grand Junction starting in the 2020-2021 season, adding to our exciting FLL qualifier and two FLL Jr. expos which we host annually.

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

Due to the success team 4944 has accomplished growing FIRST, in 2019 we were able to create a new organization called Grand Valley Robotics (GVR) with a \$12,000 startup grant to help manage all of the different activities. Working with The Hi Fives, GVR now manages 2 Jr. FLL Expos and one FLL Qualifier with the intention of adding an additional FTC Qualifier in Grand Junction for the 2020-2021 FTC season.

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)

The Hi Fives have been critical in expanding dedication to FIRST in our community. We have started over 50 teams at all levels of FIRST. We have been so successful in starting and maintaining teams that we have created an organization, Grand Valley Robotics, in order to manage the teams and events. The Hi Fives remain an active part of GVR in helping to host the FLL and 2 Jr. FLL expos. We are also currently working with GVR to start an FTC regional to accommodate the 14 FTC teams in town.

Describe your Corporate/University Sponsors

The Hi-Fives are very grateful for the support our sponsors have provided. The GJ Business Incubator has been crucial to our success by giving us a place to call home. Chevron has been a supporter of the team from day one and we continue to grow because of them. Most of our funding is from small local donations and we return their generosity by involving them and giving back. We are working with CMU to expand our relationship and see how we can help each other further succeed.

Describe the strength of your partnership with your sponsors within the last five years.

Team 4944 have matured significantly as a team and we are now reaching a point where we are no longer fighting towards team sustainability, but focusing our efforts on our community, partnerships, and sponsors. We are building new relationships and reaching out to organizations such as the CMU foundation and Grand Junction Economic Partnership to see how we can be a Force For Change in our own city to help bring economic prosperity and new opportunities to the area.

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

FIRST is an exciting combination of both sport and science. It gives students an opportunity to learn skills that are not often taught in a classroom setting including project planning, organization, management, business, communication, and applied sciences. It is a great opportunity for kids to learn that math and science are more than just an abstract concept, but have real world application with tangible results.

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

The Hi Fives are striving to be a Force For Change in our community. Our efforts with the GJ Business Incubator, GJMakerspace, and Economic Partnerships as well as our continuing efforts with FIRST programs in the valley are all intended to grow not only STEM education, but to bring more college graduates, aspiring entrepreneurs, and innovative businesses to the valley. Historically Grand Junction has not been known for technology and engineering, but we are doing our part to change that.

For FRC teams older than 5 years, briefly describe your team's broader impact from its inception.

The Hi Fives started during a time of limited STEM opportunity in the Grand Junction area. Since then we have helped to start Jr. FLL, FLL, or FTC teams in every school as well as helping to expand access to all types of STEM opportunities for students of all ages. We continue with those efforts, but now we are turning our energy toward partnerships with CMU and local businesses to provide scholarships for FIRST students and internship placement with local businesses and sponsors.

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

Tucker Mothersell

Essay

FIRST Team 4944, The Hi-Fives, reside in Grand Junction, CO. Our city has a long Boom or Bust economic history which has led to few long term technical jobs in the valley. The lack of technical jobs leads to a lack of focus on STEM education. In 2014, The Hi-Fives were created to help solve this problem. The team was started with student representation from all five high schools in the valley to provide a place where "hands" on education can expand their possibilities with all future pursuits.

Since our inception in 2014 our team has worked to ensure that our students in the Grand Valley would have every opportunity to follow their dreams no matter what they might be. To achieve this, inspiration is needed to build a system of educational opportunities where there were none available. To do this we looked at the connections a triangle makes. To us the triangle represents a great many things, it is the core of any engineering type of structure which requires strength, consistency, and rigid efficiency. On top of the practical usage of the shape, the triangle represents a holistic perspective on the impact our team has on every member of our community, with each of the points serving as a representation of a different aspect: first of which is to create a strong educational impact through the development of a positive STEM culture within the Grand Valley, the second is to make a strong impact on the wider community, and the third is to develop the field of engineering within our hometown of Grand Junction.

Educational Impact

The top of our triangle is our educational impact, demonstrating education as our key focus when representing our principles of contact. Our purpose is not only to teach, but also to learn. Many of our members have a vast and diverse pool of knowledge we want to share with as many people as we can. We strive to have members, as well as mentors well rounded. Like most teams, The Hi-Fives teach the technical side of FIRST. Additionally, we also go the extra mile to teach business, marketing, and public speaking. The Hi Fives are proud to have our program currently a 100% college attendance rate for students on the team their senior year. Of those students approximately 90% pursue STEM degrees in college. The Hi Fives program is about more than just the robot. We are a team striving to maintain a high standard in the development of our knowledge and community outreach. Our alumni are attending schools such as Harvard, CalPoly, Harvey Mudd, Brigham Young University, University of Rochester, Colorado Mesa University and University of Colorado Boulder. Six alumni continue to be active FIRST Volunteers. They are mentoring inner city FLL teams and volunteering at FLL, FTC and FRC events.

The Hi Fives have partnered with Western Colorado Community College to engage in co-teaching summer camps which include: Arduino robotics, 3D printer assembly, Java programming, and LEGO robotics. Reaching over 1000 children in our community. During our early years, The Hi-Fives helped to create the Grand Junction Makerspace, an organisation dedicated to helping develop entrepreneurship within our community through providing space and education to any individual who might need it. In 2018 we moved our home to the GJ makerspace and thus became a part of the maker community. We are now able to both teach and participate in classes with members of our community, as well as attend community gatherings as representatives to help spread the message of FIRST and STEM in our community.

Engineering Impact

The Hi Fives are proud of our success with Education, but we don't want to stand on our laurels. We are continuing to push ourselves to try to develop future STEM graduates and students. Our passion for science and engineering shows through in everything we do. This year, we put that all on display with our first ever Grand Valley Robotics Expo. The Hi-Fives took it upon ourselves to organise a large scale community event where any and all youth creators could shine along with valley professionals. We invited every FIRST team in the valley to join us at our local mall to celebrate STEM education in all its forms. The event was free for the public to attend and we had something for all age groups to enjoy. Presenters at the event also included the Grand Junction Makerspace, the CMU Cybersecurity team, and a local partnership between Colorado Mesa University's Society of Women Engineers and Fruita Pediatrics called Go Baby Go which designs drivable toy cars for children with special needs.

Our outreach has been very successful over the past years. The Western Slope of Colorado now has 14 FTC teams, 20 FLL Teams, and 25 Jr. FLL teams. All of which we help start, coach, and mentor. We also host the Grand Junction FLL qualifier and volunteer at 2 FTC events and 2 FLL Jr. expos. These are all a result of the efforts of The Hi Fives, through our partnerships with Mesa County School District 51 and Grand Valley Robotics. We are close to our goal of having a FIRST team in every school in the Grand Valley. Due to the popularity and success of the programs our goal is to create the first FTC tournament to be hosted in Grand Junction starting in the 2020-2021 season. As a part of our effort to maintain FRC on the western slope we were able to fund-raise over \$4,000 in order to help FRC team 1332, Team SWIFT, when they were struggling after their two head mentors left. We are currently working with Aspen High School to start an FRC team for the 2021 season.

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This year we have decided to strengthen our commitment to growing STEM in the Grand Valley by investing not only our time, but our money. In a partnership with Grand Valley Robotics and Colorado Mesa University, The Hi Fives have started a \$1,000 annual scholarship fund that will not only help students become engineers but also help toward reaching our goal of growing and maintaining engineers in our community. Once the details of the scholarship are completed, this will become the first scholarship available to FIRST students for a college or university within the state of Colorado. As we continue forward we hope to expand this scholarship program even further and help to generate even more opportunities for the students here in our home state.

Community Impact

The Hi Fives are continually striving to have a positive impact in our community. We have had a lot of success over the past 6 years with starting new Jr. FLL teams, FLL teams, and FTC teams. Due to this success, in 2019 we created Grand Valley Robotics (GVR) an organisation with a \$12,000 startup grant to help manage all of the different activities. Working with The Hi Fives, GVR now manages 2 Jr. FLL Expos and one FLL Qualifier with the intention of adding an additional FTC Qualifier in Grand Junction for the 2020-2021 FTC season. Through GVR, we now have a presence in almost every school in the Grand Valley. We are continuing to work to add more teams and have more impact at all grade levels, but we are also wanting to expand our reach further. We are working more closely with D51's Innovative Programs Coordinator to get more elementary and middle schools to have a FIRST and STEM programs as part of their core curriculum. With one high school already leading the way with two years of FIRST within their curriculum.

As previously stated, in 2020 The Hi Fives are going to offer an engineering scholarship through the Engineering Program at Colorado Mesa University (CMU). The scholarship will be available to any student who has participated in an FRC/FTC program for at least 1 year during high school and is entering the CMU engineering program as a freshman.

We feel this is an important next step for the team because, although we have had great success with students attending engineering schools, the opportunities for jobs and education simply do not exist within the Grand Valley. In order for our program to have the greatest impact we would benefit from having more engineers locally. We are also taking it a step further and reaching out to the community to see if we can help to create a deeper interest in the field of engineering.

To that end we are also working with the Grand Junction Economic Partnership to locate companies in the valley that have need for engineers and creating an internship placement program as part of our cooperation with CMU and WCCC (Western Colorado Community College). If we can build a strong community of engineers and innovators here we can have an impact far beyond educating the students in our program, we can change our entire community. We are hoping to see this program develop as a way to bring jobs to the community and a way to bring entrepreneurship and existing business in as well by having a thriving community of capable engineers.

Every year the team takes part in the Alzheimer's Walk and helps the Friends of the Mesa County Public Library with their annual book sale fundraiser. These opportunities as well as events such as the Downtown Farmers Market and the PBS Kids Fest give us a great opportunity to reach portions of the population that we don't reach through our engineering efforts. Every year we talk to an average of 15,000 people in the community and we feel this has helped to create a tremendous ripple effect as more people begin to discuss the importance STEM will have in all of our futures.

As the Hi-Fives continue to grow as a team, the triangle will continue to work to help us create profound changes to our community. By using our three points of educational impact, engineering impact, and community impact to generate interest within students for STEM, create new sources for students to follow their dreams, and generate both interest and jobs for engineering within our home. After all the most important impact we can have is our impact on the future.