Chairman's Award - Team 2761

Print Close

2016 - Team 2761

Team Number

2761

Team Name, Corporate/University Sponsors

Teichert Foundation / Excelsior Metals Inc. / Valley Iron, Inc. / Olson Steel / Solidworks / The Tan Family / Sierra Marina / Sunrise Medical / Bronco Foundation & CLOVIS NORTH HIGH

Briefly describe the impact of the *FIRST* program on team participants with special emphasis on the 2015/2016 year and the preceding two to five years

The life skills, maturity, and leadership that students gain as a member of IronHorse Robotics (IHR) prepares them for college and beyond. Members become civic-minded leaders who promote STEM education. This investment in IHR students is reflected in the success of our team members. 100% of our 49 alumni attended a 2 or 4 year college in the past three years, 14 received STEM related internships, 4 obtained STEM related scholarships and 98% are pursuing STEM careers.

Describe the impact of the *FIRST* program on your community with special emphasis on the 2015/2016 year and the preceding two to five years

IHR has volunteered 22,000 hours since its inception, and has reached 250,000 people in the Valley through fundraisers, farmer's markets, elementary schools, the county fair, 15 television news segments, and a robot night at a Fresno State Football game. IHR works with Fresno County Office of Education running a robotics camp for migrant students. IHR successfully petitioned the cities of Clovis and Fresno, to proclaim August 3rd and September 10th of 2015, respectively as, "Robot Day."

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

Thanks to IHR, as of fall 2015, Clovis North High School now offers Principles of Engineering & Robotics and AP Computer Science. IHR was featured in 15 local TV news segments where we introduced FIRST. We set up a FIRST Robotics night at a Fresno State football game. We invited robotics teams from the Valley to demonstrate their robots before the game. During the game our commercial was broadcast. We secured 800 tickets for robotics team members and their families.

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

IHR hosts a fall FLL scrimmage where teams test their robots and receive feedback from IHR on design/development. In the current 2015/16 season, IHR has adopted rookie FRC Team 5852 (Merced) and mentors them in strategy, design, and award submissions. The team has donated parts, machining and technical expertise. In 2014/15, we assisted rookie FRC Team 5529 (Visalia) by inviting them to take part in our strategy sessions and showing them how to work efficiently in the pits.

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

IHR recently adopted rookie FRC Team 5852 from Merced whose founding head mentor is an IHR alumna. IHR has donated a starter-kit, AndyMark Chassis, motors, wheels, electronics and machine cutting. We have mentored them throughout the build season by having them attend our kickoff event and going to their school during the season to teach key skills. IHR has committed to provide this level of assistance for three years. IHR continues to look for ways to support rookie and newer teams.

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

This year, IHR started/mentored two FLL Jr. teams, 20 FLL teams and one FRC team. Beyond mentoring specific teams, IHR provided six FLL workshops open to any local FLL team where we provided expertise in programming the EV3 bricks, game design and engineering support. Dean's List Finalist, Christopher Azali, traveled to an impoverished area of Jakarta, Indonesia, where he worked with the local community to fund/start an FLL team.

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

Through the efforts of the IHR team, IHR mentors, and a consortium of local businesses the Valley Robotics Initiative

(VRI) began to operate in the summer of 2015 to provide educational, financial, and material support to robotics students. VRI funded/hosted the Valley Robotics Auction Dinner to benefit all Valley teams with 500 people in attendance. IHR, VRI and Fresno State created four fully funded scholarships for robotics students at Fresno State.

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)

Our team mentors two FLL Jr. teams and 29 FLL teams. We hosted a series of six FLL workshops covering topics ranging from judging to design, reaching 36 additional teams. Furthermore, our team mentored two FRC teams, donating over $5000 in rookie starter kits. With our current rookie team, we traveled to their build site and video chatted throughout the season to ensure their success. We have committed to a three-year mentorship plan to guarantee their sustainability.

Describe your Corporate/University Sponsors

To recognize our committed sponsors, VRI honored them with a VIP table at the Valley Robotics Auction Dinner. VRI's approved plans include building a Robotics Educational Center, in conjunction with CSU Fresno, with the mission to provide technical expertise and support to all robotics teams in the Central Valley. We rely on the in-kind support of local shops including Excelsior Metal and Sunrise Medical to supply us with raw materials, machine our parts and powdercoat our robot.

Describe the strength of your partnership with your sponsors with special emphasis on the 2015/2016 year and the preceding two to five years

IHR created the Valley Robotics Initiative (VRI) in partnership with Fresno State and local businesses. To date, VRI has funded robotics scholarships, a fundraising dinner and committed to creating an educational STEM center. The team also benefits from fundraising/logistical support from our parent booster club. IHR operates its finances out of the non-profit Bronco Foundation who donates accounting for free. Clovis North recently moved the team to a new/expanded workroom.

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

FIRST is a revolutionary organization that inspires students to develop an interest in Science, Technology, Engineering, and Mathematics. This program provides a hands-on experience where young innovators are given the freedom to develop engineering, business, and leadership skills. Students who have never been exposed to engineering are given hands-on experience in a professional setting, with the necessary skills and encouragement to succeed in real-world STEM careers.

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

IHR was the first to bring FLL Jr. to the Central Valley. All Valley FLL Jr. teams have benefited from our contributions. We run the competition at both the regional and Championship level and provide volunteers for each of these events. IHR embraces cultural diversity, and 60% of IHR are first generation Americans. Females make up 34% of our team, with 57% in leadership positions. Our students thrive in this enriching environment of new ideas and innovative solutions.

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

Amrit Kooner

Essay

As local Central Valley hero and social activist Cesar Chavez once observed, "We cannot seek achievement for ourselves and forget about progress and prosperity for our community... Our ambitions must be broad enough to include the aspirations and needs of others, for their sakes and for our own." Over the past eight years, IronHorse Robotics (IHR) has operated on a belief that the highest achievement in FIRST and our community comes from including the people around us, who support us, in everything we do. In this way IronHorse Robotics (Team 2761 of Clovis North High School in Fresno, California) draws inspiration from those who have come before us and reflect it back to our community.

Fresno County's unemployment rate in October of 2015 was 10.2%, twice the national average of 5.7%. In 2014 an initiative to split California into six states was proposed. While it failed to get enough signatures, it is notable that the proposed "Central Valley" state would have the highest unemployment, most poverty, and least education of any state in the union. The economy within California's Central Valley is primarily based on agriculture, a cyclical industry with low-paying jobs. These combined factors restrict diversification and limit career opportunities. IHR's efforts in educating students in STEM, and community outreach aims to produce a skilled/educated workforce that will grow a stronger economy and elevate the workforce across all industries.

IHR believes our future depends on building the skills and confidence of young students competing in FLL Jr. and FLL programs in the Central Valley. When a student joins an FLL Jr. or FLL team in the Central Valley, they are impacted by IHR every step of the way. In 2009, our team brought the FLL Jr. program to the Central Valley and has organized, managed, and staffed every Expo since. When Central Valley teams are ready for their competition, IHR members

volunteer at all 8 FLL Jr. and FLL events, including the Central California FLL Championship. IHR ran the largest of these qualifiers with 36 teams competing. IHR has mentored two FLL Jr. teams and 29 FLL teams. To assist even more teams, IHR ran a series of six workshops for FLL Jr. and FLL teams, covering programming, project and robot design with 36 teams. Finally, we introduced the 'Trick-or-Tournament' FLL Scrimmage this fall where 24 teams were able to practice under a real competition environment. We understand how important introducing the thrill of FIRST is to young students since eventually these students will become IHR team members. In fact 42% of our members are FLL alumni.
The students of FLL aren't the only aspiring engineers that need support. All around the Central Valley, schools starting FRC teams are looking for mentoring/guidance and IHR takes great pride in assisting fellow FRC teams and expanding the program. For the 2015/16 season, IHR started rookie FRC Team 5852, whose head mentor is an IHR alumna, in Merced, California. Our team has helped them every step of the way by inviting their team to our kick-off, driving to Merced to help design/build/troubleshoot their robot, review their essays, and video conferencing regularly. IHR is fully invested in the ongoing success of this team and has donated chassis, wheels, laser cutting, powder coating and electrical components to the team. IHR has committed to assist over the next three years in the same fashion. We are always looking for ways to help a fellow team. When we discovered last year that rookie team 5529 was struggling mid-season, we donated over $4,000 worth of parts including a complete electrical system, four motors, wheels and a RoboRio. We advised them on pit management and they also attended our strategy meetings.
We are always looking for ways to expand the message and visibility of FIRST. IHR has volunteered over 22,000 hours since it's inception. At the FIRST Championship, ten of our members volunteered as Student Ambassadors to give guided tours to FIRST sponsors. We attend community events, including the county fair, setting up demonstrations at farmers markets, demonstrating our robots to a Fresno State football game and running hands-on activities at elementary schools. After running a demonstration at Bud Rank Elementary, the number of FLL teams at the school expanded from one to eight. Two years ago, the ladies on our team created the Glitter Gears program, a program working with local Girl Scouts to promote STEM to young girls. IHR was especially honored to team up with Fresno State and the Fresno County Office of Education to run a Migrant STEM Camp. After participating in this hands-on engineering program, student test scores for state math standards were improved by 45% by the end of the camp.
We petitioned and successfully had "Robot Day" declared in the cities of Clovis and Fresno to expand our vision, and recognize what students around the Valley are doing in FIRST. Our team was invited to speak before both city councils about the impact that FIRST has had on our lives; after the event we taught city council members how to operate the robot.
IHR hosts a diverse group of students, who bring new and creative solutions to the team. A total of 25 team members are first generation Americans, representing seven countries. Through IHR, these students continually find opportunities to give the gift of FIRST back to their roots. For example, Dean's List Finalist, Christopher Azali, flew to Indonesia last summer to introduce FLL and donate LEGO kits to an underprivileged elementary school. IHR is still in contact with the team and continues to build their program and expand FIRST in the surrounding area to increase the opportunities for these children. Furthermore, after every competition season, we discuss and plan projects for the following year. This year IHR plans to send two team members to India to support existing FIRST teams, encourage the development of new teams, and deliver FLL kits. Our members also created a prototype that will function as a non-electronic washing machine in rural areas of poverty-stricken India. IHR members are committed to transforming the lives of people around the world by designing and creating mechanisms locally to have a global impact.

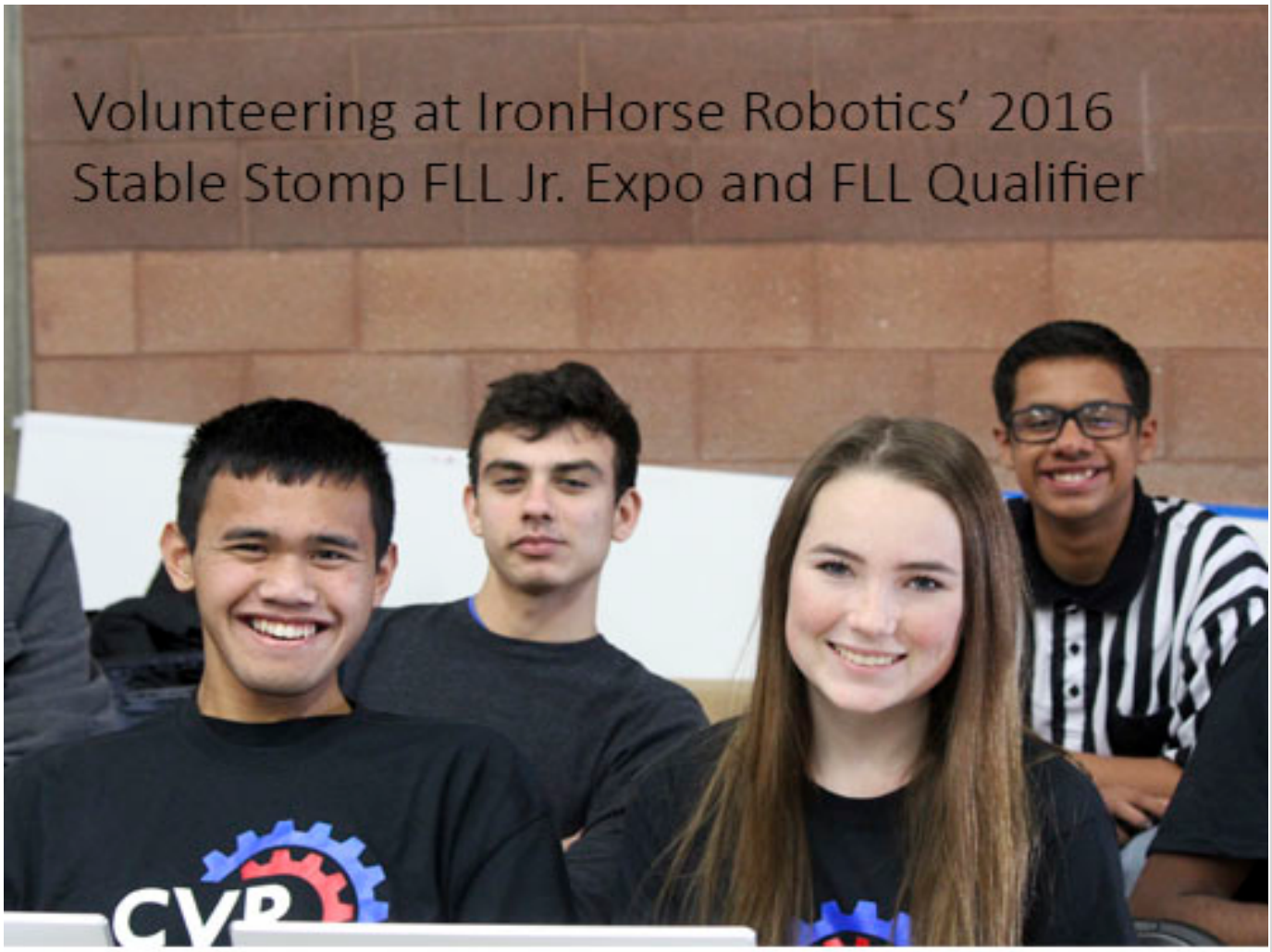
Essay - page 2

A single FRC team can only provide engineering opportunities to so many students. The team recognized that the school, as a whole, lacked engineering based curriculum. IHR has made it a goal to make sure that a real-world science and engineering education is accessible to everyone at their school, whether or not they choose to join the robotics team. We successfully designed and implemented the curriculum for a Principles of Robotics and Engineering course to be offered at the high school. This will be recognized as elective credit by UC/CSU schools. IHR also worked with mentors and Clovis North administration to offer Advanced Placement Computer Science. Both courses were offered for the first time in Fall 2015. Finally, IHR created a chapter of Society of Women Engineers (SWE) within the school. FIRST ideals and curriculum additions will be a part of students education even after our current team members graduate. The life skills, maturity, and leadership that students gain as members of IHR prepare them for college and benefit them in the real-world. The team creates an environment that encourages students to continue their schooling, as can be seen by 100% of our 49 alumni going on to higher education. In addition to this, Fourteen have received STEM-related internships, and 98% pursued STEM careers.
In the spring of 2015, IHR began looking at obstacles that FRC teams and STEM education faced in the Central Valley. Recognizing that these obstacles included team funding, engineering support, and educational opportunity, three IHR mentors incorporated the Valley Robotics Initiative (VRI). In November of 2015, VRI signed an agreement with Fresno State to create a scholarship program at Fresno State, in partnership with the Lyles College of Engineering, for robotics students. The scholarship program will provide four freshman majoring in engineering with tuition and books for all four years of their college experience. The scholarship program will run through 2025 and has a total committed value of over $650,000. Signed agreements from local businesses for the entire amount are in place. On March 5, 2016, VRI hosted a 500 person auction dinner for FRC teams in the Central Valley. Participating teams were able to keep 100% of the money they raised from ticket sales and auction items, as VRI covered the entire cost of the venue and dinner. IHR allocated 75 of their own tickets to guests from Fresno State, the Fresno County Office of Education, local school districts, politicians and FIRST officials to further promote the vision of FIRST. Future plans for VRI include building a Robotics Educational Center in conjunction with CSU Fresno with the mission to provide technical expertise and

support to all robotics teams in the Central Valley.
Cesar Chavez put his community before his achievements and ambition. His greatest success was enabling others to succeed and dream like he did. FIRST has changed the lives of our team members, teaching us to prioritize our community and the people around us. The team believes that true, sustainable success is a product of a consistent and disciplined approach. We must work towards this goal by strengthening our team's partnerships, resources and community involvement over long periods of time. We believe that through FIRST and STEM we can provide others with the same passion and purpose that has filled our high school years.

2016 - Team 2761

Picture 1



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Picture 2