

It has been said that a world without change stands still. In our rapidly developing society, change is essential for continual improvement and progression, and this is what The Holy Cows work towards. To our community, we're a group of students who build robots. To our neighboring schools, we're the kids with the crazy cow mascot. To our teachers, we're the ones that work late into the night. When asked why we put so much time and effort into robotics, our answer is simple: FIRST is more than robots and competitions. It's about learning valuable life skills and making connections with other people and groups. It's about discovering a newfound passion in STEM and preaching about its importance. And more than building a robot, it's about building a team of leaders who want to make a difference.

The strong bonds our team forms between members has fostered a spirit of collaboration and inspiration. Rookies participate in our Calf-to-Cow program, where they pair up with veteran members, learning about the roles they play on our team. This year, we gathered three days a week: one for an all team meeting, and two for student and mentor led workshops ranging from topics from "SolidWorks" to "Social Media Etiquette".

With our previous robots displayed in the halls of High Tech High, The Holy Cows have become well known and recognized within our school community. Students and staff support our team by wearing Holy Cow apparel and attending the San Diego Regional. We also played a role in our school's curriculum by creating two elective courses designed specifically to expose students to FIRST robotics. Brett Peterson, the director of High Tech High states, "The power of The Holy Cows can't be understated. No other club or sport has left its mark on our school like The Holy Cows. Their daring vision, extraordinary diligence, and passion for STEM have transformed what we know as the high school experience."

Beyond inspiring the student body at our school, we have created other innovative methods to captivate our audience with the FIRST message. Over the past two years, we designed Holy Cow activity and children's books to excite kids about STEM. This year, we worked with the San Diego Festival for Science and Engineering (SDFSE) to plan a day for middle schoolers to participate in physics and engineering workshops in March. Mary Jo Ball of the SDFSE has also invited us to host workshops during their 2014 EXPO Day to help teachers incorporate FIRST into their curriculum.

We continue to rally support for robotics and interest teachers in FIRST by visiting local elementary and middle schools. Since 2008, we have run and volunteered at a total of 20 FLL and FTC events; we even hosted our first annual FTC Qualifying Tournament this year. Furthermore, in hopes of inspiring younger kids, we've helped 35 FLL and FTC teams over the past 3 years.

As we inspire the engineers of the future, we also help sustain teams within FRC. Since 2009, many Southern Californian FRC teams have come to our school to learn from experienced mentors from across the country. In November, we hosted our fourth annual Fall Workshops with the largest attendance in the Workshops' history. We also attracted valuable presenters such as the Community Director of Piggybackr, Brittany Murlas, and the Director of Product Development for VEX Robotics, John V-Neun. At the end of the Workshops, Mr. V-Neun commented, "I am really impressed with the community you guys have built here in San Diego. It

is cool to be out here and be a part of it, at least for a weekend.”

With a vision of bringing Southern Californian teams together, we've opened a full practice field for all teams to use, alongside Team 4160 from Mission Bay High School. Our vision is that this will become a FIRST community center in San Diego - a place for teams to share ideas, learn from each other, and prepare for competitions. This will foster additional collaboration between teams and create another place where science and engineering are celebrated.

Beyond San Diego, our revolutionary online scouting program, CowScout, initiates collaboration with teams from across the world. What began as a way for our team to collect scouting data at competitions has grown into the largest database of FIRST historical information. In one year, CowScout has received over 1,000,000 page views, 750 users, and 260 registered teams. We hope that CowScout will become the go-to place for people both in and out of the FIRST community to find information about events.

CowTips, another far-reaching resource for FIRST teams, offers information about practices we've found effective based on our 9 years in FIRST. Having started and mentored 12 FRC teams, we've identified areas that teams commonly have questions about, which inspired many of our 36 online guides. Additions this year include “Best Practices for Community Outreach”, “How to Write a Good Press Release” and “How to Connect with your Local Politicians.” The goal of CowTips is to provide more accessible information for FIRST teams to help them become more sustainable. To document our team's progress throughout build season we've kept a private blog so students can be updated on different areas of the team. We plan to release these blog posts after the competition season so other teams can see how we strategize, plan, and execute our build season.

To sustain the connections we make through community outreach, we volunteer at charity events held by local organizations, accumulating 14,400 hours of community service since 2011. We use social media as a way to keep everyone we meet engaged and interested in FIRST. Currently are at 1525 “likes” on Facebook, we update followers on our events, and our two weekly segments: “Time Machine Tuesday,” a picture from past years and “FIRST Fact Friday,” a random fact about FIRST. This allows us to connect with over 30,000 people a week on Facebook alone. Our team also sends out “The Monthly Moo,” a newsletter updating sponsors, parents, alumni, and other contacts about current team events. By reaching out through social media, we constantly build and sustain relationships with our supporters from across the world.

Our Mobile Machine Shop (MMS) was another project we created to accommodate the lack of NASA Machine Shop trailers at regionals. The MMS was first piloted at the 2009 Los Angeles Regional. It was later used at the 2011 and 2012 San Diego Regionals and the 2012 LA Regional. The Holy Cows made the MMS available for 120 teams last year, performing over 320 work orders. In addition, we provided bumper materials for 37 teams. This year, our Mobile Machine Shop will be used at all 3 regionals in Southern California, where we estimate to complete over 500 jobs. In the future, we expect the trailer to be used even more as California moves to a district model, hopefully supporting five to six competitions a year.

To show the community our excitement for FIRST and keep teams active during the off-season, The Holy Cows co-hosted the second annual Battle at the Border (BATB) with Team

2485 - W.A.R. Lords. This year, more teams attended and more money was raised for charity than the previous year. For the past two years, we've partnered with the American Cancer Society and the San Diego Food Bank, raising over \$2500 and 1000 pounds of food at BATB. We also held a tool drive and bumper sticker sale to support Team 2493 - Robokong, who had their robot and trailer stolen over the summer.

BATB was also an opportunity to cultivate political interest in FIRST. With an attending representative from the mayor's office, October 20, 2012 was declared as San Diego FIRST Day. Last year, we were honored to be sought out and invited to present to the San Diego Mayor, Jerry Sanders, shortly after the San Diego Regional. We discussed ways for him to increase support for local FIRST teams. Since the 2011 BATB, we have continued our partnership with Jerry Sanders' successor, Mayor Bob Filner, who has a great interest in supporting STEM education.

By collaborating with political contacts, we've begun the process of having robotics recognized as an official high school sport in California. Working with Mark Lawrence, who had FIRST recognized as a sport in the state of Minnesota, we're developing a proposal to send to the California Interscholastic Federation, the governing body of California high school sports. In the meantime, we've invited them to the 2013 San Diego Regional to grow their interest in FIRST.

Along with politicians, The Holy Cows reach out to the professional community by attending conferences such as the TechAmerica Awards and the International Society for Technology in Education Conference. At one of these events, the California STEM Summit, The Holy Cows were honored to be interviewed and have our robot appear on TV. We were also featured on KUSI in January of 2013 to evoke public excitement for the FRC Kick-Off and season.

Most people only get a glimpse of what our team is. But what people tend to overlook - and what we work to show them - is that we are much more than teenagers who build robots. We are a team who spreads passion for FIRST wherever we go. So why do we put so much effort into making a change? It is because we know in order to change society's perception of science and technology, we need to impact our community. Whether through reaching out to other teams, charities, media outlets, politicians, or professionals - we show to society that FIRST is more than complex mechanisms and programming. It is about the spark in people's eyes when they hear about STEM and FIRST for the first time. It is about the feeling in the stands when teams perform a 30 point hang. Most importantly, it is about paving a path for future generations to do something unbelievable. We know that by raising the innovators of tomorrow under a culture where science and technology is celebrated, we are engineering a better life today.