

2009 Chairman's Award Submission

Cows History & Growth

We may build robots, we may study science and technology, but what do The Holy Cows really do? We engineer a better life. Since our beginning in 2005, The Holy Cows have gone from 10 members from 1 school to 30 from 3 schools. We have had a 1000% increase in the number of girls on our team, creating a 1:2 female to male ratio. All of our team members contribute to changing our culture through science and technology.

Like most engineers, we keep things organized. To do this, our team is run like a business. We have two directors, one in charge of Engineering and another in charge of Public Relations, as well as 6 department managers. Our major goals include creating and maintaining yearlong partnerships, spreading FIRST, and serving the community.

Cows In School

Our team also seeks to spread excitement to fellow students and share the positive impact of FIRST. Down the main hallway of High Tech High (HTH) are our '07 and '08 robots. Holy Cow shirts are the only t-shirts allowed in our dress code, and can be seen on Holy Cow spirit day when the campus is enveloped in black and white. Students at each of our schools are excused from class to cheer on the team at the SD Regional every year. Since 2005, The Holy Cows have made at least two annual presentations at HTH, HTH International and HTH Media Arts. Through these presentations we have been able to reach over 1,500 students every year, making The Holy Cows the most popular team and an unofficial school mascot.

FIRST and The Holy Cows have had a great impact on the learning experience of the students. Students have the opportunity to work in machine shops, like those of BlueChip Machine and Fabrication, giving them real world knowledge and a hands-on experience. Each build season the team works with mentors, accumulating an average of 200 hours per member. Through FIRST, students gain an appreciation for engineering and technology, in addition to pursuing interests in related college majors and careers. All of The Holy Cow Alumni have gone on to college and 95% have pursued engineering, math or science related majors. Alumni have secured \$100,000 in scholarship funds, including over \$50,000 from FIRST. Ultimately, FIRST has taught students that engineering and science is fun, exciting and most importantly, accessible to everyone.

FIRST has nearly as great an impact on the HTH curriculum as it has on our members. HTH was founded with a vision to pursue project-based learning; robotics has allowed this aspiration to flourish. In 2006, our lead mentor David Berggren and the team proposed a new idea to the school; intersession. This course takes place for 2 weeks and is devoted to 1 topic all day, everyday. It happens to coincide with build season, giving the team 2 weeks of school devoted to robotics. Each year The Holy Cows amass over 2,400 work hours during Intersession. Intersession has developed since 2006 to become a program that provides a robotics course, as well as other immersions in science and technology-related fields.

Robotics is more than just HTH's most popular team; it is an X-Block class and senior project. X-Block is an elective class that occurs 2 days a week, giving The Holy Cows over 170 work hours per semester. The robotics elective has been instrumental in recruiting new members, as it gives students a chance to experience robotics during and after school. Our widespread involvement in the school is a year-round partnership that we are most proud of.

Cows In Industry

The Holy Cows have made an impact on many others outside of our team and school. The 11 professional engineers who work with the team year-round are given fresh perspectives. With students and industry professionals working together, we are creating a more experienced and dedicated work force for the future. Team members have worked with companies such as: Qualcomm, SPAWAR, SeaBotix, BlueChip Machine and Fabrication, Earth Care Associates, Entropic Communications, Symwave, Cubic, and Scope Prosthetics. The team has presented at 3 conventions in the past two years, reaching major companies and consequently spreading FIRST further into the technology and engineering community. While we have been able to gain sponsorships, internships, and jobs by attending such conventions, we were more excited to know that companies like SolidWorks, Lockheed Martin, and NDIA were excited by FIRST.

Cows in Community

In the true spirit of FIRST, The Holy Cows have helped to promote an appreciation for science and technology in the broader community. Since 2007, we have helped to start and mentor 3 FLL teams, 4 FTC teams, and 5 FRC teams. In volunteering at events like the Southern California FLL State Championship, the FLL San Diego County Qualifier, Sally Ride Science Fair, Curie Craft Fair, University City Celebration and 12 school presentations (to name a few) we have reached nearly 40,000 people, just this year. In the last 2 years, The Holy Cows have accumulated over 4,500 hours in community service.

When it comes to spreading FIRST to others, things are not so black and white for The Holy Cows; we have always sought to be innovative and reach as many people as possible. One of our main goals is to inspire kids to get involved in FIRST from an early age. At community events The Holy Cows have been able to reach 20,000 kids when we showcase past robots and setup a mini-robotics playing field. In this way children can get hands on experience with the robots and become more interested in participating in FIRST.

The Holy Cows also aim to build relationships with parents. We are always equipped with FIRST pamphlets, team videos, and the ability to answer questions. Parents often sign up for our e-newsletter to acquire more information about FIRST and how to start or join a team of their own. This type of outreach is a goal because our team parents are some of the most dedicated supporters we have. In 2009 The Holy Cows gained 7 new parent mentors, all of whom donate their time and expertise to the team through helping with programming aspects of the robot, editing for the Public Relations team, or simply bringing in some homemade food; our parents spend almost as much time at

school as the team members.

The Holy Cows have spread FIRST through the use of the media, too. The team was spotlighted in an Edutopia article discussing the importance of project-based learning. Team 1538 has been spotlighted on WEALTH TV in a special about FIRST. For this special, a camera crew followed the team through build season and competition. The team's spirit has even caught the eyes of Oprah Winfrey and Bill Gates who visited HTH in 2006 where we were interviewed, filmed, and debuted in a segment on national television. The team has been present in 10 television appearances and 6 newspaper articles. In all of these appearances, the excitement of the team and our dedication to FIRST was always quite moo-ving.

Cow Partnerships

The team does not make a mere 6 week commitment, we work together year round. We participate in many off-season events and team building activities. The team continues to stay together, even those who have graduated. Every year we gain at least two new mentors from our alumni and, beyond that, we stay in contact with all of them through an Alumni e-mail list. This allows The Holy Cows' Alumni to stay connected to FIRST to ensure that they share their experiences with future generations.

Lasting partnerships are not solely held within the team itself, we work continuously with our mentors and sponsors. Our off-season is largely comprised of presentations to companies that include a personal update on the team. This year we raised a total of \$10,000 in funding through 5 presentations made to sponsors. The Holy Cows have also developed a relationship with San Diego State University (SDSU), through several mentors who help the team with software and business management. This newly acquired partnership demonstrates mentor dedication to the fields of science and technology, as well as providing inspiration to team members. The team shows appreciation for everyone involved during our Sponsor Banquet. This strengthens our relationship with mentors and sponsors, allowing us to officially thank them for what they do for the team. At this banquet we also award 1 scholarship to a student who has best exemplified the principles of FIRST.

We have made it a consistent goal to work with and mentor other teams. This year we became the host team of Team San Diego (TSD), a coalition of all of the San Diego FIRST teams. As the host of TSD, the team holds monthly meetings and organizes TSD's events. This year our mentor Jon Jack was elected chairperson of TSD. Even before this, we have hosted the SD Kick-Off event in January. Every year we accommodate over 300 participants from 27 Southern California teams. In addition, The Holy Cows participate in the TSD Pre-Ship Expo which allows the 22 TSD teams to test their robots on a full-size playing field built by the team, and provides for great media coverage. Last year, we were featured by 4 television stations and 2 newspapers. This season we began a series of annual workshops with TSD; the rookie crash course, an introduction to the new control system and drive trains. One of our mentors traveled to Texas for FIRST control system training and held 3 additional workshops to help other teams. Through these workshops we were able to assist all

TSD teams in the transition to the new control system and share our knowledge from over the years.

Cows in FIRST

Gracious professionalism and the promotion of science and technology have become more than ideals for The Holy Cows. We recognize the importance of an active interest in FIRST and embrace that through activities such as volunteering and mentoring, which impact our greater community. Through all our work together and with others, Team 1538 has come to truly embody and spread the importance of FIRST.