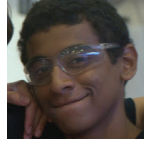
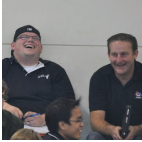
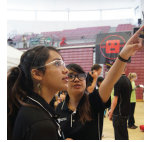
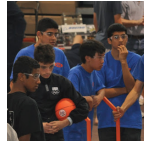
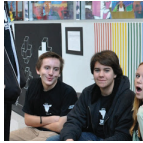
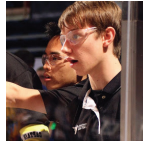
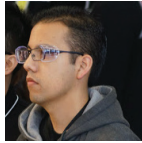


TEAM 1538 / THE HOLY COWS





BY THE NUMBERS

COMMUNITY SERVICE



- 90** *hours per student during the 2013 season*
- 261** *hours per student since 2011*
- 14,400** *hours since 2011*
- 20,800** *hours since 2009*
- 530,000** *people reached since 2009*
- \$5,000** *raised for cancer research*
- 1,000** *pounds of food collected*

SUPPORTING FIRST



- 328** *FRC teams helped since 2009*
- 12** *FRC teams started since 2009*
- 16** *FLL teams mentored since 2011*
- 19** *FTC teams mentored since 2012*
- 13,000** *jobs ran in our mobile machinshop since 2011*
- 5** *FLL qualifying tournaments*
- 10** *FTC qualifying tournaments*
- 5** *city proclamations supporting FIRST*
- 2** *FRC off-season competition ran*
- 36** *CowTips written to teach new FRC teams since 2012*

STUDENT IMPACT



- 56** *students in 2013*
- 62** *team alumni since 2006*
- 100%** *of alumni attending college*
- 95%** *of alumni pursuing STEM careers*

TABLE OF CONTENTS



Our Team

Meet The Holy Cows	10
Team Structure & Calf-To-Cow	11
Mentors	12
Alumni	14



FIRST

FTC	18
FLL	19
Fall Workshops	20
Mobile Machine Shop	21
CowScout	22
FIRST Day	23
CowTips	24
Kit Bot Build Day	25
Battle at the Border	26
San Diego Robotics Center	27



School

Culture Change	30
Intercession & X-Block	31
Holy Cow Spirit Day	32
Tate's Team	33



Community

In the Media	36
San Diego County Fair	37
Albert Einstein Academy	38
Political Support & School Board	39
Society of Women Engineers	40
Social Media	41
American Cancer Society	42
San Diego Food Bank	43
Space Days	44
Festival of Science and Engineering	45



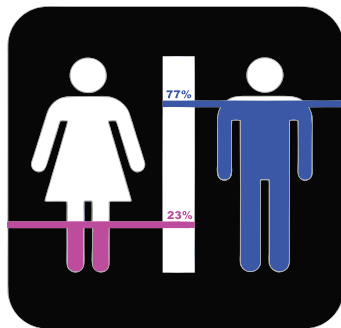
Partnerships and Sponsors

Our Sponsors	48
SLAS Conference	49
TechAmerica Awards	50
RoboExpo	51
Armed Forces Conferences	52
INCOSE Fundraiser	53
CCTE Showcase	54
ISTE Conference	55
CA Stem Summit	56
ARCS Dinner	57
TEDx Conference	58
Boeing Commercial	59
Curriculum Program	60



Prebag Expo at the San Diego Robotics Center

56
Members



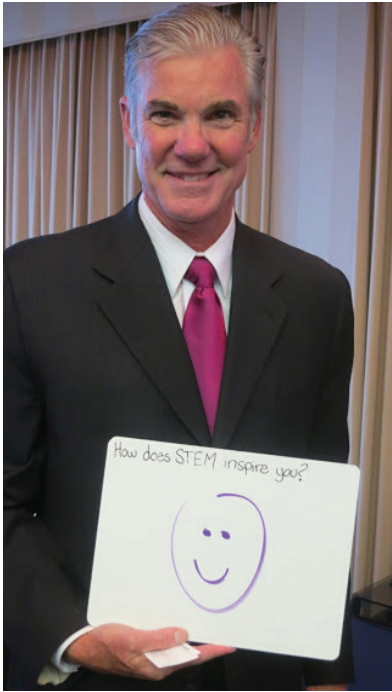
100%
Team Alumni
Attending College



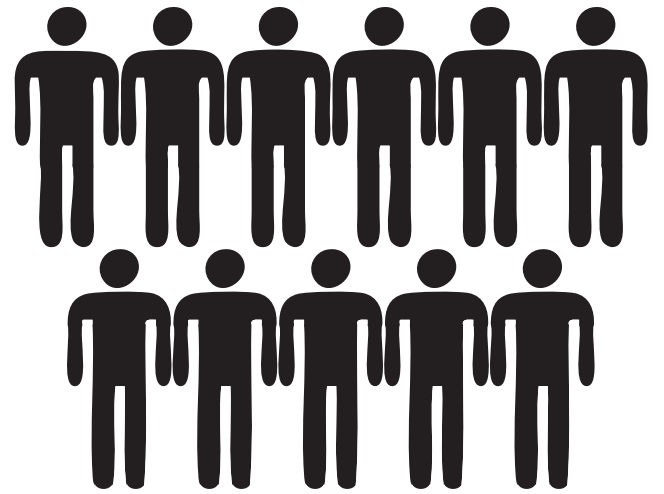
CowTips 17 - 2011
19 - 2012



- Photography
- Competition Jobs
- Using Social Media
- Rookie Member Tips
- Chairman's Award Submission
- What you Will Need at Competition



California State Superintendent of Public Education,
Tom Torlakson, loves STEM



Number of political contacts

Goal :
Recognize FIRST as an official sport
Get a state-wide FIRST day



BATTLE AT THE BORDER

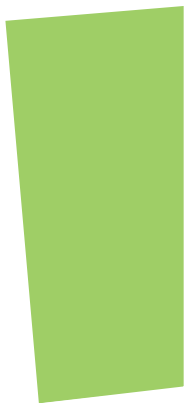
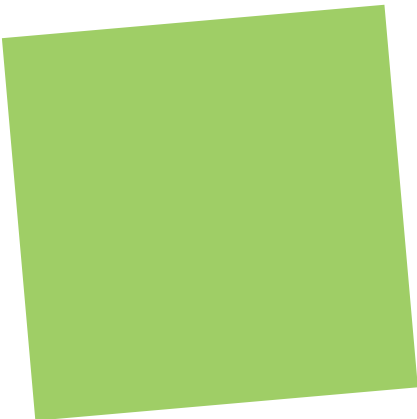
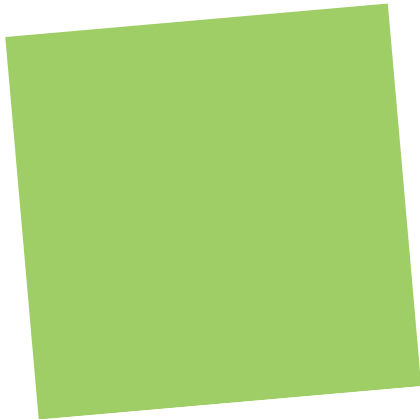
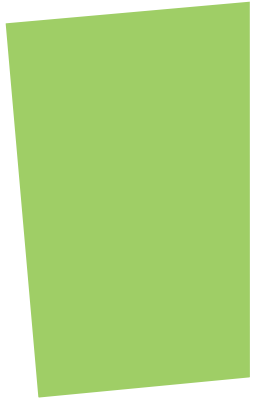
OCTOBER 20 2012 • FRANCIS PARKER SCHOOL



\$5,000
Rasied for Charity



Student Ambassadors with
Councilwoman Sherri Lightner



OUR TEAM

BUILDING AND SUSTAINING A PROGRAM

Being a member of The Holy Cows means working hard, having fun, and always striving for continuous improvement. We teach leadership and communication, as well as technological skills that can be carried over into the real world. No matter what their interests, members of The Holy Cows learn so much more than just how to build a robot. With our team being run like a business, there is room on the team for photographers, writers, artists, and engineers; we stress that anyone can become a part of FIRST. With alumni support and many mentors helping us along the way, being a Holy Cow means having a second family - one that you never truly leave, even after you graduate.

We compete as Team 1538, and strive to a model for other FIRST teams.

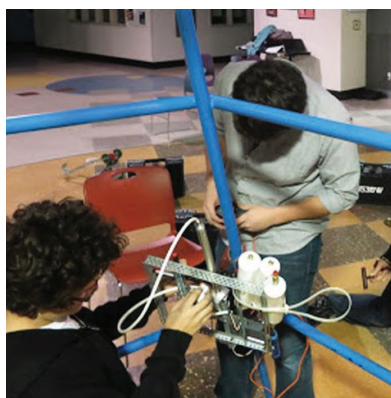
Our team has been competing in the FIRST Robotics Competition (FRC) for nine years. Since then, we have grown from a team of 12 with limited outreach, to a team of nearly 56 students who have accumulated over 14,400 hours of community service in the past three years. This year alone, our team has reached out to our community by attending conferences and presenting at community events, adding up

to over 5,000 hours of community service. All of the experiences our team has gone through, we have become the “go-to” team in San Diego. In the spirit of “Gracious Professionalism” we have mentored many teams in San Diego and across the United States, giving them advice on how to structure their team, write award submissions, and design their robots. The Holy Cows work hard to continue being a team

that others look up to, and plan on helping other teams excel within FIRST.



Pit crew and drive team at the 2013 Inland Empire Regional.



Holy Cow team members working together to test out a prototype.



The Holy Cows were rewarded with the Engineering Excellence Award at the 2013 San Diego Regional.

Our team is run so that all members can work effectively and cooperatively with each other.

Our team is run like a robotics manufacturing company. We've developed an efficient organization system with three different levels of leadership: mentors, directors, and managers. At the very top are the mentors who oversee operations and make sure everything runs smoothly without detracting from student responsibilities. The next level encompasses the directors of the team's two branches:

Engineering and Public Relations (PR). These student leaders, typically veteran seniors, have accumulated enough experience in their respective branches to confidently teach and guide them. Beneath each director are managers, each of whom are in charge of specific divisions of engineering or PR. All team members work in whichever department they feel fits them best; many switch between the

two throughout the year. With all our members, we needed a way to train the rookies to help them find their niche and thus, Calf-to-Cow was born. The program pairs each rookie with a veteran member as their go-to person for advice. This allows our team to work more efficiently as a whole, as we can work at building robots and reaching out to the community while training the next generation of leaders.



Director of Engineering, Ethan Chan, working one-to-one with a rookie member.



The team showing their support during a match at Battle at the Border.



Rookie members of the team getting hands on experience on an FRC robot.



David Berggren



A native San Diegan David graduated from the CA Maritime Academy with a BS in Marine Engineering Technology. After 6 years of work as a shipboard engineer he started teaching at High Tech High, where he has been for the last 11 years. Currently he teaches Engineering and is a mentor for Team 1538 – The Holy Cows which he founded in 2004. David is passionate about inspiring youth to not only explore STEM fields but also strive to be positive members of their communities, through FIRST Robotics and teaching he has had the amazing opportunity to do this. David was the 2008 San Diego Regional Woodie Flowers Finalist Award.



Jon Jack



Jon Jack is one of the founding members of Team 1538. He graduated from High Tech High School in 2006 and returned as a mentor for the 2007 season and continues to mentor Team 1538 today. Jon Jack currently works for SeaBotix, a firm that builds underwater robots, and is pursuing his degree in mechanical engineering. His well-rounded knowledge, perfectionist work ethic, and humorous personality continues to have a great effect on all of our team members. Jon Jack won the 2009 San Diego Regional Woodie Flowers Finalist Award, and won the 2011 IRI Mentor of the Year Award.



Bill Berggren



Bill is one of the founding mentors of Team 1538. Bill has spent over 30 years in the classroom teaching shop and history. After his time in the classroom, Bill became an engineering programs specialist for San Diego City Schools. He currently oversees all of the engineering-related programs in San Diego City Schools. While teaching, Bill also built commercial fishing boats for 15 years. After building his last fishing boat, Bill started BlueChip Machine & Fabrication. Bill Berggren won the 2008 San Diego Regional Volunteer of the Year Award and the 2012 San Diego Regional Woodie Flowers Finalist Award.

2005





Kiet Chau

Kiet a native from West Covina, is an entrepreneur, specializing in software and IT. He got involved in FIRST when he joined Team 968, Robotics Alliance of West Covina. After graduating from West Covina High School, he became a mentor for Team 968 as well as other FIRST teams. After receiving a full time job offer from Qualcomm, he became a full time mentor of The Holy Cows. As a mentor of The Holy Cows, he assists in programming and mechanical design, is the drive coach, and a sponsor for the team. Currently, Kiet is an Engineer at Qualcomm and CEO at Vivid-Hosting.



Rebecca Berggren

Rebecca is a nearly native San Diegan with a Communication degree from UCSD and over 15 year of Business Development and Marketing experience. Currently the founder of Karma Marketing, a marketing consulting company focused on supporting organizations who add value to our world, she helps small businesses and organizations tell their story through online digital marketing and social media. Rebecca got her introduction to FIRST Robotics in 2004. She has made herself available as a Marketing Mentor through the years. Her support of The Holy Cows involves Social Media, Public Relations and Newsletter



Helen Li

Helen is a San Diego transplant from Los Angeles. She is currently pursuing her bachelor's degree in Computer Science at University of California, San Diego. After joining The Holy Cows in 2012, she now serves as our lead scouting mentor while assisting in programming and electrical design.

ALUMNI HIGHLIGHTS



Amanda Canyon

Class of 2008

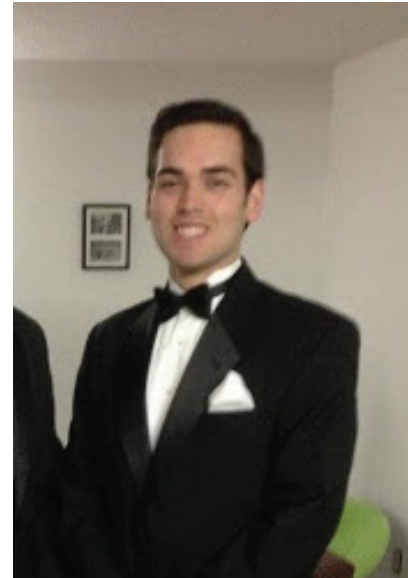
My time with the Holy Cows inspired me to pursue EECS at UC Berkeley. The memories and accomplishments from my time with the Holy Cows kept me going when things got tough and encouraged me to inspire other younger students through The Pioneers in Engineering, a Berkeley-Student run robotics competition for High school students in the bay area. After graduation I became a Ruby on Rails developer at Apartment List and am active in the local Women Who Code group, mentoring other women in Rails.



Molly Tremblay

Class of 2009

Molly Tremblay is currently a senior at UCSD pursuing a degree in Structural Engineering. Molly was a member of The Holy Cows for two years and in that time she served as the Manager of Team Support and was a lead member of the Chairman's Award team. Molly's time on Team 1538 inspired her to pursue a career in engineering and her FRC experiences have continued to have a positive impact on her college career. Largely because of the knowledge she gained while on the team, Molly has since worked in internships at Ideal Industries and as a drafter for the UCSD Facilities Department in order to gain valuable work experiences.



Cameron Parvini

Class of 2010

During my years on the Holy Cows, I was given the distinct pleasure of being introduced to a number of people who were instrumental in my life and career choice. Bill, David, and Jon were all key in introducing me to the machine shop, CAD, and other basic engineering principles. I've found that because of my time on The Holy Cows, I have a distinct advantage over my classmates with regards to tackling abstract projects and real-life challenges. When I graduate, I hope to be working in the Aerospace Industry, hopefully working on a project related to space.

2008



Chris Lutze

Class of 2011

My name is Chris Lutze, I am currently a sophomore at Cal Poly San Luis Obispo pursuing a degree in Mechanical Engineering. I was the Director of Engineering on The Holy Cows for the 2011 Season. Cal Poly and FIRST are both driven by real world experience and learning by example and evidenced by Cal Poly's Motto: Learn by doing. This core aspect of Cal Poly was a driving factor in my decision to attend. While on the team, I worked closely with Bill in his machine shop and ended up Interning there over the summers, working on parts for Terra Nova Mining Company. My experience both in FIRST and my summer job at Bill's has made me a much more attractive job candidate than most second year college students and given me much needed real world experience.

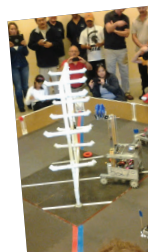
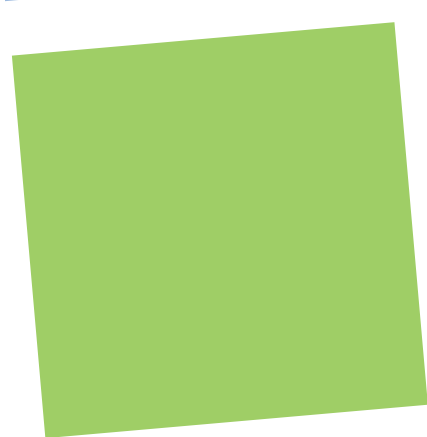


Henry Gruenbaum

Class of 2012

My name is Henry I was the Director of Engineering on The Holy Cows for the 2012 season. After graduating from High Tech High I decided to pursue Mechanical Engineering at Worcester Polytechnic Institute. FIRST Robotics and The Holy Cows helped create many great opportunities for me, such as internships at a commercial engineering company where I used all my skills in order to design consumer products with professional engineers. My work was sold internationally and potentially patented; the experience I gained from The Holy Cows has allowed me to accomplish so much and has set me up for a career doing what I love.

Our team has a saying: "Team members are like spots on a cow; they last forever". This best exemplifies our alumni. We communicate regularly with our alumni network through our monthly newsletter and social media resources. Each year these alumni come out to support us at the different regionals, and if qualified, the FIRST Championships. Alumni will always hold a special place in our team's history because they have walked in our hooves and understand the same stress, excitement, and rewarding feelings we all feel every year.



FIRST

RECOGNIZING AND INSPIRING S.T.E.M.

Through volunteering at FIRST competitions and helping our fellow teams, The Holy Cows hope to improve the FIRST experience for every person involved. We host Battle at the Border, an off-season FRC competition at Francis Parker High School, and FTC and FLL Qualifying Tournaments at HTH. We provide several resources for teams, such as Fall Workshops and CowTips. We also mentor many FIRST teams and help rookie teams through their first season. During competitions, we supply teams with our Mobile Machine Shop and CowScout. Our team aspires to form meaningful relationships with teams that we have met by providing these resources.

With our team members as volunteers, several local FTC events are able to occur.

If FRC isn't an option, we have encouraged students to pursue STEM by participating in FIRST Tech Challenge (FTC). Our team has supported the FTC community by volunteering at local events and mentoring teams. For the past five years we have helped with the San Diego FTC Championship at Madison High School, and for the past two years we have volunteered at the FTC Scrimmage at The Rock

Academy. This year, we hosted an FTC Qualifying Tournament for the first time at our high school. While at The Rock Academy's FTC Scrimmage, we worked to ensure that all participating teams had fully operable robots to compete within the scrimmage. Many of these teams continued on to compete in our own FTC Qualifying Tournament less than a month later. During this tournament, members of our team

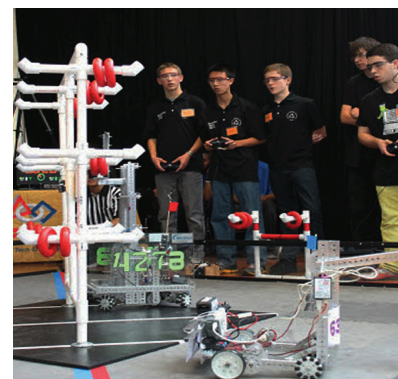
and parent volunteers ran the competition. Ten teams from this our tournament became eligible to compete at the Championships, where we also provided volunteers to help run the event.



Sons of Hephaestus competing at the High Tech High FTC Qualifying Tournament.



Member of FTC Team The Robo Chicks showing her excitement at the HTH FTC QT.



Gameplay of Ring It Up, the FTC competition game.

To inspire future innovators, we work with the youth in the FIRST Lego League.

We hosted our third annual FLL Qualifying Tournament at High Tech High. We were excited to expand our community service and provide equipment, materials, volunteer judges, referees, and pit support needed to hold a successful FLL Qualifying Tournament. The teams that participate receive medals as appreciation of their commitment and professionalism and as a reminder of the value of

sportsmanship, cooperation, and collaboration. Teams scoring the highest in their oral presentation, NXT robot, and overall presentation were awarded FLL trophies and became eligible to attend the Southern California FLL Championship at Legoland. This year, The Holy Cows provided judges and volunteers for the Legoland Championships. These volunteers were excited to see

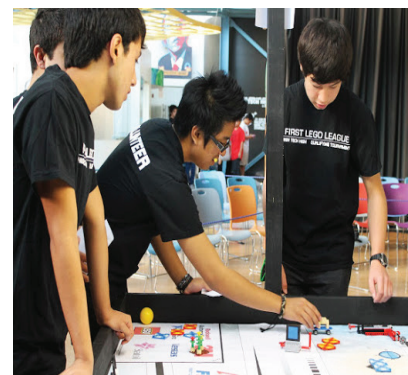
teams from the FLL Qualifying Tournament competing again and assisted them in any way they could. The Holy Cows recognize that FLL students are the next generation of FRC participants, and we hope to inspire them to continue, improve, and prosper in FIRST.



Holy Cow members volunteering as referees at HTH's annual FLL Qualifier.



Members of an FLL team hard at work improving their robot.



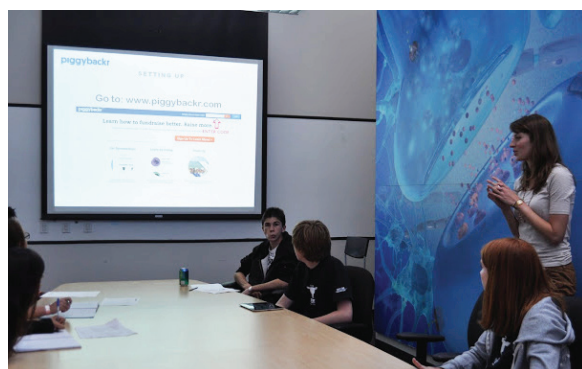
Volunteers from The Holy Cows resetting the FLL game field.

To share knowledge among FIRST teams, we have hosted the San Diego Fall Workshops.

This past year, we hosted the fourth annual San Diego Fall Workshops at our school, where previous team mentors, leaders, and veterans come share their knowledge on how to successfully run a FIRST team. This year's workshops included Drive Trains, C++, and the Rookie Crash Course. Twenty eight teams from all over Southern California attended these workshops, where presenters from across the country

gathered to speak. This year, we had the pleasure of having John V-Neun speak about what it takes to have a successful robotics team. After the workshops were over, 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." Brittany Murlas, the Community Director for the

fundraising website Piggybackr, also gave workshops on how to successfully raise money using their website. Many younger FIRST teams were able to take the workshops as a learning experience as they go on into FIRST.



Brittany Murlas from Piggybackr giving a workshop on how to fundraise.



John V-Neun hosting a workshop in order to give information on how to effectively use strategy and design.

Our Mobile Machine Shop that will be at every Southern California FRC Regional in 2013.

We created our Mobile Machine Shop because as the number of regionals grew, the number of NASA machine shops remained static. In 2009, the Los Angeles and Silicon Valley Regionals were held on the same weekend, yet NASA could only provide a machine shop trailer to one. Our team then offered to provide equipment for the LA Regional, which became the pilot run for our machine shop.

In 2010 we purchased our 22 foot trailer, filled it with equipment, and took it to the San Diego and Los Angeles Regionals. Our team was asked to bring the trailer to all three Southern California Regionals for the 2013 season. The Mobile Machine Shop is a valuable asset to teams at all competitions. Teams travel long distances to attend each regional competition and often do not have access to a quality machine

shop to work on their robot. With the assistance from employees of Blue Chip Machine and Fabrication, one of our teams' sponsors, and our own team members, we were able to help out the 120 teams and received a total of over 320 orders throughout both the Southern California regionals last year.



The Holy Cow's Mobile Machine Shop performed almost 1,000 work orders in 2013.



Our mobile machine shop stationed at an FRC Regional.



A volunteer graciously helping in the Mobile Machine Shop.

To increase awareness of FIRST, we contacted California politicians to establish FIRST day.

For three years, we have continued our efforts to foster a community where FIRST and STEM are appreciated by reaching out to city and state politicians. Our team hosted the first FIRST Day at the San Diego Air and Space Museum in Balboa Park in 2009. Since then, we hosted San Diego FIRST Days at our off-season competition, Battle at the Border. A representative from the Mayor's Office attended both

competitions to proclaim San Diego FIRST Day, and we hope to continue working with the Mayor's Office to raise local political awareness and support for FIRST. Member of our team have also worked with City Councilwoman Sherri Lightner to establish San Diego FIRST Days 2012 and 2013, which are held to coincide with the San Diego Regional. We are also working alongside Tom Torlakson (the State Superintendent

for Public Instruction), Kevin Powers, and Cody Naylor to create a California FIRST Day to recognize FIRST across our state.



City Councilwoman Sherri Lightner announcing an award winner on FIRST Day at Battle at the Border.



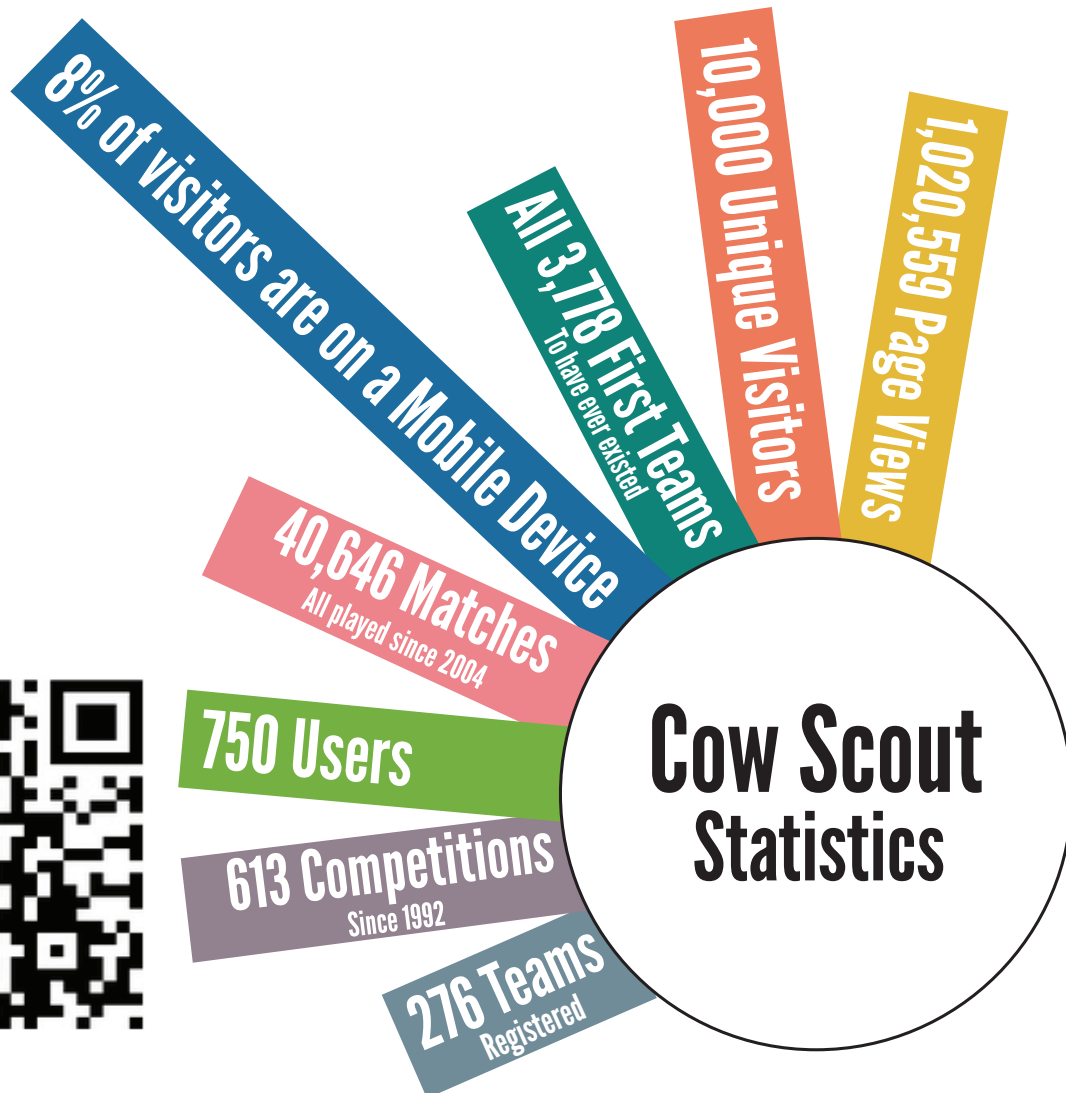
Charles Eshnaur, a representative from the Mayor's Office, proclaims San Diego FIRST Day.

CowScout is a website that stores, manages, and analyzes FRC competition data.

Scouting is one of the most important tasks in FRC, but can be chaotic and problematic. To simplify the process, The Holy Cows developed CowScout, a database where teams can input their information and see real time analysis. Richard Sisk, FIRST Senior Mentor for Southern California said, "It will change the future of scouting in FRC. This is the new baseline - you've set the bar pretty

high." Moving forward, we plan to make CowScout more accessible to the public. Since its creation in 2010, CowScout has expanded. The original CowScout was very simple - it collected data from one single event and it was exclusively used by our team. In 2011, we improved CowScout, we made it more robust, and added more ways to analyze data. In 2012, we vastly changed the structure of CowScout,

and opened it up for all teams to use. In 2013, we overhauled the information search and display features to make CowScout more accessible to the public. By doing this we will transform CowScout into a tool where anyone can access FIRST data.



CowTips are a series of guides for FIRST teams based on practices that we've found helpful.

Our team created a set of guides, dubbed "CowTips", on our website so other FIRST teams can use our experiences for advice. Our team is constantly faced with challenges that almost every FRC team experiences at one point, so over time we documented the processes to overcome these hardships. After nine years of "getting the gist" of how FRC works, and in the spirit of Coopertition®, we created CowTips so other teams could draw

upon our experiences. This year, members of our team have begun planning videos to complement the written tutorials. In addition, we have expanded the selection of CowTips, including topics like "Fundraising with Piggybackr," "What You'll Need at Competition," "How to use Social Media," and "The Best Plan for Community Outreach." Because our team is based in San Diego and cannot physically mentor other teams outside of Southern

California, CowTips is one way that allows us to remotely mentor teams from across the globe, and give them easy access to FIRST tips from an experienced team.

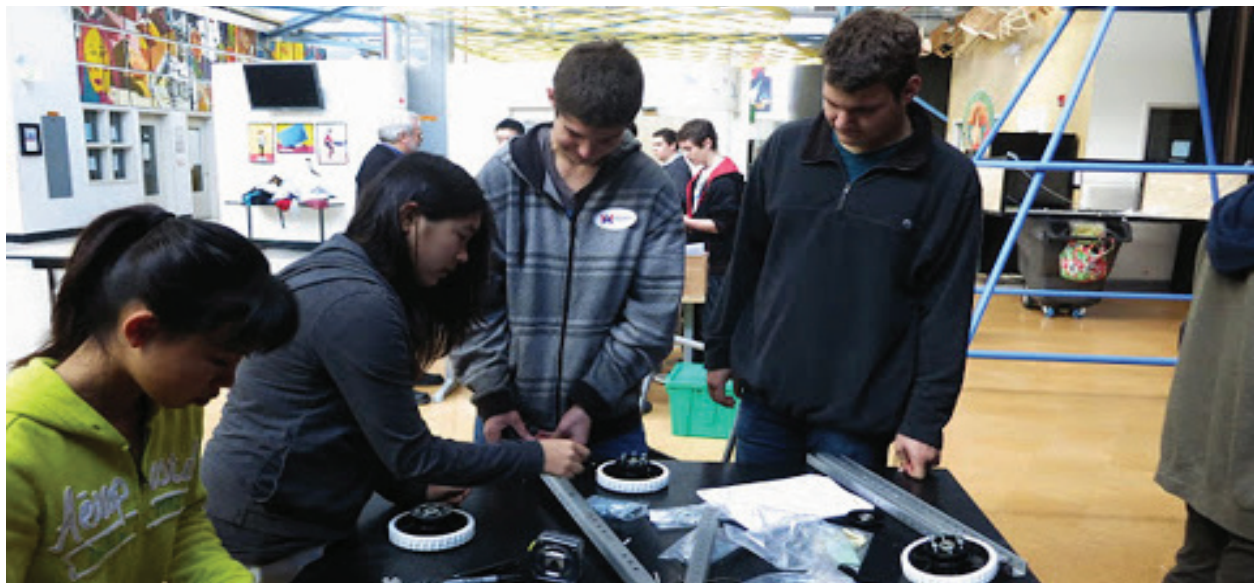


We host annual Kit-Bot Build Days to help young FRC teams get a head start in build season.

We hosted our third annual Kit-Bot Build Day on Sunday, January 6, 2013. During these events, teams we mentor come to High Tech High and we help them assemble their drive train. Teams arrive and unpack their kit of parts in the commons of High Tech High, with our team members ready to help with anything they could. This year's game, "Ultimate Ascent," presented the difficult task of climbing the

pyramids on each side of the field. Each team had to decide whether they were going to attempt the end game with the result of adding more weight and complexity to their robot. After completing their frames and transmissions, teams went and worked on their control boards and their electrical systems. We taught the rookies about FRC electrical components, quality wiring practices, and proper safety

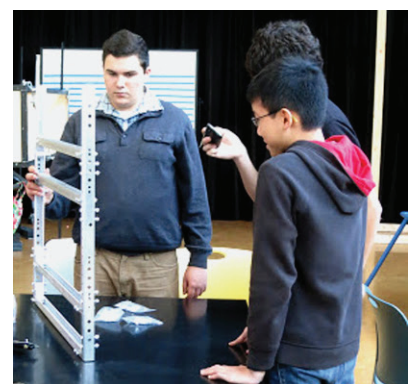
protocol. Finally, after finishing their electronics, teams began writing software for their robots. Teams received an introduction to LabVIEW, a graphical programming language, and wrote software to control their robots using the joysticks from their kits. The teams left with the beginnings of a robot and the knowledge and experience to complete it themselves. Overall this event was a success for all who attended.



With a newly acquired Kit of Parts, rookie teams get to work on building a robot.



Holy Cow members work with a rookie team to get them started on building a kit bot.



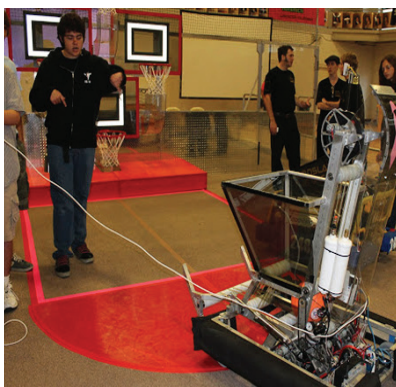
Students looking over a newly assembled frame, checking on what they can improve.

Battle at the Border is an off-season competition for charity and community outreach.

On October 20th 2012, our team co-hosted the second annual off-season robotics competition, Battle at the Border. Co-hosted with Team 2485 - The Francis Parker W.A.R. Lords, Battle at the Border was a tuneup for the upcoming 2013 season. More than 25 FIRST teams attended Battle at the Border this year, including a team from outside of California: Team 2375 - The Dragons from Phoenix, Arizona.

Students showed the San Diego community how FIRST has impacted them by talking with politicians attending the event, including Councilwoman Sherri Lightner, and the Mayor's representative Charles Eshnaur. Mr. Eshnaur also proclaimed Battle at the Border as San Diego FIRST Day. Along with competing, teams also raised \$1,185 for the San Diego Food Bank and the American Cancer Society.

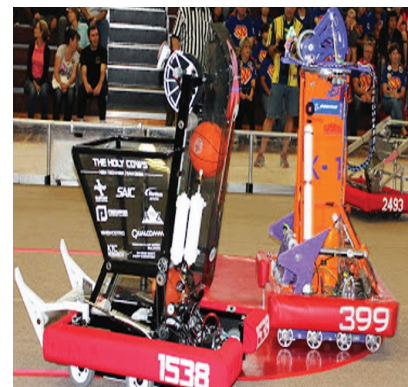
People could sponsor matches and purchase breast cancer decals that earned their robot extra points in the game. A tool drive was held for FIRST Team 2493 - Robokong, whose trailer had been stolen earlier in 2012. Battle at the Border successfully brought together the community and FIRST in a day of fun competition to prepare for the coming season.



A member of our team takes the lead, allowing a rookie team to use our robot B in order to get used to competition.



Members of The Holy Cows cheering on the drive team.



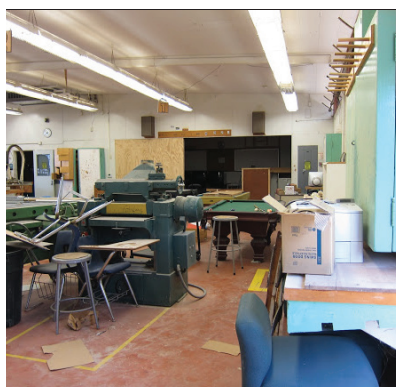
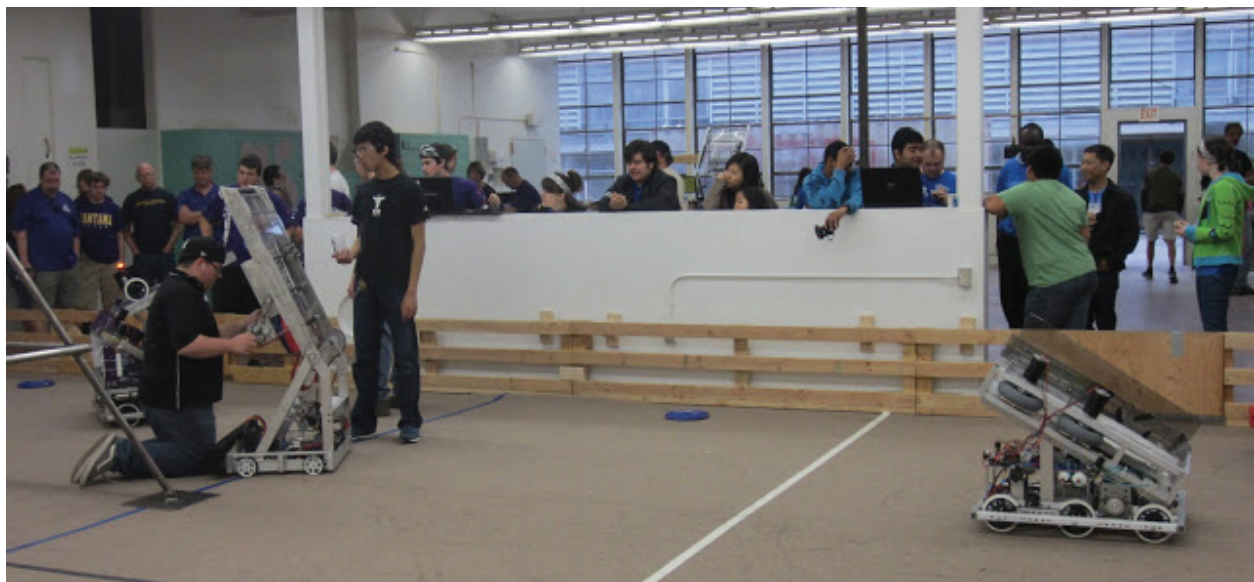
Daisy Diablo and Team 399 - Eagle Robotics setting up to shoot the basketballs and score points.

We created a full size practice field for Southern California FRC teams to use.

For the past year, our team has been working with Team 4160 from Mission Bay High School to develop a full time practice field for San Diego FRC teams to use. In Team 4160's empty woodshop classroom at their school, both teams spent many hours demoing, cleaning, and painting the new robotics center. On December 16th we laid carpet, and the field built for Battle at the Border was put in its new home. The

field is full width (27') and about 45' long (9' short of regulation) so people could move in and out of the field safely. On February 16 and 17, 2013 our team co-hosted Pre-Ship Expo, a chance for all teams in San Diego to see the new San Diego Robotics Center and show off their robots for the new season before bagging them for competition. The future goals for the practice center is to have a place where teams in

San Diego can come to practice year round, train rookie team members, and share ideas with other local teams.



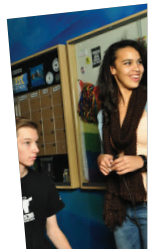
The original look of the San Diego practice field at Mission Bay High School.



After many long hours of cleaning, the space is finally ready for the field to be completely set up.



The practice field of the San Diego Robotics Center almost fully completed.



SCHOOL

PROMOTING A POSTIVE CULTURE CHANGE

Our team has left a deep impression on the culture of our school, High Tech High. We have paved the way for students to pursue a path in STEM education. We have become prominent members of the High Tech High community, which drives prospective members to seek us out. Sixteen percent of our school's students are Holy Cow members, making it the largest club on campus. We involve our school community by hosting events such as Tate's Birthday Bash and The Holy Cow Spirit Day. With events like these, our team has become an integral part of our school community.

The Holy Cows have created a culture in the High Tech Village where FIRST is appreciated.

Team 1538, the FIRST FRC robotics team established in the High Tech Village, has been working to change the way the three high schools, two middle schools, and one elementary school see FIRST and STEM. In both middle schools, FLL teams were established. The “Cow-a-Bungas,” A and B chose their team names in conjunction with our team, The Holy Cows. The FLL team has produced alumni that chose to enroll in HTH

specifically to join us. In addition, we influenced the foundation of the Explorer Elementary FLL team, “The Lego Explorers.” We are always glad to mentor and look after our village underclassmen as we try to inspire them to carry on in FIRST throughout their school careers. In the school community, The Holy Cows are “leading the herd” as the most popular and decorated sports team in the High Tech

Village. Students and teachers from the village come to the San Diego Regional to support the team, covering the stands in black and white. We are proud to be a part of the shifting culture change in the High Tech Village.



Students and teachers stealing a glance at our robot as it is being displayed during the club fair.



Daisy Diablo having a great time playing with students in the school.



A team member explaining and exciting students about FIRST Robotics during the club fair.

To incorporate FIRST into our own school curriculum, we have created two elective courses.

Several years ago, our team created X-Block, an elective class period students take every Tuesday and Thursday. Our team uses this time to accomplish a wide variety of tasks. This year we mentored FTC Team 4216 every Thursday, providing advice and tips for design and fabrication of the robot. We also continued our student-lead VEX teams and prepared the engineering lab for build season.

Mentoring Team 4216 and giving our student-led VEX teams time to work allowed us to give future and current team leaders a chance to teach newer members engineering skills. It was also helpful to have time that was completely devoted to VEX; often it is hard to balance VEX with FRC, so X-Block helped us get organized. We also created an Intercession course, which is a two week period following winter

break where we take a single class. This year we were fortunate to have Intercession the moment build season started, giving us a full two weeks solely dedicated to robotics. Working with the school helped us create these classes, allowing us to maximize the amount of work time we have.



During the school day, members of the team take the chance to work on the robot.



Members of our team take advantage of elective courses by working on the Chairman's Magazine.



The team brainstorming ideas for CowTips, maximizing the time they have during school hours.

We set up an event where HTH students dressed in Holy Cow gear to show their support.

Every year on the week of the San Diego Regional, we set up a school wide event, Holy Cow Spirit Day, to raise support for our team and FIRST. Our team hangs posters and makes announcements to the school about the upcoming regional. Many students show up wearing halos, cow ears, bells, horns, and spots. While other high schools in the district get excited over large organized school sports

like football, the students and teachers at High Tech High have proudly accepted The Holy Cows as their school's major sports team. On Holy Cow Spirit Day every year we are amazed to see how many new students appreciate and dress up for this event. Even Daisy (our mascot), comes and joins the fun during lunch, hugging and spreading the spirit of FIRST. Our school director and many teachers get caught up

in the fun and this year ended up starting a chant shouting, "Go Holy Cows!" Events like this show the team how much of an impact they make on students and teachers. All of this encouragement sends us off to competitions on a positive and energetic note with high hopes.



Students from High Tech High showing their spirit at the San Diego Regional.



Students enjoy having Daisy around, and Daisy enjoys being around students.



Seniors from High Tech High painted their faces for the San Diego Regional.

We dedicated a fundraiser in honor of a team member who passed away due to cancer.

Tate Mitchell, a beloved team member, passed away from cancer in August 2012. In memory of him, our team honored his birthday by hosting the second annual Tate's Birthday Bash at High Tech High. Through the event we raised over \$1000 for team traveling expenses, and a school-wide scholarship in honor of a teacher who also recently passed away due to cancer. During this event, members of our team

hosted many different rooms with fun activities. One of these rooms was the LAN party room, where students brought laptops or towers and played video games together. Other rooms included a card room, a photobooth, and a giant twister game. The last room that we co-hosted, with our ASB, was the movie room, where students watched their favorite movies on a projected screen. A local DJ volunteered

music, and we sold food to raise additional money. By hosting this event each year, we hope to honor Tate's memory and begin a lasting tradition at our school.



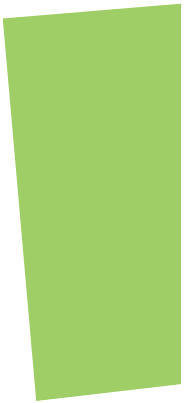
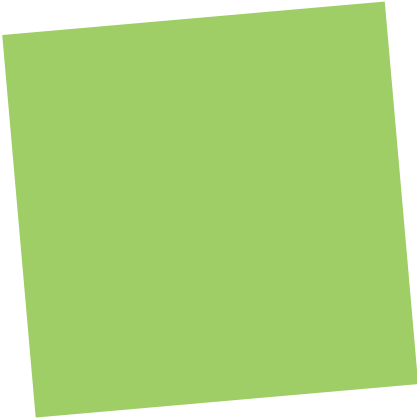
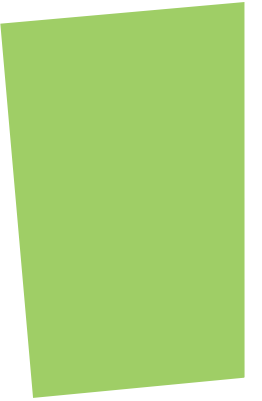
Dancing and having a blast with Covette Diner at Tate's Birthday Bash.



A fun game of Twister during a night of celebration.



In memory of Tate Mitchell, students painted a mural of him inside the school.



COMMUNITY

ENRICHING OUR CULTURE

As a team, we have completed over 5,000 hours of community service this year. We raised over \$1,000 for the American Cancer Society by selling pink decals and running bake sales during Battle at the Border. We hosted a mini competition at the San Diego County Fair and set up booths at the Air and Space Museum for Space day to inform the community about FIRST. The girls on our team look forward to continuously partnering with SWE to show that a career in engineering is possible for both men and women.

The media is an effective resource to reach out to the community on a wider level.

Our team works hard to effectively communicate through media outreach. We are constantly working with news channels, newspapers, and corporations. Newspapers that featured us include The Peninsula Beacon, The Union Tribune, and the San Diego Families Magazine. Our team was delighted to speak about FIRST at the California STEM Summit and show off our

2012 robot on KUSI News. We made a second appearance on KUSI on January 2 and 6, 2013, where we were invited to speak on Good Morning San Diego about FIRST Kickoff and the upcoming season. Before the 2012 San Diego Regional, we were exclusively featured on NBC to promote the regional and inform the public about FRC. One of our important media appearances was during the

summer of 2012, when we traveled to Hollywood and Colleague of the Canyons to have our robot star in a Boeing commercial. We believe that media coverage of our team is extremely effective in getting people interested and involved in FIRST.



Founding mentor of The Holy Cows, David Berggren, and Daisy appearing on KUSI news.



David talks to the public about FIRST and its impact on the world.



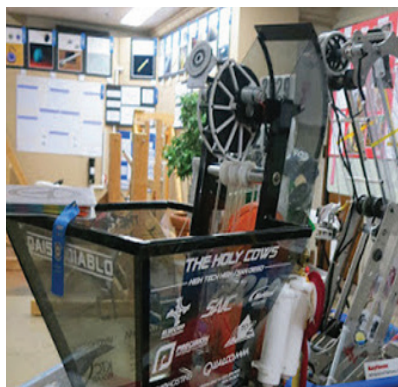
The Holy Cows, along with many other FRC teams wave goodbye as their television appearance ends.

We head to the San Diego County Fair every summer to spread the word to visitors.

Not only is the San Diego County Fair a fun annual event for those living in Southern California, it is another opportunity for FIRST teams to compete in a small one day student showcase. We took our field that we build for Battle at the Border and set it up in the stage area and held a simplified version of Rebound Rumble. Our team made sure the event ran smoothly by providing field reset people.

Passersby roaming around the fair took the time to watch matches, talk to students about FIRST and share in our excitement about STEM education. The event was a great way to expose the community to FIRST because many of the people who stopped by to watch had never heard of FIRST before. Even several fair volunteers specifically requested to volunteer that day so they could watch the robots. It was

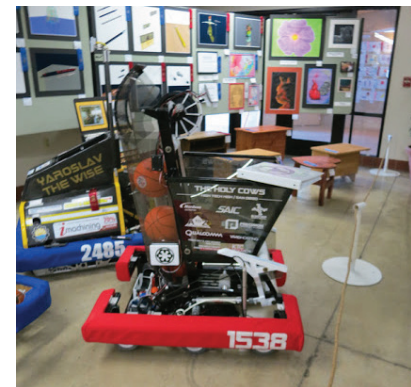
an enjoyable event for the public, and it allowed the community to witness FIRST firsthand. We look forward to next year's fair!



Daisy Diablo on display at the San Diego Showcase.



Daisy Diablo scoring at the San Diego Fair.



Daisy Diablo on exhibited along with other team's FRC robots at the San Diego County Fair.

With our partners at Albert Einstein Academy, we volunteer at their Lantern Festival.

On November 3, 2012, members of our team headed out to the Albert Einstein Academy Lantern Festival for the sixth year in a row. Our entire team volunteers at this event, with each member managing the game booths or helping with concession stands. Since we started volunteering, our efforts have given the parents a chance to enjoy the festival with their children. Aside from running

the game booths for the event-goers, we also hosted a booth where we are able to explain to visitors the impacts of FIRST robotics and STEM education. Kids have the chance to drive square bots. Daisy, our mascot, is always a celebrity. She roams the crowds, posing for pictures, as well as giving the children hugs and high fives and even participates in the Lantern Festival walk. By the end of the day, kids keep coming back to

find Daisy! We have a great time at this event, and the Albert Einstein Academy annually appreciates our participation and help.



Teens having fun with Daisy the Cow.



Team members volunteering at the Lantern Festival.



Children excited to see Daisy at the Lantern Festival.

By working alongside local politicians, we help to promote FIRST and STEM education.

Through political outreach, we are able to introduce and encourage local politicians to be involved in FIRST. This past season, we continued work towards this goal by co-hosting Battle at the Border, an off-season competition that doubled as SD FIRST Day. Charles Eshnaur, from the Mayor's office, attended, proclaiming October 20, 2012 as San Diego FIRST Day. This year, we are working with City

Councilwoman Sherri Lightner to proclaim March 7 - 9, 2013 as FIRST Days San Diego. In attempt to extend our reach beyond San Diego, we are working with the California Superintendent of Public Instruction, Tom Torlackson, to initiate California FIRST Days. Along with our plans to garner statewide attention for FIRST, we are also working with Mark Lawrence, from Minnesota, to get FIRST recognized

as a sport. We have coordinated with Science Program Coordinator, Don Whisman, who is excited to get more engineering teachers to pursue FIRST programs. We are building contacts so we can work with the Regional Occupational Program and the Department of College, Career, and Technical Education to identify teachers willing to start FIRST teams, and help them incorporate FIRST and



David and City Councilwoman Sherri Lightner honor the award winner at Battle at the Border.



Demonstrating our robot to Former Mayor Jerry Sanders, a supporter of FIRST and STEM.



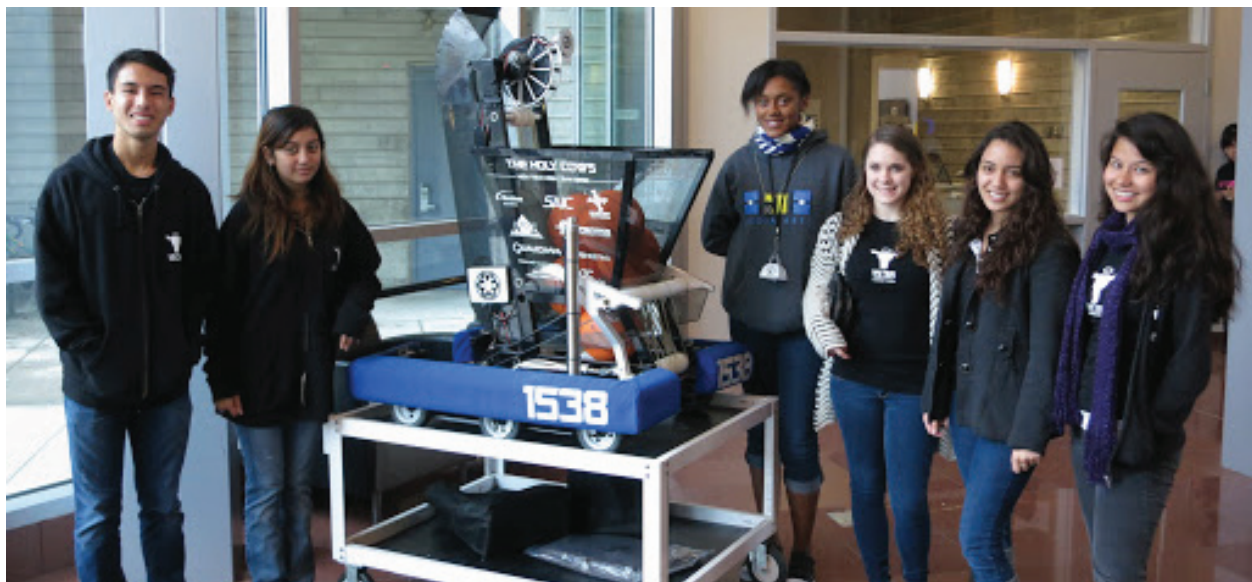
California Superintendent of Public Instruction supporting FIRST at Battle at the Border.

We worked with the Society of Women Engineers to excite girls interested in STEM.

Annually, girls on our team have the opportunity to participate on the planning committee with The Society of Women Engineers and The Girl Scouts for their annual "Women in Engineering Day," which teaches girls about engineering advancements through fun, team-building exercises. We helped professional engineers by deciding what engineering components to include in the activities, packing up

the kits for each activity the night before, and showing up the day of the event to help everything run smoothly. On the day of the event, our female members assisted with each engineering-themed activity, from building planes, to cleaning up mock oil spills, to cracking codes. The activities were designed to get girls thinking like engineers, and they were all very excited and eager to participate. Two members

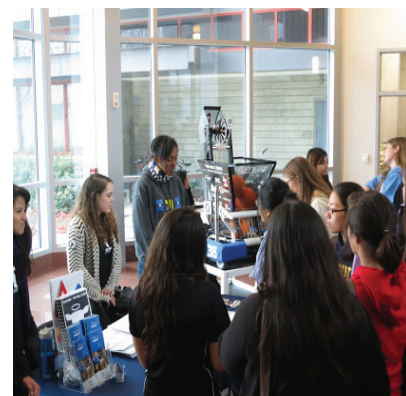
of our team later gave a short presentation about FIRST to the parents attending Women in Engineering Day. We were happy to have supported young girls' appreciation for STEM fields, and we plan to volunteer with the Society of Women Engineers again soon.



Female members of the team host a booth at the Women in Engineering Day.



Our team informing attendees about FIRST and STEM.



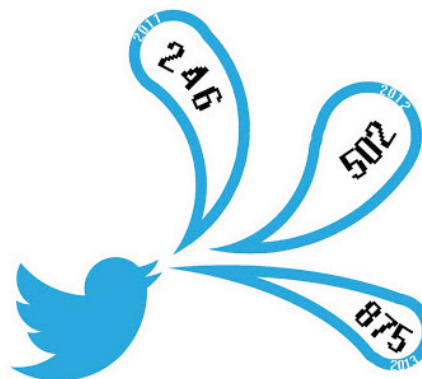
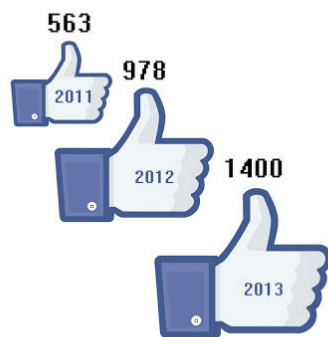
The Holy Cows working towards spreading the messages FIRST and STEM to more females in the community.

Our team communicates with the public through social media websites.

Our team utilizes social media as an innovative vector to show the community what we do in FIRST. Our Facebook page has weekly interactive posts like “Time Machine Tuesday” and “FIRST Fact Friday”. We have close to 1550 likes on our Facebook page and tens of thousands of weekly views. In addition to Facebook, our team’s Twitter page gives people a chance to see what upcoming

events are happening in FIRST; we actively tweet throughout the day and respond to our followers. YouTube also allows us to post instructional videos, footage from team activities, and our video submission for the Chairman’s Award. The Monthly Moo, our team newsletter, is used as a tool to update parents, team members, alumni, sponsors, and other Holy Cow enthusiasts at the beginning

of each month. All important events that we attend are featured in the newsletter, and the blurbs are written by team members to include a personal touch.



In conjunction with the American Cancer Society, we have assisted cancer research efforts.

Our team has been collaborating with the American Cancer Society (ACS) for the past few years. We organized fundraisers and volunteered at various events in order to help ACS in their journey to find a cure for cancer. These efforts include volunteering at the "Making Strides Against Breast Cancer Walk" and the "Susan G Komen Breast Cancer 3 Day Walk." Team members worked at the "Making Strides

against Breast Cancer Walk" by helping run the registration booths. At the "Susan G Komen Breast Cancer 3 Day Walk," we served food and drinks to the participants, as well as set up tents. At Battle at the Border, teams supported the American Cancer Society by buying a pink ribbon decal to be placed on their robot, which awarded them bonus points in a match. Our team also raised money at Battle at the

Border by hosting a concessions stand where all of the proceeds went to the ACS. Spectators and teams could also sponsor matches and have their names announced before it started. Through these efforts, we were able to raise \$1,185, this year, for the American Cancer Society.



Team members helping pitch tents at the Susan G Komen 3 Day Walk.



Daisy Diablo Rocking the Pink Ribbon Decal in order to help support the American Cancer Society.



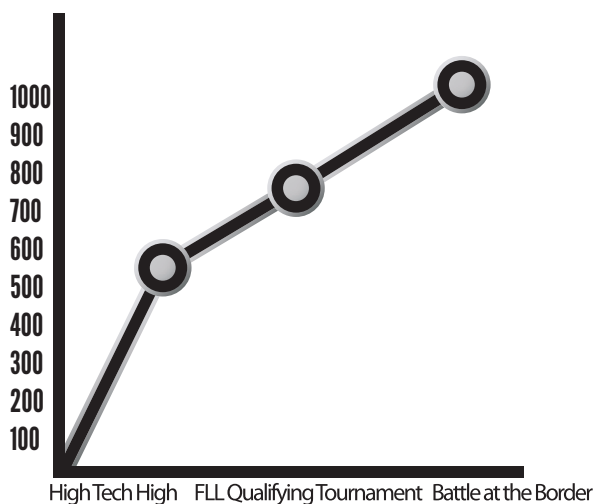
Ladies displaying their cow pride at the Susan G Komen 3 Day Walk.

We supported the San Diego Food Bank to collect food by holding annual food drives.

With so many people needing assistance in San Diego and across the country, members of The Holy Cows help the San Diego Food Bank whenever we can. Each year we collect hundreds of pounds of canned or boxed food during our annual food drives held at our school, High Tech High, Battle at the Border, and our annual FIRST Lego League Qualifying Tournament. On October 5th, several members of the

team spent their night at the food bank in San Diego helping package food boxes for senior citizens. We all pitched in by working in different stations; some of us were assigned to set up boxes, flatten boxes, or put a certain food item in each box. With the help of other local volunteers, we packed over 500 boxes by the end of the night. Everyone that helped out had fun, we even got to have a tour of the big freezer,

and it felt good to help out our community. This year we were very please to give the food bank over 550 pounds of canned food to pass out to our community.



We interacted and connected with families at Space Days to foster an interest in STEM.

Our team leaps at any opportunity to let kids interact up close with our robots. While attending Space Days at the San Diego Air and Space Museum, we talked to kids and their parents while encouraging an interest in science and engineering. Our booth partner, FTC Team 135 - Fusion, added to the fun by encouraging kids to feed balls to their robot. Kids swarmed around

our booth, each eager to get close to the robots, feed it tubes and get a chance to drive the robot around the demo area. While the kids were fascinated by the robots, other team members introduced parents to FIRST. Newcomers to the program picked up flyers and asked how their kids could join a robotics team. Many who already knew about FIRST stopped by, happy to talk about

the program and see FRC and FTC robots in action. By the end of the day, we were out of flyers and had accumulated over 500 drawings of robots and spaceships that kids had drawn for us. Being able to show the bright young children our robot was an encouraging experience and we hope the youth will pursue STEM and FIRST in the future.



At Space Days, Daisy Maize spends time with a young girl, showing her what it can do.



David Berggren giving a boy the chance to operate a robot.



A couple young children playing their own game of Logomotion.

We plan to host events that support STEM at the San Diego Festival of Science & Engineering.

We plan to host events that support STEM at the San Diego Festival of Science & Engineering. Early in the fall of 2012 our team was contacted by the San Diego Festival of Science & Engineering committee to see how we could partner with them for their 2013 event. After meeting with Ms. Ball, the Managing Director, we decided that this year we would host a free event for middle schoolers and their families as well as coordinate

a FIRST mascot dance at the March 23 Expo at Petco Park. On Saturday March 16, 2013 we will be hosting Science and Engineering Can Be Fun at High Tech High. The day will be open to 100 middle school students and their parents. Our plan is to move students through five 45 minute activities, which are designed to teach STEM ideas in a fun and interactive manner. While kids are attending activities parents

are meeting with our mentors to learn about FIRST robotics and how to support kids' interest in science and engineering.



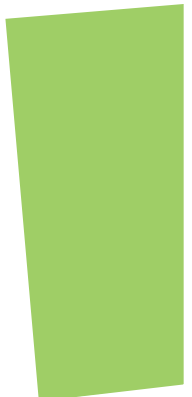
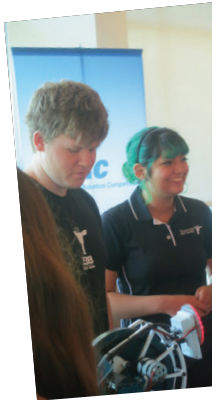
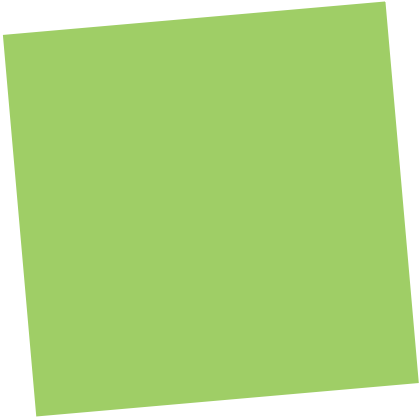
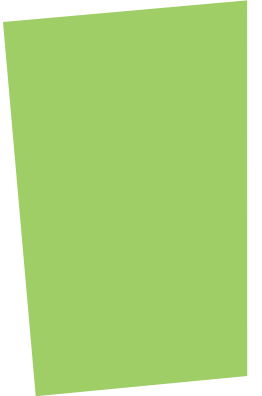
Team members helping out a child with his Sink or Float activity.



Kids working together to figure out how to make a pasta bridge.



A team member preparing for an activity.



PARTNERSHIPS AND SPONSORS CONNECTING TO OUR FUTURE

Our team grows relationships with the community, sponsors, mentors, and alumni. Team members take advantage of the opportunities to see what engineering is like in a real-world setting. This allows our students to see the effects of STEM related industries through being a part of exhibitions, internships, and conferences. We are grateful to have many mentors that help the team with the building and brainstorming processes. Our team relies on alumni to provide information to help us prepare for potential errors. The community gives back to the team by providing us with proper connections for future internships and resources.

Sponsors support us by providing money, materials, and mentors.

Through our constant community appearances and exemplary record over the past nine seasons, we have gained over twenty sponsors that annually support our team by donating money, providing training opportunities, and mentors. Members of our team have learned about machining and fabrication from one of our main sponsors, BlueChip Machining and Fabrication. During build season BlueChip

teaches our team members how to use industrial level machinery and allows us to fabricate parts for our robot. This benefits the team greatly because our members can later use the techniques they learned from BlueChip and apply them in real world situations. Two years ago, BlueChip offered our Director of Engineering, Chris Lutze, an internship under the mentorship of Bill Berggren. That same student is

now a teacher's assistant in a Cal Poly San Luis Obispo machining class, being the only one with experience in machining and fabrication with industry scale equipment due to his time on the team. With increased interaction and collaboration between students and industry professionals, our members are equipped with valuable working and industry knowledge.

Judy Bramer & Trisha Daly
Real Estate



The Chan
Family



Quality Powder
Coating



NORTHROP GRUMMAN



Berggren
Families



Red Sea Marketing



The Fisco
Family



Waterjet West

San Diego Unified Office of College,
Career, & Technical Education

VIVIDHOSTING

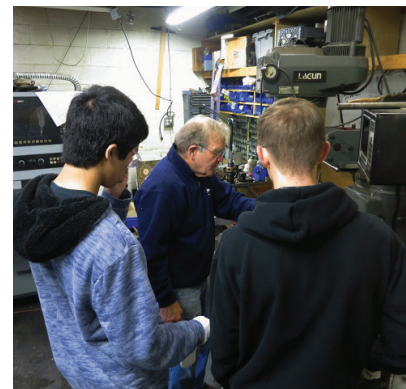
The Tukemean
Family



Kiet Chau, a Holy Cow Mentor from Qualcomm, works with a couple members on designing robot parts.



Our Holy Cow Directors developing relationships with our sponsors.



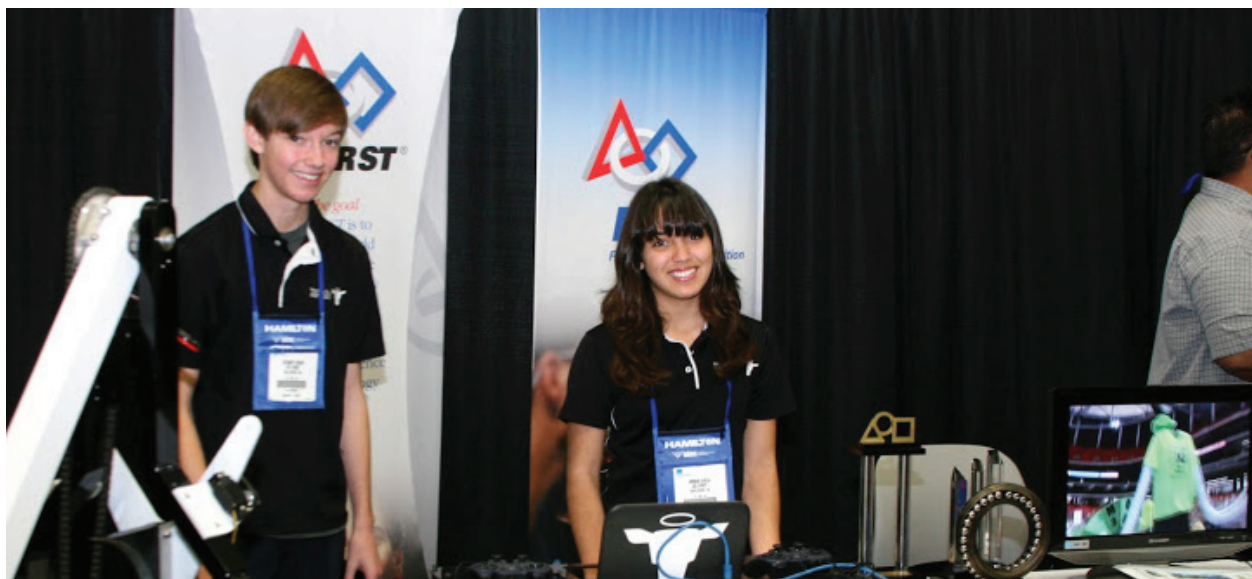
A mentor provided by BlueChip Fabrication teaching our members how to use tools at a machine shop.

At the SLAS Conference, we spoke to industry professionals about STEM education.

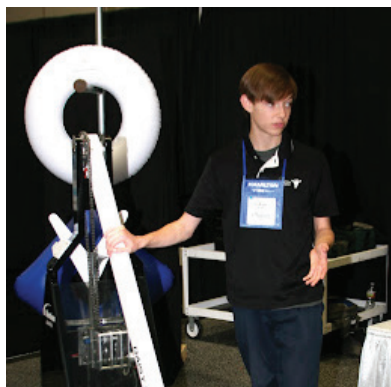
Since 2009, we have attended the Society of Laboratory Automation and Screening (SLAS) Conference in Southern California. At this conference, we had our own exhibit to promote FIRST and STEM education with the aim of recruiting new mentors and sponsors for FIRST teams. Ambar Avila, a senior who attended the conference in 2012 states, "When I was describing the different programs within FIRST,

one man asked how long I had been working for FIRST, and he was surprised to find out that I was still a high schooler who was simply talking about a program I am passionate about." Over the years, many FIRST alumni have come by our booth to see how FIRST has progressed. They have displayed interest in supporting their local FIRST teams by mentoring and donating parts. After attending

this event each year, members of our team depart equipped with knowledge about the most advanced systems in the industry.



The SLAS Conference, an opportunity for us to gain more resources for FIRST.



Manager of Mechanical, Jeremy Howe, shares his knowledge about our robot.



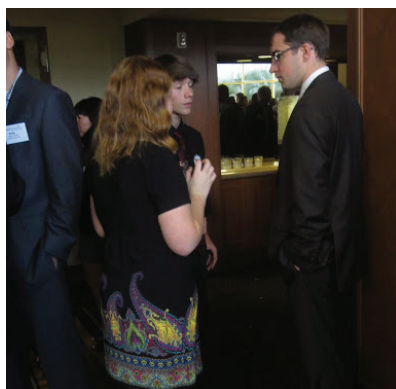
Ambar Avila, Manager of Fundraising, displaying her excitement for FIRST and STEM to passersby.

We established future connections with industry associates at the TechAmerica awards.

TechAmerica is the leading voice for the U.S. technology industry and has been called the “Champion of Innovation.” They consist of over 1000 member companies that create many different technologies from hardware to software, and the companies are both start-up and multinational. Thanks to the generous support of ViaSat we had the privilege of attending this awards lunch ceremony for

the third year in a row. CFO’s and CEO’s of hundreds of companies that attended, and a few companies were recognized for outstanding ingenuity in their field of work. Members of our team were able to mingle with industry professionals. Many of the juniors or seniors who attended had the chance to set up a possible internship with some of the companies. Many professionals expressed an interest in FIRST, and

wanted to find out more about it or watch the competitions. We also got to learn about all sorts of companies and what they were doing within the team. Overall, the whole event was fun and exciting and was a pleasure to attend.



Members of the teams interacting with a professional from a technology company.



The Holy Cows creating connections with many companies.



ViaSat hosted us at their table at the Tech America Luncheon.

We attended the RoboExpo, giving us a chance to spread the word of FIRST and STEM.

On October 6, 2012, we arrived at Cuyamaca Community College in El Cajon. This was the second year that we were invited to participate in the San Diego Science Alliance (SDSA) RoboExpo, a free event open to the public designed to get them excited about STEM. We brought our 2012 robot, Daisy Diablo, to lure people to our table. While kids were participating in a demo, other team members were able to share

their excitement in the fields of STEM education with the parents. We used our robot as a great method to explain the benefits of FIRST. The SDSA shares our beliefs of engineering a better future and our goal to gain excitement for STEM. SDSA says that they are “the catalyst for improving K-12 science education in San Diego County,” and with this, we have always said that our robot is the catalyst to draw

people into talking to us about FIRST and STEM.



Andres, an 11th grader on the team, informs a child on Daisy Diablo.



Our team members describing the robot to the public at the RoboExpo.



People observing the robot as it shows its abilities.

At the Navy Gold Coast & AFCEA WEST Conferences, we presented to industry experts.

The Navy Gold Coast Conference and the AFCEA WEST Conference brought FIRST teams together with large corporations, providing an opportunity for us to do a robot demonstration and build contacts. We had the opportunity to talk to representatives from the Department of Defense, as well as other IT and manufacturing companies, about the benefits of FIRST in the future. Members of our

team spoke about the importance of STEM education and how FIRST inspires innovation in kids across the country and the world. We were able to meet and converse with several prominent people, such as Beth Swing from the Office of Naval Research, and Charles Eshnaur, a representative from the Mayor's Department. While conversing with Mr. Eshnaur, our Director of Public Relations strengthened his interest

and support for FIRST in San Diego. We were also fortunate to talk to many companies at the conference, and obtain a contact for a company who wanted to provide a practice field, as well as several current and potential sponsors, including many within the defense industry.



Ethan Chan demonstrating the robot to associates from the Department of Defense.



Kaithlyn Abulencia promoting FIRST to attendees at an Armed Forces hosted conference.



Our Director of Engineering showing a professional his knowledge on the robot.

At the INCOSE STEM Fundraiser, we shared what FIRST is and how it applies to our team.

Early 2012, we brought our robot, Daisy Maize, to the USS Midway Museum for the annual International Council on Systems Engineering (INCOSE) STEM Fundraiser. Dubbed the “San Diego Engineering Geek Night Onboard the USS Midway Museum,” this event served not only to raise funds, but also to allow engineering colleagues to network and learn more about how STEM is being supported in

schools. Invited by JoAnn Lane the Chapters Fundraising Chair, we gave a demo to a crowd of STEM officials and supporters. We brought along with us a few of the 2012 basketballs and a hoop to score them in, and demonstrated just what our black-and-white beast could do. In between demonstrations, team members were free to take questions. Along with the robot itself, our

team had set up our own booth with enough FIRST information for everyone on board the USS Midway. With the robot demos and the conversations between us and the STEM supporters there, it can easily be said that those who attended left knowing a little more about The Holy Cows and a whole lot more about FIRST.



A child showing his excitement playing with a FIRST Robotics Competition robot.



At the INCOSE Fundraiser, our team hosted a booth that shares information about FIRST and STEM in schools.



A member of The Holy Cows demonstrating and explaining our robot to the public.

We took part in the CCTE Showcase to increase FIRST programs in schools.

On May 26, 2011, a handful of our team members attended the San Diego Unified School District's College, Career, and Technical Education (CCTE) Showcase. It was a district-wide celebration of the greater community of students, teachers, parents, and industry partners of the San Diego School Board's technical education department. This annual event highlights the continued collective

dedication to the academic excellence achieved through career focused integrated academics. Some of the main attractions at this showcase were the robots from local FIRST teams. Representing FIRST Robotics were students from the Crawford School of Invention & Design Educational Academy (IDEA), Kearny High School of Stanley E. Foster Construction Tech Academy (CTA), Madison High

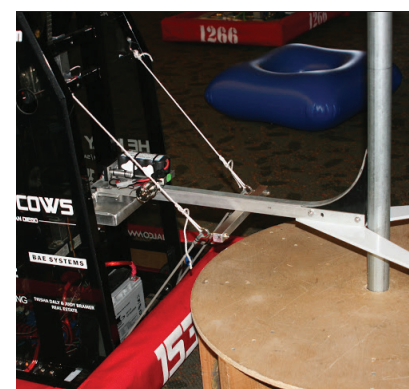
School, Mira Mesa High School, and our own High Tech High School. Members spoke to passersby about FIRST, our team, and our robot. This event offered our team the unique opportunity to speak directly to educators interested in FIRST. We are planning to work with the CCTE Department in the hopes of identifying engineering teachers willing to pilot FIRST programs.



The CCTE Showcase, as a chance to communicate with the members of the school district.



Demonstrating a game of LogoMotion at the CCTE Showcase.



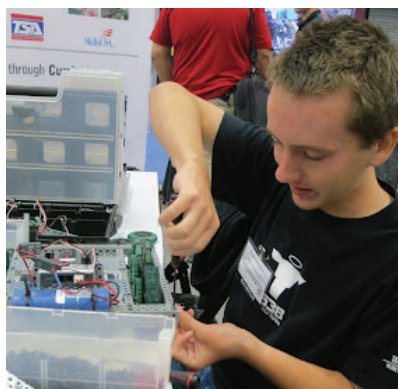
Daisy Maize deploying our minibot during a demo of LogoMotion.

At the ISTE Conference, we shared the importance of STEM education.

Since 1979, the annual International Society for Technology in Education (ISTE) Conference has been held all over the United States presenting new teaching tools to educators and education leaders worldwide. Hundreds of companies present their ideas to attendees. The robotics company VEX invited our team to model the VEX system to education leaders at the conference. Members from our

team built an example robot on-site to demonstrate VEX robotics potential to conference attendees. We attended the 3-day event and helped to share what VEX is all about, and demonstrate how it can be used in education. Our team members received an array of questions from the teachers and education administrators who wanted primarily to know why the students were interested in VEX.

We answered that VEX appealed to a spectrum of students due to the approachability of VEX and the easy learning curve. Many attendees were surprised to learn that VEX competitions were some of the largest middle and high school competitions around the world. The conference allowed us to witness an example of how the world is promoting STEM education.



A team member working on building the frame of a VEX robot.



The Holy Cows working on and showcasing a VEX Robot at the ISTE Conference.



A group photo with The Holy Cows and Vex officials, that flew in from Texas for the ISTE Conference.

At the CA STEM Summit, we strengthened bonds with local professionals.

We were invited to the California STEM Summit to talk to educators and politicians from across California. We were especially thrilled to learn that the California State Superintendent of Public Education Tom Torlakson, and FIRST supporter Kareem Abdul-Jabbar would be attending. Team members strengthened our relationship with Mr. Torlakson by answering his questions

about our team and conversing with him about STEM education. Partway through the event, local Channel 8 news station arrived to do a segment on the Summit. They showed our robot launching balls to Mr. Abdul-Jabbar, and interviewed one of our managers about her thoughts on FIRST and STEM. They were impressed by our robot and our professionalism, and asked about how being in robotics

has influenced our education plans for the future. Also at the event was a local FLL team, who had set up their game field and robot. At one point a couple of their members approached us, and we showed them how to operate our robot. Their faces lit up as they operated a FRC robot for the first, and definitely not last time.



Kareem Abdul-Jabbar enjoying a demonstration of the 2012 FRC game, Rebound Rumble.



The Holy Cows with Mr. Torlakson and Mr Abdul-Jabbar.



Members of the team receiving Mr. Abdul-Jabbar's book.

At the ARCS dinner, we represented FRC by demonstrating our robots.

On March 28, 2012, FIRST founder Dean Kamen was named Scientist of the Year by the ARCS (Achievement Rewards for College Scientists) Foundation at the ARCS Dinner in San Diego. Each level of FIRST was represented at the event with FLL, FTC, and FRC teams in attendance. Our team represented FRC at the event, demonstrating our 2010 and 2011 robots, Daisy Bell and Daisy Maize. Onlookers at the event,

many of whom were science and technology professionals, were captivated by our robots and eager to hear about the competitions we participated in. Several people expressed interest in getting their children involved with FIRST. We also explained FLL and the progression of FIRST programs to them. Dean Kamen mentioned that FIRST was the program he was most proud of creating, and talked about

how the program has grown over the past two decades. As the dinner came to an end, we were able to speak to Dean in person. He gave us some advice about college, and reminded us to continue to spread the message of FIRST. The event was a great experience for our team and the members who attended.



Science and technology professionals show their interest in FIRST as they speak with our team.



Daisy Maize on display at the Achievement Reward for College Scientists Dinner.



Connor Worley, Manager of Electrical, answering questions professionals have about FIRST.

Our team exposed more people to FIRST robotics at the TEDxAFC.

On July 14th 2012, our team was invited to host a booth at the TEDx AFC in San Diego. We were able to meet hundreds of people ranging from small business owners to large corporations, and talk to them about our team and FIRST. We also gave demonstrations of our 2011 robot, Daisy Maize, to entice people to our table. Many people were interested and wanted to get involved with FIRST. We told them all about the

inner workings of our FRC robotics team, and handed them all the information on starting a team. Nearly everyone that visited us had never heard about FIRST, and was very eager to learn. We told them about how Gracious Professionalism and working together to achieve success is one of the most important parts of FIRST. After working at the booth, team members visited other presenters at the event and were

impressed. This convention was a great chance for small businesses to get their names out there, and inform people about their cause or plan, which was strikingly similar to our efforts to spread FIRST.



Manager of Electrical, Connor Worley, describing Daisy Maize to a passerby at the TEDxAFC.



Our team hosting a booth in order to give out information about FIRST and The Holy Cows.



Connor Worley sharing his knowledge on FIRST and STEM a couple of interested people.

In Hollywood, our robot was filmed to appear in a Boeing commercial.

We were honored to be invited, along with Team 1572 - The Hammer Heads, to have our robot star in a recent Boeing commercial and have our members be the technical advisors on the set. At the end of July 2012, we drove to the set with our robot to help illustrate Boeing's outreach efforts, which includes sponsorship of many FIRST teams and Championship competitions. Actors portrayed students on an

FRC team working alongside real Boeing employees during the build and competition seasons. We disassembled our robot, and the cast pretended to work on it during the filming. Acting as advisors, we helped ensure accuracy by showing actors how to realistically use the tools, and the authenticity satisfied the director after only a few takes. The director listened to our advice, and the final footage

was astonishing. After the filming, and in the spirit of the film industry, we decided to do some sightseeing and visit the Hollywood sign.



Members of The Holy Cows had the opportunity to assist in the creation of a Boeing Commercial.



On our way to the set of the Boeing Commercial we had the chance to participate in.



Ready? Action! Recording of the Boeing Commercial has begun.

We have developed a set of lessons in order to incorporate FIRST into school education.

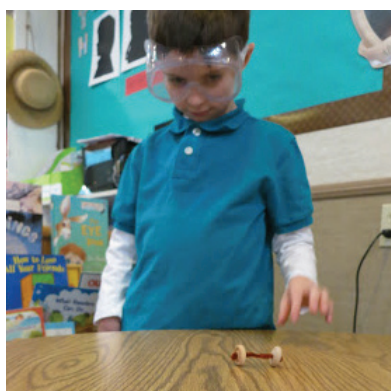
This year we connected with Rancho Encinitas Academy to work alongside their kindergarten teacher to implement a pilot program of FIRST curriculum. We talked about the amount of time she would have to dedicate to a new project in her class, and we discovered that teachers do not have a lot of time to add new ideas into their lesson plans because they have state standards they

need to follow. We came up with an approximate amount of time that she would have to teach her students and we created easy 30 - 40 minute lessons. These instructions include new vocabulary that is introduced on Mondays during their morning meeting. Thursdays she would do a simple hands on activity, each one building upon the one before. All of these leading up to them building

robots with the Lego Mindstorm kits that we have for the class to borrow. To keep track on what they are learning the teacher created a blog and has the kids creating journals all for us to have available to look at and make adjustments if necessary.



An elementary school girl at Rancho Encinitas Academy showing off what she has built.



A boy having fun with his hand made set of wheels.



A student concentrating on completing a lesson on the program we have developed.

