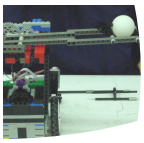

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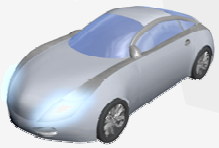


LAAE

LOS ALTOS ACADEMY OF ENGINEERING

Los Altos Academy of Engineering

BUILDING A CLEANER, MORE FUEL EFFICIENT TOMMOROW

focus

Infusing Success

By: Amy Yu

Infusion, Los Altos High School's own student-built hydrogen fuel cell vehicle, has come a long way since the project was initiated in 2001. Infusion's performance goal is to travel up to 40 miles per hour for one hour continuously. The chassis of the car is built, the electrical drive system is complete, and the body is finished and being fitted to the chassis. Infusion is a very sophisticated vehicle that just may be the next step into the future of automobiles.

There are five teams that are involved with the project: composites, electrical, mechanical, design, and public relations. The design team thought of an innovative way of minimizing air resistance by creating a teardrop shaped car. The composites team worked with Cerritos College to build the mold and construct the body using a process coincidentally known as the infusion process. The electrical team used a 1.2 kw Ballard fuel cell and monitored the system with telemetry that outputs information into a computer. The mechanical team made the chassis and suspension. The design of the fuel storage system was the most difficult . Infusion uses a bank of three metal-hydride tanks to store hydrogen as a semi-solid slush at low pressure.

As Infusion nears the testing stage, the Academy is very proud of the three years of work by team members. There are some minor items that need to be completed. Infusion still needs the canopy installed, its body painted, and instrumentation installed to monitor the system. "I'm just happy that every part of Infusion seems to be working correctly, because it's a very complicated system," says Scott Loh, senior.

The nearly complete Infusion is on the ground, and the model is being held next to it. Minor instrumentation and a paint job are left on the to-do list.

A New Year

With a new school year just started, the Los Altos Academy of Engineering is off to a fast start. Many projects are lined up for the new year. LAAE has a staggering 41 students in the day block class with 30 more involved in the after school program. "This is the most students we've had" said Ann Chong, Infusion project coordinator . The Academy plans include another success in Build Your Dream Vehicle, a first place at the annual Solar Cup, the roll-out of the hydrogen fuel cell vehicle, restarting the ZEV Challenge, a national victory in Botball, and possibly a new full-size solar car. The Academy has high expectations for all of its students this year, and hopes to have a year with even more success than that of past years.

The DARPA Urban Challenge

By: Lydia Wei

With a group of interested students and a handful of devoted alumni, the Los Altos Academy Engineering (LAAE) is proud to announce its participation in the DARPA Urban Challenge. DARPA, The Defense Advanced Research Projects Agency is the central development organization for the Department of Defense. The DARPA Urban Challenge is an annual autonomous vehicle competition where the car actually drives itself. The objective of the competition is for an autonomous vehicle to safely execute missions in a complex urban environment with moving traffic. This challenge allows students to overcome the technical challenges and truly understand how autonomous vehicles work. Autonomous vehicles are the future of robotics. "It shall be a goal of the armed forces to achieve the fielding of unmanned, remotely controlled technology such that…by 2015, one-third of the operational ground combat vehicles are unmanned."

This competition is great for many students who are interested in robotics and vehicles as well. The vehicle that LAAE is using is a 2007 Electric Scion XB acquired from AC Propulsion. The students will learn how to build their own drive systems as well as the other basic components of a car. By using radar and lidar sensors, the vehicle is able to detect motions and make judgments by itself. Led by Will Zheng, a computer engineer at JPL Cal Tech, a group of Los Altos alumni, Richard Cheng, Jeff Hsiung David Tsai, and Derek Mayeda, are currently teaching the students about autonomous robots.

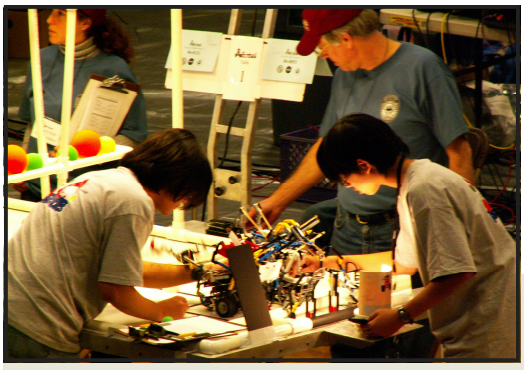
The first ever Los Altos DARPA team will aim to meet the criteria for the National Qualification Event (NQE) and compete in the Urban Challenge. By October, the team hopes to finish all the requirements for qualification and receive $50,000 in the NQE. If the vehicle makes it to the final competition and completes the race, the LA DARPA team will receive an additional $100,000. The overall first place winner in the race will receive $2,000,000, second place will receive $500,000, with third receiving $250,000.

Programs Away!

By: Chris Wong

The Los Altos Botball team came home last summer with four first place trophies and placed fifth overall in the National Conference Botball Competition in 2006. The Regional Competition was held at the University of San Diego and the National Conference on Educational Robotics was held in Norman, Oklahoma at the National Center for Employee Development on July 7-10, 2006.

The Academy was proud to have sent two teams to this competition. The students on the first team were Aaron Mayeda, Cliff Fung, Ted Wang, and Owen Wang. The students on the second team were Clara Lee, Alex Venturoso, Chris Valencia, Eric Ren, and Isaac Lin. Each of these teams were divided into programmers and builders.



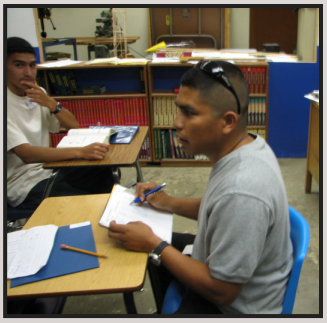
The materials that they used were Legos, XBC, servos, and sensors. Legos were used to make parts of the body such as the claws and arms. XBC was used as the brain. The XBC unit controlled each function of the body. The sensors were used to make the robot aware of its surrounding climate. The goal of this project was to make an autonomous robot; in other words, to program a robot that moves by itself.

An Early Start

By: Lydia Wei

Electrical Apprenticeship Orientation is a great two year program established by former LADWP engineer Mitch Kodama. This ROP course prepares students for demanding jobs involving electric power generation and distribution. This class teaches students how to understand and work with electrical wiring. It also provides an understanding of electric power. Since fewer than 20% of high school graduates receive college degrees, many students are left with little job skills. Electrical Apprenticeship is a wonderful opportunity for students who want good paying jobs with growth potential right after high school.

Enrique Reynoso, a senior at Los Altos High School, is currently taking his second year of the course. He was given a summer internship that involved electrical wiring. He says, "Being in this class has really taught me many valuable things." The students also have the privilege of having Mr. Kadoma come and work with them. Mr. Keirns, the head teacher of Electrical Apprenticeship, believes that this class is a great avenue for students who want to pursue a career in the electrical field.



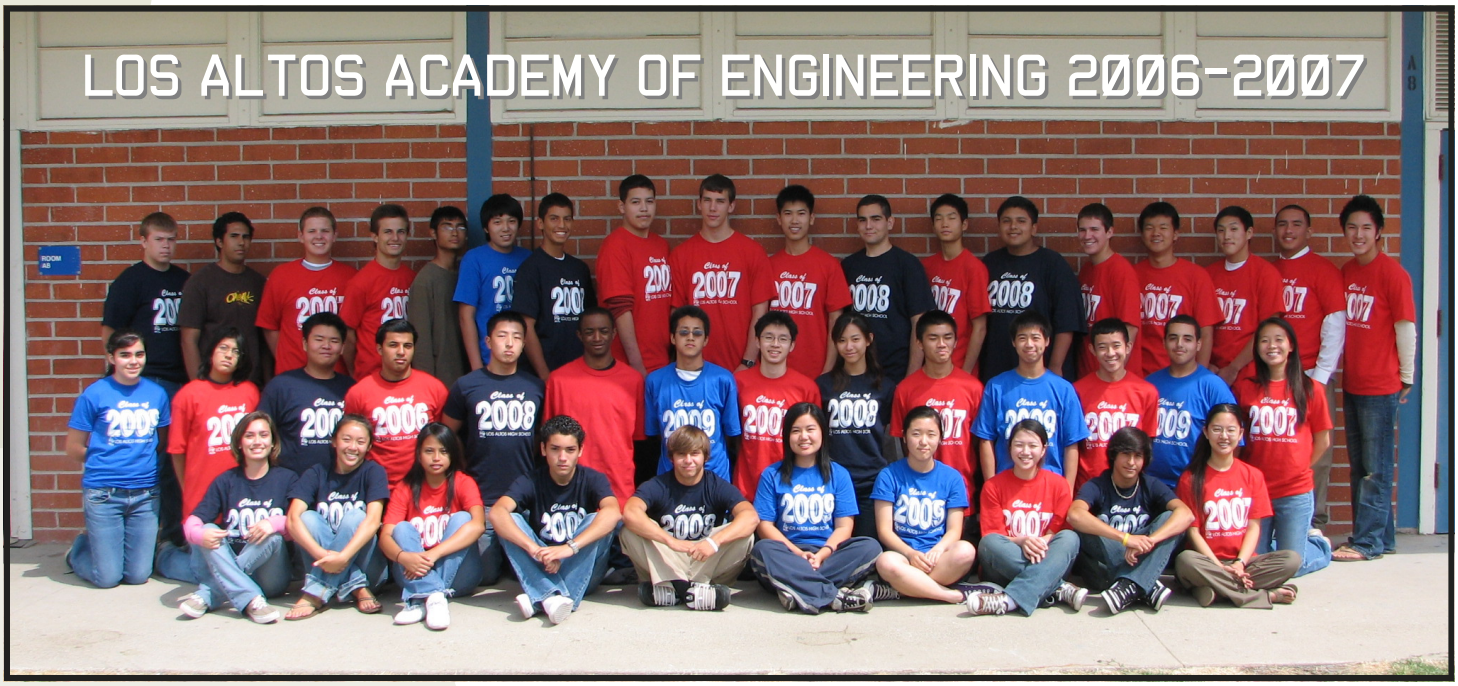
The Leviathan Reborn

By: Chris Wong

The Leviathan, last year's Solar Boat team, had the goal of building the lightest, fastest electric and solar powered boat to compete and win the 2006 Solar Cup Competition. Unfortunately for Team Leviathan, bad luck struck. At the 2006 Solar Cup Competition, the LAAE unleashed the mighty beast that was Leviathan. It would prove to be a long day for the Leviathan.

During the first endurance of the 2006 Solar Cup Competition, the solar panels of the Leviathan malfunctioned and the team was not able to start the race on time nor have the support of the solar panels. Leviathan put in a time of 6.00 minutes after 6 laps to earn 259.5 points. During the sprint event, the Leviathan was not able to place a good time against the other boats. The Leviathan finished with 60.72 seconds in the 1st sprint and turned in with 63.185 seconds in the 2nd sprint. However, things started to look up as the second endurance began. The solar panels finally began to function properly and the Leviathan was alive. The mighty beast was ready to reign over the waters. However, bad luck struck, but this time nothing happened to the Leviathan. Two other boats from competing schools flooded; thus, the race had to be called off. When the final results rolled in, Los Altos was ranked 18th.

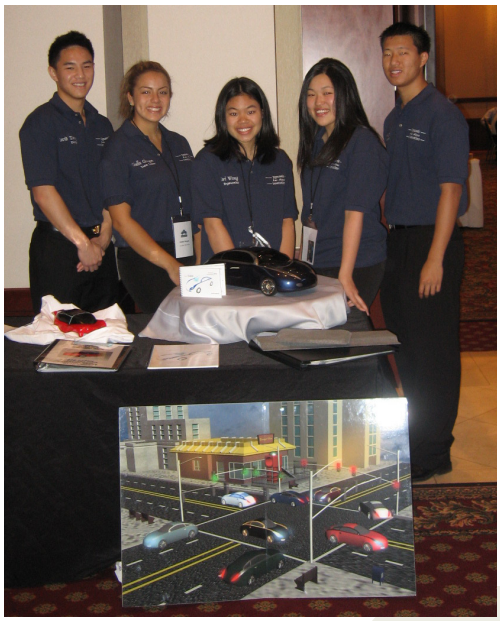
The team didn't return home with winning scores, but they did come back with renewed hope. The Solar Boat team has accepted numerous new members this year, and they plan to utilize their new ideas to put up better numbers in this year's competition. The team will start the year off by displaying the Leviathan to the public at Water Fest 2006. After the showing at Water Fest 2006, they will build a completely new hull in December and start a new boat from scratch. They have already brainstormed a few ideas such as putting two motors together to improve performance of the boat and developing a new type of shaft. The 2006-2007 school year looks to be a promising year for the solar boat team.



Back Row (left to right): Dustin O'Neill, Phillip Ybarra, Daniel Metchkoff, Brett Wiltz, Jonathan Castle, Jeff Ong, Raymond Raya, Julian Larregui, Aaron Norris, James Huang, Oswaldo Gutierrez, Scott Loh, Chris Valencia, William Michicoff, Eugene Kim, Scott Lee, Omar Acosta, Chris Chang. **2nd row (left to right)**: Marina Macias, Dalila Lin, Andy Chen, Matthew Castaneda, Chris Wong, Terrell Coleman, Abraham Lin, Justin Wong, Lydia Wei, Jerry Poon, Joseph Lin, Chris Fong, Alex Najarro, Ann Chong. **3rd row (left to right)**: Stephanie Heredia, Amy Yu, Desiree Magat, Alex Calderon, Antonio Seanez, Sabrina Liu, Sharon Shim, Adrienne Jan, Eric Romero, Clara Lee

Dream it, Desire it, you Deserve it

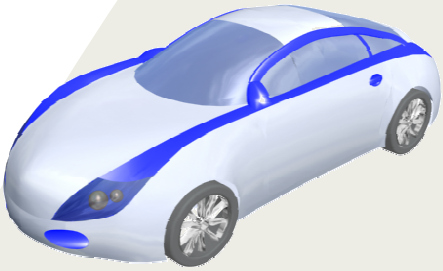
By: Amy Yu



At the Los Altos Academy of Engineering, students have single-handedly created their own dream vehicle, the Di400. Under the pseudo-manufacturer Dynamic Innovations, these high school students collaborated to create a car that would be submitted to the annual Build Your Dream Vehicle competition. The D.I. team, composed of Kari Wong, Chris Liu, Helena Xu, David Tseng, Giselle Obregon, Chris Chang, Ann Chong, Evan Kwan, Eric Kwan, Eric Huang and Desiree Magat, came together to form departments that design, marketing, environment, safety, ergonomics, finance, team process, and engineering. For this competition, these young adults simulated every aspect involved in the debut of a new concept vehicle. Targeting the problem of mileage and fuel efficiency, the Dynamic Innovations team decided to design a hybrid diesel vehicle that would achieve approximately 59.17 mpg. Additionally, the vehicle would be a high performance car that will have an astounding 0-60 mph in 5.8 seconds while maintaining luxury and security by incorporating innovative engineering concepts. The Di400 is hypothetically to debut in 2010 with the guiding slogan "dream it, desire it, you deserve it." On May 21, seniors Giselle Obregon, Helena Xu, Kari Wong, David Tseng, and Chris Liu went to Detroit, Michigan to compete in the Nationals. Dynamic Innovations was the only high school from California at this competition. Over 250 high schools from across the nation submitted their entries while only 8 teams went to Nationals after a series of eliminations. Dynamic Innovations placed 1st, won the WOW award for best design, and brought back $7,000. Dynamic Innovations was the first team ever in the history of the competition to have two consecutive national wins.

Educational Outreach

By: Lydia Wei



The Los Altos Academy of Engineering has received funding for Innovative Schools Advancing Air Quality (ISAAQ). As a result of AQMD board meetings, Chris Chang was offered a summer internship at South Coast AQMD, (Air Quality Management District). Throughout the summer, Chris Chang and Mr. Robert Franz have been working with the Technology Advancement Office at AQMD to request the ZEV challenge funding. A contract was drafted in late August to fund the ZEV challenge under the Clean Fuels Fund. On September 8, the AQMD Governing Board granted ISSAQ $63,000 to fund the annual ZEV challenge.

ISSAQ is an organization of high school teachers in Southern California who are dedicated to educate young people about the importance of alternate energy in the future of transportation. ISSAQ and the Southern California AQMD co-sponsor the Zero Emissions Vehicles (ZEV) Challenge. In the past, Franz, the chairman of ISSAQ, held annual ZEV challenge competitions at Irwindale Speedway. The ZEV challenge provides students with the opportunity to demonstrate their projects in a competitive environment. The students are to build their own vehicles which emit innocuous wastes into the atmosphere. ZEV offers an excellent method of educating students about the role of alternative vehicles as a pollution control strategy by allowing them to design, build, and compete with electric and solar vehicles.

With the $63,000 received from AQMD, Los Altos Academy of Engineering is proud to host this year's ZEV challenge. ISSAQ will distribute the funding to at least fifteen different high schools. First year contenders will receive a funding of $1,500 each to allow the purchase of major equipment. Second year participating schools will receive $500 each for refinements to the vehicles. With at least fifteen schools competing this year, we hope for a great turn out and a successful race.

A solar-powered car racing to cross the finish line.

Solar powered

By: Chris Wong

The Dell-Winston School Solar Car Challenge was established ten years ago to help motivate students in science and engineering. The Challenge, a part of the Winston School in Dallas, Texas, teaches high school students around the world how to build roadworthy solar cars. Dell-Winston then provides a safe environment for them to display their solar cars. On even-numbered years, Dell-Winston shares the fun of the world-famous Texas Motor Speedway; on odd-numbered years, the teams drive cross-country to share their projects with millions of people. The 2006 Dell-Winston School Solar Car Challenge is a 4-day closed-track race at the Texas Motor Speedway. This year, the LAAE plans to get involved with the Dell-Winston Solar Car Challenge.

Teams that raced in the 2006 Dell-Winston Solar Car Challenge take a picture together.

Thanks

We would like to thank all of our sponsors. Without them, we would not be as successful as we are today. We appreciate your continued support in our program.

If you are interested in visiting the Los Altos Academy of Engineering during our work hours, you are more than welcome. The following is our work schedule, which is subject to change. Please contact us at (626) 330-1096 to reserve a visitation.

During School Hours:		*After school:*	
Mon-Fri	11:16AM-12:13PM	**Tues/Wed**	3:00PM-6:00PM
		Sat	8:00AM-12:00PM

www.lasv.org

This year, the Los Altos Academy of Engineering updated their website. Everything from the old website is still there, but it is now easier to navigate and is more organized. Although the website is updated, it is not finalized and still is under construction. The website now features a completely new layout with a brand new article archive section. Now all the news and updates from previous dates can be viewed from the archive. The LAAE website is now Google verified. If "Los Altos Academy of Engineering" or "LAAE" is typed on Google.com, it will return our website. Aside from all these new features, many things have just been updated.

The solar vehicle pages are all updated. The solar vehicles now have their own sub-sites with more information regarding their respective vehicles. The photos of vehicles are no longer in the gallery. Now they are more organized and located by project. The projects page is not yet complete due to ongoing projects. Projects are now separated into two sections, ongoing projects and completed projects. The sponsor's page is also updated. The team logs have also been removed from the site..

NEWS FLASH

The annual Advisory Committee Meeting is on November 14th at 6:00 P.M in Room A14.

The ISSAQ meeting is on October 28th 10:00 AM in Room A14.

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