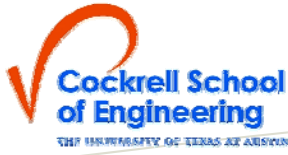
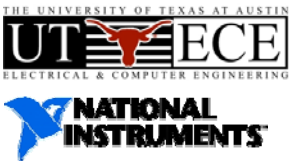




- ▶ MECHANICAL..... 2
- ▶ BODY..... 2
- ▶ ELECTRICAL..... 3
- ▶ FUNDRAISING..... 4
- ▶ COMMUNITY..... 7
- ▶ FAQ..... 10

UTSVT



Solarean



Samsung Helps Kick Off the 2008 Year!

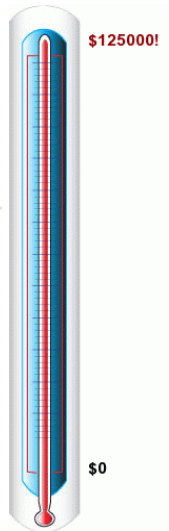
The University of Texas Solar Vehicles Team received a huge donation from Samsung over the holiday break! With Samsung's \$ 54,000 commitment, the UTSVT has the funds it will need to compete in this year's North American Solar Car Race from Dallas, Texas to Calgary, Alberta.

solar car. Also, transportation and other costs for the team to travel the 2,400 miles will be covered by the Samsung donation.

The team will meet with Samsung officials early this spring to accept the award at a special luncheon. The team has recently re-named the *Solarean* the *Samsung Solorean* in honor of their generous sponsorship. The University of Texas Solar Vehicles Team thanks Samsung for their generous support in the development of the *Samsung Solorean*. The money will allow us to complete our new

With our financial goals met, the team can concentrate on the development and construction of the *Samsung Solorean*. Many things were accomplished over the past semester and are ready to be put together this year. The goal is to begin tests this March with our new car. The team's current progress and accomplishments can be read in the following sections.

Samsung commits \$ 54,000 to help sponsor the University of Texas Solar Vehicles Team and the Samsung Solorean!



UTSVT Meets Fundraising Goals

Letting the Sparks Fly

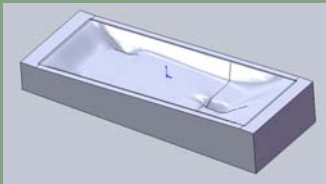
Body & Mechanical Team Updates

The body and mechanical teams finished off the semester by designing the complete body mold of the *Samsung Solorean*.



Body

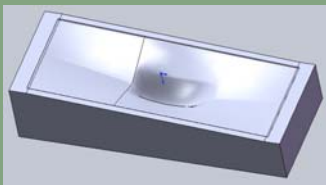
The body team has been working very hard to design a body that meets the requirements specified in the regulations. The team must keep in mind that the body must be able to fit all of the necessary components that will go into the *Samsung Solorean*. Throughout the semester, the body team has designed the upper and lower body molds, which when combined will be the complete body for the *Samsung Solorean*. The team plans to have a company machine Styrofoam molds from the design and plans to begin the actual construction work this semester.



Lower Body Mold

Chassis

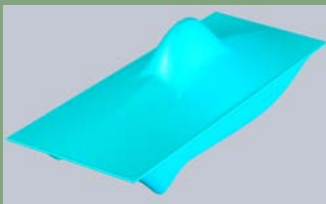
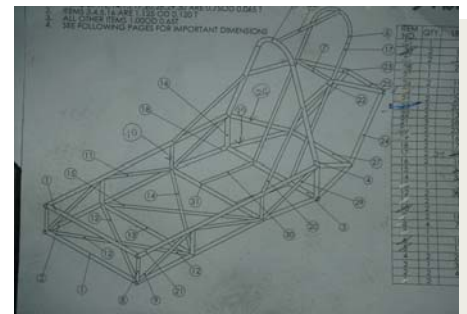
The chassis team finished the design of the chassis. The team began the construction of the chassis at the Pickle Research Campus. By the end of last semester, they had spent many hours and finished cutting the chromoly steel tubing for the *Samsung Solorean* chassis.



Upper Body Mold

Brakes and Steering

The brakes and steering team worked together with the suspension team in order to meet the design specifications. The teams also collaborated to create an overall design of an Anti-lock Braking System (ABS). The experimental version of the interface circuit is almost complete. If the teams accomplish this task, the *Samsung Solorean* will be the first solar car in history with an ABS system.



Complete Body Design

Trailer

The trailer team has finished the aluminum frame for the shelves in the trailer. The team purchased all of the necessary parts in order to begin working on its electrical system. The team ordered new brakes and bearings for its wheels and installed them. The team also replaced the two old tires with two brand-new ones.

Once the autoclave was complete, the team began to make carbon fiber shelves to gain vacuum bagging experience.



Top: Chassis team members cut chromoly steel pipes. Right: Members applying epoxy to build one of the trailer shelves.



Sun Power!!!

Electrical Team Updates

The University of Texas student engineers put their years' of electrical skills and knowledge to the challenge!

NI CompactRIO

This past semester has been very challenging for the CompactRIO team. The team spent countless hours testing the motor, cruise control, and air-gap controller. Safety is paramount for the team, which makes it a forethought in all designs. The team has also spent a significant amount of time developing the turn signal and turn on/turn off programs, which have been written and tested. This past semester, the team received a new load for the motor and three FreeWave HTPlus radio modems for telemetry. The CompactRIO team's future plans are to integrate the system, build hardware, and do extensive testing and debugging this semester.

The CompactRIO, provided by National Instruments, functions as the "heart" of the solar vehicle.



of pre-preg Kevlar for the battery boxes from Hexcel and have decided to go with a Nomex based honeycomb core material.

The battery team has also been working closely with the CompactRIO team on the turn signals for the *Samsung Solorean*. The demo board design is completed and setup using two 555 oscillator circuits to create the blinking.

Batteries

The battery team was given the responsibility of determining all aspects of the battery design for the *Samsung Solorean*. The group is still currently deciding the battery placement, size, and connectivity of the battery system. Team members Asa and Jerome have designed the battery box and are in the process of performing fluid analysis of the airflow in the battery boxes with plans to have it completed this semester. Once completed, the batteries, which are being kept in cold storage, will be attached together and placed in the battery enclosures. The team has received shipments



Low Voltage Power System

The electrical team has also been working on the low voltage power system. The team purchased Vicor DC-DC converters for stepping down the bus voltage to power the car's electronics. The team has also completed the 24V NiMH battery pack. However, because the race regulations were recently updated, the team will need to add more protection electronics for the NiMH battery. The electrical team has also designed the horn and back up system and plans to continue towards completion of the dashboard system this semester.

Solar Array

The solar array team this semester have selected power trackers from AERL. The power trackers increase the voltage received from the sub-array to the bus voltage. The team plans to use three of them and have one for backup. The A300 solar cells are currently on order from Sun Power. With the body design completed, analysis is currently being performed to find the optimal placement for the solar cells in order to maximize the power output.



Meeting Times

General	Wed 6PM ENS 116
Battery	Thurs 7PM ENS 416
CompactRIO	Thurs 7PM ENS 416
Construction	Sun 1:30PM Pickle



Fundraising



NASC 2008 Participating Teams

- Auburn University
- ETS
- FH Bochum
- CalSol
- Durham University
- Illinois State University
- Iowa State University
- Istanbul Technical University
- Kansas State University
- Massachusetts Institute of Technology
- McMaster University
- Michigan State University
- Northwestern University
- Ohio State University
- Oregon State University
- Principia College
- Queen's University
- Red River College
- Southern Illinois University-Edwardsville
- Stanford University
- University of Calgary
- University of Kentucky
- University of Michigan
- University of Minnesota
- University of Missouri-Rolla
- University of Ontario
- [University of Texas at Austin](http://www.utexas.edu)
- University of Waterloo
- Western Michigan University

For more race details, please visit
www.americansolarchallenge.org

The fundraising team caps off their 2007 year with a \$ 54,000 sponsorship from Samsung. The donation helped the University of Texas Solar Vehicles Team reach their fundraising goals. The fundraising team is responsible for raising the money necessary to build *Samsung Solorean* and compete in the North American Solar Car race in the summer of 2008. The UT Solar Vehicles Team started the fall 2007 semester only having raised \$ 34,500. Thomas Deconinck, the fundraising team leader, had the huge task to find sponsors during the semester. Under Professor Hallock's and Deconinck's direction, the UTSVT raised more than \$100,000 which includes many important equipment donations such as the CompactRIO from

National Instruments, foam from PowerFoam, and 3D mechanical design software from Solid-Works. In addition, the team also received many discounts from businesses and free use of the Harris Hill Race Track in San Marcos, TX. The UTSVT thanks the many sponsors for all their support in making the *Samsung Solorean* and the team's participation in the race possible: from monetary grants to equipment donations to discounts. The UTSVT would like give a special thanks to Samsung, The University of Texas Cockrell School of Engineering, the department of Electrical and Computer Engineering, and National Instruments.

Visit our website at <http://www.utsvt.com/sponsors> for the most up-to-date list of current sponsors.

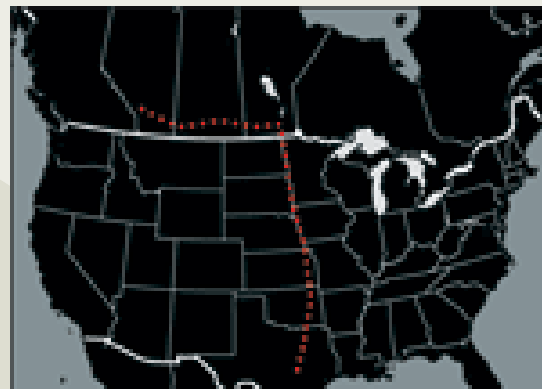
UTSVT Pumps Up for the North American Solar Challenge

The finances are all taken care of, and it's the beginning of the 2008 year. Appropriately, the UTSVT members are excitedly looking forward to the North American Solar Challenge (NASC). The extra funding ensures the team adequate resources for the race, increasing the team's hopes and enthusiasm.

The NASC is a national solar car competition that occurs every two years. Students from US and Canadian universities design, build, and race a solar powered race car. The 2008 race will begin in Dallas, Texas and travel 2,400 miles to Calgary, Alberta, Canada.

Every team hopes to win the competition to be crowned as the fastest solar-powered car. There are many regulations and requirements in order to compete in this exclusive competition, including a series of stringent safety tests and qualifiers to determine the car's roadworthiness.

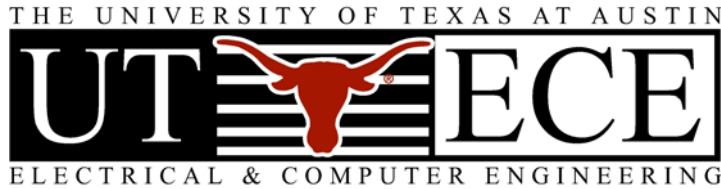
The NASC recently released the list of current registered teams hoping to race this summer. The 29 participating schools are listed along the left column. The University of Texas Solar Vehicles Team will strongly represent the University and its winning tradition.



PRIME SPONSOR
(\$ 50,000+)



PLATINUM SPONSORS
(\$ 10,000+)



BE A UTSVT SPONSOR!

- We've reached our goal for the 2008 North American Solar Challenge, but we could always use more support for this race and later competitions.
- Many benefits, such as your logo on the solar car/trailer, media material (brochures, newsletters, slideshows), and much more!!!
- Receive updates and news about the team's progress.
- TO RECEIVE A CORPORATE PACKET AND MORE INFORMATION PLEASE CONTACT tdeconin@hotmail.com



GOLD SPONSORS
(\$ 5,000+)



SILVER SPONSORS
(\$ 2,500+)

PowerFoam Insulation
Harris Hill Road
Schlumberger
School of Biological Sciences
The University of Texas At
Austin Department of
Physics

BRONZE SPONSORS
(\$ 1,000+)

TexStars
Rose Group Company
Austin Body Works
Hexcel
IBM
Lower Colorado River Authority
(LCRA)



LOCKHEED MARTIN



OTHER SPONSORS

The University of Texas At Austin
Chemical Engineering Department
Moonlight Motorcycles
Baer Engineering

Samsung

The UT Solar Vehicles Team thanks Samsung for all their support. Information provided by: www.samsung.com/us/aboutsamsung.

About Samsung

Samsung Group is one the largest multi-billion dollar corporations in the world leading several major global industries. The corporation is composed of numerous businesses united under the Samsung brand, including Samsung Electronics, the world's largest electronics company. Other businesses include Samsung Heavy Industries, one of the world's biggest shipbuilders, and Samsung Engineering & Construction.

Samsung Electronics Co., Ltd. is a global leader in semiconductor, telecommunication, digital media and digital convergence technologies with 2005 parent company sales of US \$ 56.7 billion and net income of US \$ 7.5 billion. The electronics division is a proven leader in the technological world, winning Samsung the number one global market share for thirteen of their products. With their commitment of being "World's Best," they plan to add more products to their list of world market leaders: semiconductors, TFT-LCDs, monitors and mobile phones.

The Samsung Group is continually upgrading its business structure, management perspective, and corporate culture to meet global standards. Samsung sees every challenge as an opportunity, and believes that they are perfectly positioned as one of the world's recognized leaders in the industry of digital technology. Samsung Electronics remains one of the world's top 10 in US patents for four consecutive years, with 13,000 researchers representing a US \$ 1.7 billion investment in Research and Development.

The Samsung brand value is a key engine to the business growth with their brand value increasing to US \$ 8.31 billion in 2002 from US \$ 6.37 billion in 2001. Samsung continues to be one of the fastest growing global brands.

Commitment to Service

Samsung believes that a corporation must not only seek profit, but create a small corner in society where people's lives are a little brighter and happier, and where each and every mind is touched by creativity and love. Samsung has a strong commitment and involvement with volunteer activities, environment work,

and other supporting philanthropic activities. Samsung has a large breadth of programs supporting social welfare, culture and arts, education, environmental preservation, and employee volunteer programs.

One of their social welfare programs include Samsung teaming up with MyDog to provide companionship and assistance through loving canines for the visually impaired. Also Samsung's Hope for Education program donates technology and software to schools annually. They also have university support programs for academic activities and facilities investment. Through Samsung's commitment to service and society, the University of Texas at Austin Solar Vehicles Team is able to receive such a generous sponsorship.

Samsung Austin

Samsung Austin Semiconductor is the only Samsung semiconductor manufacturing with plants outside South Korea.

The semiconductor fabrication plants are located in northeast Austin, Texas. The first plant opened in 1997 producing 200mm wafers for a variety of Dynamic Random Access Memory chips in the 100 nanometer range. The newest plant, opened in 2007, uses 300mm wafer technology and produces NAND flash memory in the 50nm range.

Samsung in Austin continues to be one of the most advanced semiconductor companies in the world.



Samsung Group Quick Facts

- ◆ Founded: 1938
- ◆ Founder: Lee Byung-chul
- ◆ Headquarters: Seoul, South Korea
- ◆ Employees: 254,000
- ◆ Traded on the Korea Stock Exchange (Koscom)
- ◆ Slogan: "Imagine the Possibilities"



Top: Samsung Group Headquarters Building in Seoul, South Korea



UTSVT Thanks Samsung

Community Outreach

The UT Solar Vehicles Team is committed to promoting solar power awareness and strives to aid the younger generation to develop an interest in engineering.

In the Community

Every year, the UTSVT receives many invitations from companies, schools, and city and campus-wide events. We strive to accommodate as many events as we can fit into our students' schedule, usually once a month. This past fall semester, our team displayed our old car at Parents Weekend and we had a presentation and activity for the students at Allan Elementary. Events have been scheduled throughout the spring 2008 semester.

Event Goals

UTSVT members are passionate about renewable energy, especially solar power. During each event, the UTSVT team strives to provide a unique educational experience by providing lectures and facilitating experiments. We enlighten the community about solar power, its differences, and advantages from other types of energy and its uses today. Also, we explain the race and progress of our solar vehicle, *Samsung Solorean*. We use presentations, brochures, information sheets, poster boards, and actual hands-on labs to garner interest and exhibit our material. During most events, we use our previous vehicle *Solar Steer* to showcase our work.

Fall Events

This past fall, the UTSVT had three successful outreach events. At the beginning of the semester, the first event catered towards the freshman students through the First-year Interest Groups (FIGs). The outreach team presented to fellow students about what the team does and encouraged them to come check the UTSVT out. The next event was Parents' Day held on campus. There, the team displayed the previous car, *Solar Steer*, and information on the team, while answering various questions that people had. The last event of the semester was a fun-filled afternoon at Allan Elementary. Kindergarten to third grade students learned about solar energy through a presentation and hands-on activity.



If you are interested in having the UTSVT team come out to your event, or would like more information about our community outreach please contact

Professor Hallock

hallock@ece.utexas.edu



*Top: Parents Weekend at the University of Texas at Austin campus
October 20, 2007*



*Top: Allan Elementary
November 2, 2007*

Edison Lecture Series

Three students came back from winter break early to participate in the Edison Lecture Series, an outreach event sponsored by The University of Texas Electrical and Computer Engineering department. This year's topic was TV, Image Processing, and Surveillance. In this context, solar power is useful in remote areas where it is impossible to obtain a connection to the power grid.

The Edison Lecture Series 2009's topic is "Changing the World One Engineer at a Time." For more information, please visit www.edisonlectureseries.org

Right: A demonstration of a surveillance blimp



Below: Professor Hallock talks about solar power



Bridge Point Elementary

For the third time, UTSVT members made accommodations to their class schedules to present at Bridge Point Elementary's annual Science Day. The presentations consisted of a lecture about how electricity works and the benefits of solar power. Afterwards, students were invited to connect toy cars to solar panels to make them run and to make voltage and current measurements using multimeters.

Although the sun hid behind clouds and students had to use halogen lamps to simulate sunlight, students walked out exclaiming, "That was awesome!"



Above: Cyrus makes a student think

Right: Team members Jason B., Fred, and Jason P. help students connect the cars to their solar panels.



Upcoming Events



Introduce a Girl to Engineering Day

An event celebrated annually and internationally during Engineers' Week (E-Week), Introduce a Girl to Engineering Day ("Girl Day") is designed to inspire young women to consider studying engineering and consequently take on engineering as a profession. During Girl Day, students from 1st through 8th grade will receive the opportunity to learn about engineering through a diverse range of activities and have fun.

For more information about the event, please visit <http://www.engr.utexas.edu/wep/precollege/girladay.cfm>

Below: Kids "rayce" solar cars in front of ENS.



Upcoming Events

- ◆ Introduce a Girl to Engineering Day
February 23, 2-5 PM
- ◆ Explore UT
March 1, 11 AM-4:40 PM

Explore UT

Explore UT is The University of Texas at Austin's annual open house in which academic units throughout the University open their doors and showcase the latest developments and innovations to the general public. Throughout the day, explorers can visit various realms and participate in a diverse range of activities. At the end of the day, visitors are encouraged to march with the Longhorn Band towards the Tower for a class photo.

UTSVT will be located in the RLM plaza. For more information about the event, please visit <http://www.utexas.edu/events/exploreut/>



Team member Sunny talks about solar power from the comfort of Solar Steer.



A crowd gathers around Solar Steer to learn more about raycing.

Whether you would like the car on display or would like the team to lead experiments and demonstrations that integrate with your curriculum, we would be happy to help you show your audience a world of possibilities!



Above: Allan Elementary students

November 2, 2007

Left: UTSVT shows Solar Steer on Parents Weekend October 20, 2007



UTSVT Member Reflections

By Andrew Miu

This past semester, I was fortunate enough to be on the Outreach Team. It was a great opportunity to share my interests with others in the community. I especially enjoyed going to Allan Elementary because the children were very excited and eager to learn about solar energy. Being able to listen and answer their many questions was encouraging because it stirred their interest, and my own, even more. The chance to expose the children to a potential passion was a rewarding role in the path toward their futures.



By Hyun Kum

It was a pretty unique experience, taking on such a big project of building a solar car from scratch. I've never been part of such a huge group, and was amazed how the entire team worked together. One thing I really enjoyed was that I wasn't restricted to the confines of textbooks to solve a problem I was facing designing the touch screen control interface for the solar car. It was open ended and a truly creative environment!

FAQs

What is the UTSVT?

The University of Texas Solar Vehicles Team is a student organization sponsored by the Cockrell School of Engineering at the University of Texas at Austin. The team consists of a diverse range of students from the College of Engineering and other majors. Under the guidance of Professor Gary Hallock, students raise funds, design, build, test, and race vehicles powered only by the sun.

What is the purpose of the UTSVT?

The UT Solar Vehicles Team is dedicated to raising awareness and working as a team to design an effective means of solar-electric transportation, while representing the University of Texas in competitions.

Who is the team comprised of?

The team is a student-run, mostly undergraduate, volunteer organization. Students are responsible for every part of the process of building the car, from body design to power maintenance to actually assembling the car.

Sounds great, how do I sign-up?

Attend a UTSVT meeting or come out to the Pickle Research Center. Contact Professor Hallock for more details.

The University of Texas Solar Vehicles Team



624 LG lithium-ion battery cells

\$ 153,000 dollars and in-kind donations raised from fundraising

12 Project teams

46 UTSVT members

400 A300 solar cells planned for our new car

29 sponsors

4 campus-wide events this semester

3 presentations and activities to inform and teach middle school and high school students about the team and solar energy

1 North American Solar Challenge

1 team, with one mission

4,000+ hours of labor worked first semester

By Jason Pham

The University of Texas at Austin Solar Vehicles Team has been a rewarding experience in increasing my knowledge mechanically and electrically, while allowing me to contribute to the newsletter, outreach program, and general work on the solar car. Currently I am a fourth year electrical engineering senior planning to graduate in May of 2008. I joined the team the fall semester of 2007 excitedly anticipating the many challenges that lay ahead. I enjoy working on teams due to the opportunity to gain experience from fellow team members and a chance to share in the accomplishments. Prior to joining the solar vehicle team, I had no previous knowledge about solar cars, the mechanical processes, or how in depth the project would be. Through the work I contributed and listening to Professor Hallock and team members, I gained a breadth of knowledge which aids to develop me as an engineer and diversify my overall learning and college experience.





SOLAR VEHICLES TEAM

Team Members

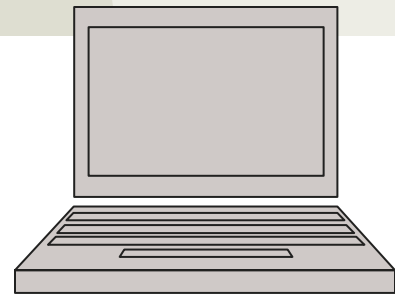
The University of Texas Solar Vehicles Team consists of students from many different areas of engineering.

Djordje Adnadjevic, ECE
 Dinesh Antony, ECE
 Cyrus Bavarian, ECE
 Erik Bilansky, ME
 Jason Bowman, ME
 Johnathan Bush, ECE
 Naveen Challapalli, ME
 Jason Chang, ECE
 Thomas Deconinck, ASE
 Abe Dillon, ECE
 Brian Ditta, ASE
 Fred Engelkemeir, ECE
 Hunter Estes, ChE/EE
 Aaron Forsander, ECE
 Kris Gleason, ECE
 Benton Greene, ASE
 Geoff Grimes, ME

Trevor Hird, ECE
 Nok Ho, ECE
 Duke Hwang, ECE
 John Kerzaya, LA
 Asa Kirby, ECE
 Hyun Kum, ECE
 Sope Lanlehin, ME
 Charles Lee, ECE
 Andrew Miu, ECE
 Yasmin Najera, ECE
 Brad Nathan, ECE
 Minh Nguyen, ECE
 Shyam Palaiyanur, ECE
 Matt Perricone, ECE
 Jason Pham, ECE
 Jerome Powell, ECE
 Dev Saha, Biochem

Geoff Scheid, ME
 Amir Shiva, ECE
 Chris Such, ECE
 Kyle Sung, ECE
 Benoit van Swieten, ECE
 Justin Tang, ECE
 Erica Thorson, ECE
 Chen-Yi Tsai, ECE
 Dave Tuttle, ME
 Bharath Vasudevan, ECE
 Steven Yang, ECE
 Chak Man Yeung, ECE
 Ben Zamanian, ChE
 Li Zhang, ECE
 Frank Zhu, ECE

*Check us
out on the
web*



www.utsvt.com

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