

RAYCE COURSE

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PREPARATIONS FOR NASC UNDERWAY

Although it seems like the school year has hardly begun, members of the University of Texas Solar Vehicles Team are well on their way to building this year's entry to the North American Solar Challenge, the *Solar Steer*.

Since the first meeting of the semester in early August, the group has split into mechanical and electrical teams. The electrical team has big decisions to make right away, as the motor, controller, and solar cells must be purchased very soon. The mechanical team is staying focused on design work and computer modeling to ensure that the electrical team has the information and specifications



Members of the 2004-2005 University of Texas Solar Vehicles Team.

needed. All are working hard to make NASC-imposed progress deadlines as well as pushing to meet financial goals.

The team is very optimistic about the year ahead of them and the rayce next July, even more so because of the over-

whelming support received from the College of Engineering as well as corporate sponsors. Well-equipped to make its strongest appearance ever next summer, the team is working hard to set a new standard of solar raycing at UT.

MEETING TIMES

- **General:**
Wednesdays 5 PM
RLM 7.112
- **Mechanical:**
Wednesdays 11 AM
ENS 416
- **Electrical:**
Fridays 4:30 PM
ENS 416
- **Integration:**
Saturdays 10 AM
ENS 416

TEAM VISITS RENEWABLE ENERGY ROUNDUP

Once a year, in Fredricksburg Texas, renewable energy supporters from around the state gather to share their ideas and accomplishments. This year, the UT Solar Vehicles Team attended the Renewable Energy Roundup and Green Living Fair, and were amazed at both the wealth of information to be found there and the positive feedback the team received.

This is the fifth year Fredricks-

burg has hosted the fair, which was held September 24-26 and was sponsored by the Texas State Energy Conservation office.

The team was joined by innovators in solar, wind, energy conservation, and green and sustainable building, among others. The team would



Booths and visitors at the fair.

like to thank Kathryn Houser for her role in the fair.

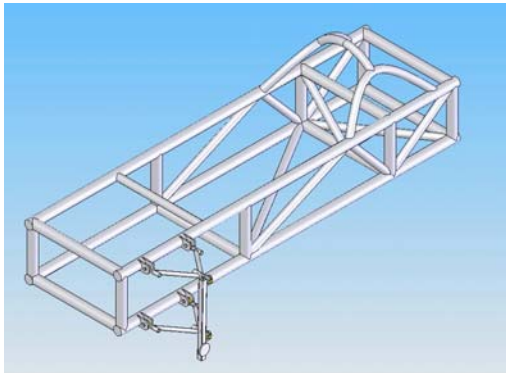
MECHANICAL UPDATES

The mechanical team has been working hard getting design work done and performing computer simulation on Solidworks. Once tests are run and parts are ordered, building will begin in earnest. Specific designs

have been drawn for several systems.

Chassis:

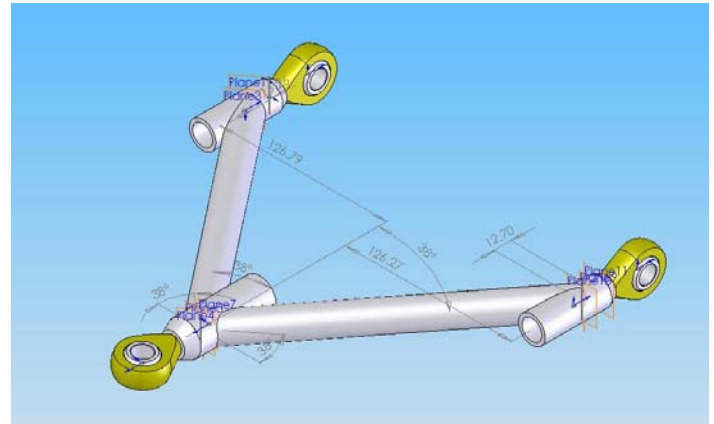
The chassis (minus the roll-cage) has been completed, and is in the shop. The picture shown is the computer modeled chassis; the chassis has been tested on Solidworks.



Chassis with suspension attached.

Body Design:

Some potential drawings for the body are done, and can be seen below



The computer model of the suspension, which has not yet been built.

Suspension:

Computer simulation and testing of an A-frame-design suspension is underway, along with part selection and chassis integration.

with the probable solar cell arrangement – the team is looking at a rectangular, flat body, with four wheels, the rear two of which would be close together.

ELECTRICAL UPDATES

The focus is on the electrical side of the design process right now, as many body decisions cannot be made until specifications are known. The team has made significant progress in several areas.

Motor:

The team is considering using a motor from New Generation Motors designed specifically for small, direct drive electric vehicles. The motor is ultra efficient and lightweight, and has been used

successfully in the past by other solar car teams.

Controller:

Like the motor, the controller is also most likely coming from New Generation Motors. The controller is essential for gathering information while the solar

car is operating in order to maximize operational efficiency.

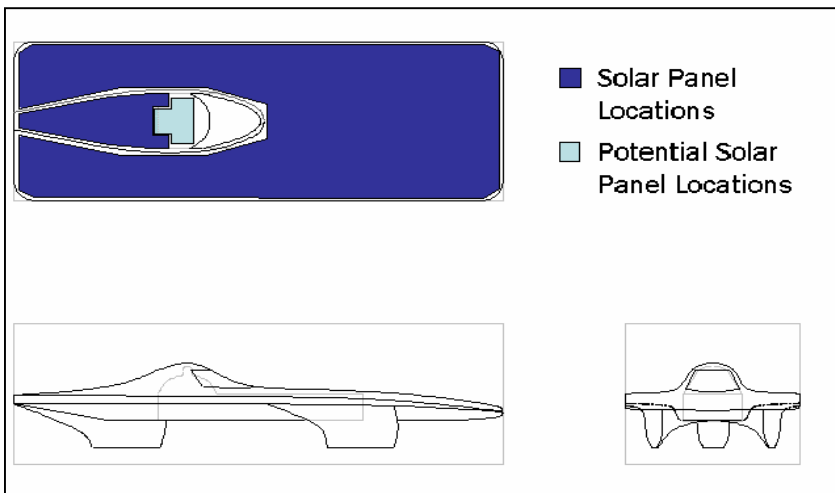
Array:

Maximum capacity is important, but weight, complication, size, and protection standards must be taken into consideration. Lamination of the solar cells may be done by an outside company, although there is a possibility that the team may laminate the cells themselves using the company's facilities. The cells themselves will be purchased from Sunpower, a manufacturer of solar cells.

As with all design projects, integration of all systems is essential, and crucial to the overall success of the project.

Batteries:

The team has decided to go with Lithium Ion batteries, and further decisions are still being made regarding the kind of battery to be used.



FUNDRAISING

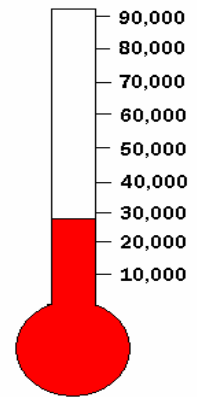
Everyone on the team has been hard at work to reach the semester goal of \$50,000 and eventually the total goal of \$90,050. The team has been extremely fortunate—much thanks to all of the sponsors who have contributed so far, listed below.

In addition, the team would like to thank Dean Streetman, the College of Engineering, and the engineering department chairmen, especially Dr. Ambler, for their support.

Current pressing matters

include placing orders for the motor, controller, and solar cells. All of these parts must be ordered very soon in order to ensure delivery by January. Once again, thanks to all of the sponsors listed below for contributing.

Fundraising Goals



The team would like to thank our current sponsors:



AEROSPACE ENGINEERING
& ENGINEERING MECHANICS



FREQUENTLY ASKED QUESTIONS

What is the purpose of the University of Texas Solar Vehicles team?

The UT Solar Vehicles Team is dedicated to raising awareness of and help develop an effective means of solar-electric transportation, while representing the University of Texas in international competitions.

Who is the team comprised of?

The team is a student-run, volunteer organization. Students are responsible for every part of the process of building the car, from body design to power maintenance to putting it all together.

What experience does the team have?

The organization has been a presence on campus, under various names, since 1988. This will be the fourth car built at the University of Texas, preceded by *Native Sun I*, *Native Sun II*, and the *Solstice*.

What is the team preparing for?

The team's first race, the 2005 Formula Sun Grand Prix, occurs summer of next year, and is the qualifier for the team's ultimate goal, the 2005 North American Solar Challenge, a race that begins here in Austin, Texas, and will end in Calgary in Alberta, Canada.

What rules must the team follow in designing the car?

All power for the car must come directly from the sun, which means the car will get less than two horsepower, and thus must be extremely efficient. The car must be legal for highway driving, which means it must pass a state inspection, and must travel highway speeds.

We are on the web!

<http://utsvt.ece.utexas.edu>

**UT AUSTIN SOLAR
VEHICLES TEAM**

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