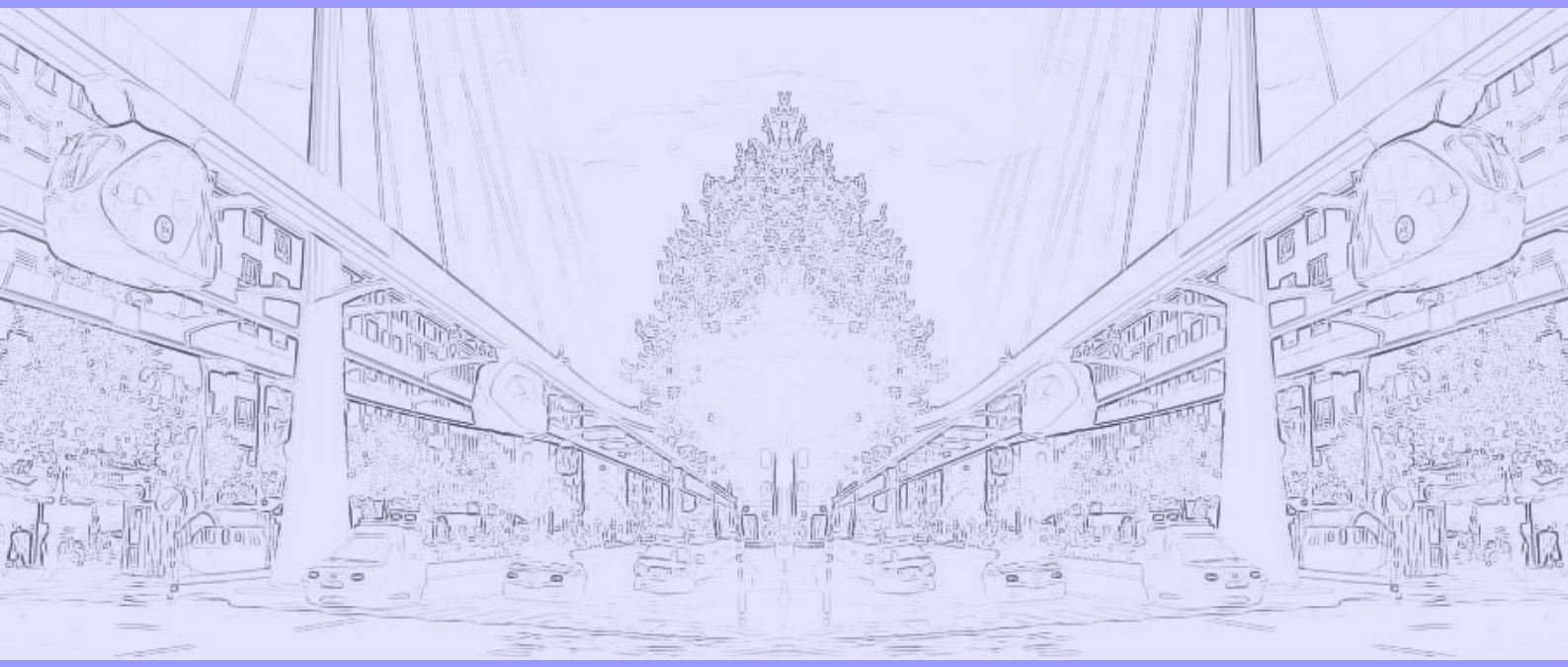
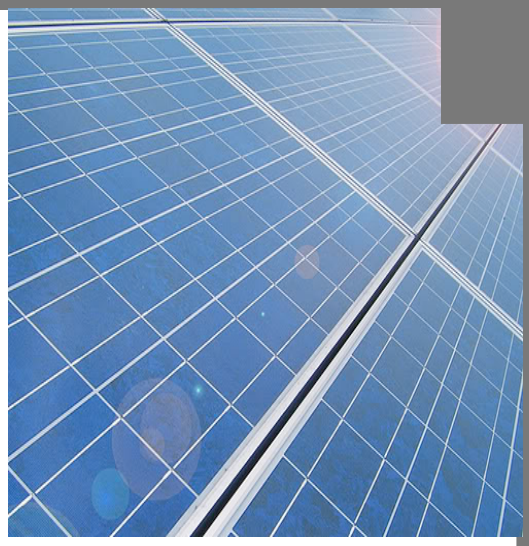


SOLAR SKYWAYS CHALLENGE 2012-2013

The International Institute of Sustainable Transportation

For more information visit:
www.inist.org/challenge

OVERVIEW



The 2012-2013 Solar Skyways Challenge is the first of its kind to engage and empower local students from regional universities in raising the bar of sustainable transportation. The mission of the International Institute of Sustainable Transportation (INIST) is to assist cities and their constituents in the transition from life based on fossil fuels to a future based on renewable energy. Students from all disciplines will be challenged to contribute to this mission by working together in multidisciplinary teams and influence the development of solar-powered Automated Transit Networks (ATN). The goal is to help cities move towards a more sustainable future while empowering students to take an active part in designing the infrastructure of the cities in which they live.

Professors are encouraged to incorporate the Solar Skyways Challenge in the university curriculum, thereby allowing students to fulfill the educational goals while gaining green industry experience.

SOLAR SKYWAYS CHALLENGE GOALS:

1. Raise awareness of the necessity to support innovative transportation solutions beyond cars, and the possibilities that exist to do such.

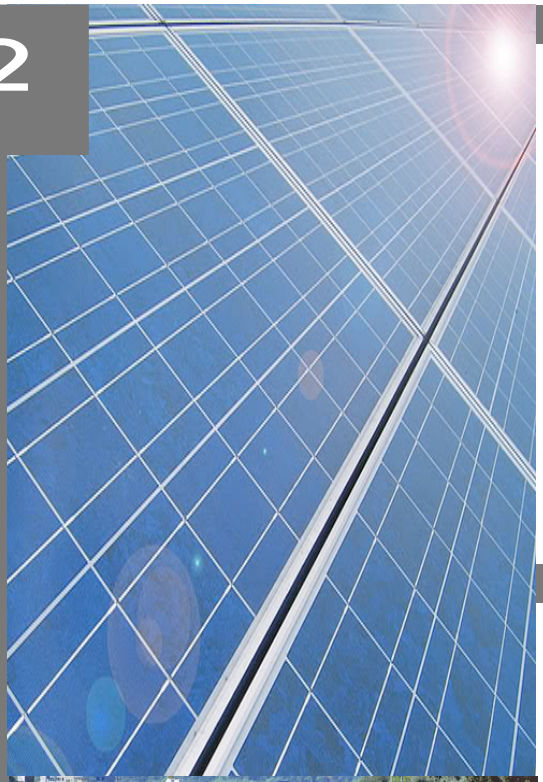
2. Increase the involvement of the academic community in addressing current transportation-linked infrastructure issues and needs.

3. Encourage regional undergraduate and graduate students to contribute to and influence the process of creating more sustainable transportation solutions in the Bay Area.

4. Develop an awareness of and an interest in solar-powered ATNs as a vital and important area for academic research and future careers.

AWARD

The Solar Skyways Challenge has no entry fee and the best performing teams will be invited to present their projects at the award ceremony of the annual international Podcar conference, Podcar City 7, in the fall of 2013. The two best performing teams will also be awarded a $5000 grant for project continuation.



ABOUT INIST

INIST is a 501 (C) (3) non-profit organization based in Santa Cruz, California. INIST initiates, finances, and defines urban change projects to assist the transition from fossil fuels to renewable energy resources. Its staff and partners have comprehensive skills and experience in the core areas of project management, general design, energy analysis, innovative transportation solutions, and public outreach and interaction. In addition, INIST collaborates on its projects with top key professional organizations, architects, developers, transit specialists, solar consultants and virtual model providers.

THE CHALLENGE

BACKGROUND

The necessity to transition from a life based on fossil fuels to a sustainable future based on renewable energy challenges not only our way of living, but also the future of transportation. Personal transportation has grown remarkably during the last century and while the car has become a symbol of ultimate transportation freedom, it has also been recognized to be a major contributor to the release of greenhouse gas emissions. Alternatives to fossil fuels are becoming increasingly available, however, merely a transition towards more sustainable cars does not solve other severe automotive-related problems concerning traffic congestion and road safety. With these concepts in mind, the INIST Solar Skyways Challenge calls for students to help the Bay Area take the next step in the transportation evolution which will reduce the consumption of fossil fuels, lower greenhouse gas emissions, ease traffic congestion, and improve the safety and quality of urban life.

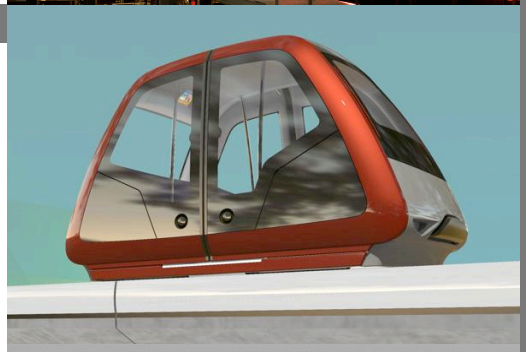
INIST challenges regional university students to help in evolving personal transportation. Students are expected to work as teams with the aim of building and improving solar-powered, personalized, ATN's. Students of all disciplines are encouraged to participate. Teams will receive support and will have access to extensive experience and expertise in solar technology and sustainable transportation from INIST. INIST will also work with Bay Area cities in conjunction with students and professors to lay the groundwork toward establishing entitlements for the implementation of these solar-powered ATN's.

THEME 2012-2013

The Bay Area is expanding. Large corporations such as Google are expecting to increase their workforce by the thousands in Mountain View alone, creating job opportunities on one hand but on the other adding to the already existing severity of traffic congestion and pollution. How can ATNs help cities within the Bay Area expand without exacerbating the existing problems with congestion and greenhouse gas emissions?

ELIGIBILITY

The Solar Skyways Challenge is open to undergraduate and/or graduate students from regional universities in the Bay Area of California. Students from all disciplines can participate. Participants will create and work in teams with a minimum of three members. Multidisciplinary teams and cross-departmental collaboration is required. Only one entry is permitted per team.



Students are strongly encouraged to work with faculty advisors and integrate the Solar Skyways Challenge into a capstone project or similar culminating experience. By incorporating the Solar Skyways Challenge into the University curriculum, educational goals will be fulfilled while simultaneously empowering students to steer their communities towards a more sustainable future.

TEAM COMPONENTS

OVERVIEW

The development of real world transportation solutions requires persons of many disciplines working in unison. Teams must be multidisciplinary, and success is not measured only by a working design. Team performance will also be judged on visual appeal, public input, energy efficiency, city input, and any other components that advance the scope of realism in the project. While teams will have a project focus and may include more members of one discipline than another, it is important to remember that for a transportation system to be implemented in a city it must be well received by the public and governing city agencies. To stimulate interdisciplinary outreach and interaction, some examples of design components from different disciplines are given below. The examples are given to help expand the scope of a project and are by no means exhaustive of the possibilities. Without drawing any restrictive boundaries, projects have been divided into four components to aid in identifying potential team members. The components are: technical, civic, societal and artistic.

TECHNICAL COMPONENT

The technical component encompasses work on the physical systems of and related to podcars. Examples:

- Making a scaled working prototype while being mindful of energy efficiency.
- Designing and carrying out a study to test the efficiency of a podcar network.
- Redesigning a component of the podcar system to increase efficiency.

Limited Contribution: Covers contributions to the technical component of a project which are of limited scope. Team members making such a contribution might focus on a making a specific physical component more efficient or studying a limited or simple network.

Advanced Contribution: Covers contributions to the technical component of a project which are broad or citywide in scope. Team members making such a contribution might focus on a large scale podcar network, considering multiple layouts which contribute to significant efficiency gains. Participants must seek out information to make the design or study more realistic. To understand the specific design goals and limitations, the creation of a dialog with other team members researching public opinion and network concerns will be essential.

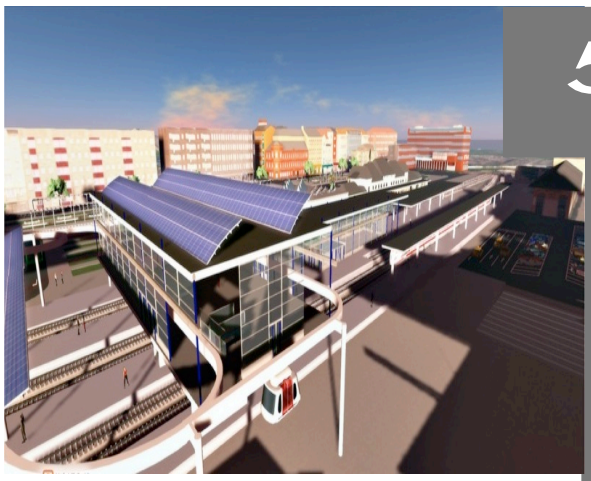
CIVIC COMPONENT

The civic component encompasses work concerning community or citywide networks and their implications. Examples:

- Design a podcar network model and analyze its implications.
- Work with people from your city planning department or another public office to research the potential benefits and challenges of a podcar network in your city.
- Research the process for public transportation development and work with your city's planning department to initiate the permitting process for a trial podcar system.

Limited Contribution: Covers contributions to the civic component of a project which are of limited scope. Team members making such a contribution might study the benefits and ramifications of placing a podcar track along a specific corridor. Alternatively, the scope of their study might be limited by focusing on some particular benefit of podcar networks, such as: traffic reduction, accident reduction, increased usable ground space, etc.

Advanced Contribution: Covers contributions to the civic component of a project that consider citywide networks or interact with city and school officials in a highly dynamic way. Team members making such a contribution might create a feedback loop to stimulate conversation about the practicality of podcars between the public and the city. Or perhaps the team will focus on network efficiencies of different citywide networks. Participants must seek out information to make the design or study more realistic. To understand the specific design goals and limitations, the creation of a dialog with other team members researching public opinion and physical operations will be essential.



SOCIETAL COMPONENT

The societal component encompasses work on events, polls, and studies which are interactive with the public and serve to raise awareness while collecting public opinion information. Examples:

- Create and carry out a poll to gauge public opinion on podcars in your area.
- Work with a city or school office to raise awareness and support for podcars.
- Organize an event where students and community can learn about and discuss podcars. Gather opinions and findings during the event.

Limited Contribution: Covers contributions to the social component of a project which are of limited scope. Team members making such a contribution might create a survey and use it to poll public opinion about various aspects of podcars in their town. Such a study should be designed to allow clear conclusions to be drawn and compiled into a report on public sentiment towards podcars in the study area

Advanced Contribution: Covers contributions to the social component of a project which consider a citywide scope and varied sources of input. Team members making such a contribution might conduct a series of polls, some with, and some without prior information sessions. A study could be done to determine what information on the benefits of podcars is most effective in influencing public opinion. A project which focuses on interaction and cooperation with city and school officials could also be covered here. Participants must seek out information to make the design more realistic. To understand the specific design goals and limitations, the creation of a dialog with other team members researching physical and network operations will be essential.

ARTISTIC COMPONENT

The artistic component encompasses visual and multimedia aspects of design and presentation that create a tangible and emotional connection to podcars. Examples:

- Portray a podcar or podcar network with an emphasis on visual appeal and realism.
- Design a podcar layout which maximizes passenger comfort or has multiple functionalities, such as bike racks, or seats that can be converted to better store cargo.
- Create a visual or multimedia display which in a novel way shows some of the benefits of podcars; less noise, more open space, no traffic, etc.

Limited Contribution: Covers contributions to the artistic component of a project which are of limited scope. Team members making such a contribution might create a model of an area of their town, demonstrating through visual appeal some of the benefits of podcars. Alternatively, such a team member may design and implement a painting scheme for the podcars and track.

Advanced Contribution: Covers contributions to the artistic component of a project which consider a broad or citywide scope. Such a contribution might include multimedia design elements that go beyond the visual in portraying the benefits of podcars. Contributions in this section should be engaging to the public and may include some interactive elements. Participants must seek out information to make the design more realistic. To understand the specific design goals and limitations, the creation of a dialog with other team members researching physical and network operations will be essential.

CONTRIBUTION LEVELS

Limited Contribution:

- 1-2 team members focused on this contribution.
- Narrowed focus, the contribution considers a specific component, concept, or study relating to podcars.
- Limited multidisciplinary collaboration due to narrowed focus.
- Focus is on the specific components or elements addressed, but realism and interoperability must still be achieved.

Advanced Contribution:

- Minimum of 3 team members focused on this contribution.
- Broad focus, the contribution addresses multiple components or citywide systems.
- Multidisciplinary collaboration required throughout the planning and implementation phases.
- Realism maximized through research and interdisciplinary collaboration and exchange.

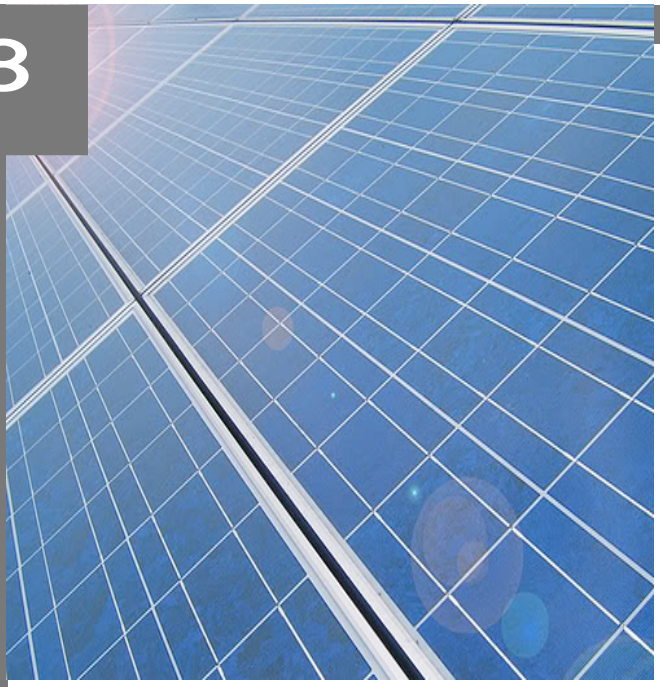
Example of team

SUMMARIZATION MATRIX

	Entry Contribution	Advanced Contribution
Technical Component	Minor efficiency improvements	Significant efficiency improvements
Civil Component	Small scale network, or single corridor study	Large scale or city wide network study
Societal Component	Study covers a small area of town or several specific points	Study is city wide in scope and involves input from city officials
Artistic Component	Display shows a few of the benefits of podcars	Display shows several benefits in an interactive or novel format

RESOURCES

INIST
Encitra is a sponsor offering their modeling platform
Crash course



SUBMISSION REQUIREMENTS

Project documentation:

- Executive summary
- Marketing proposal
- Proposal of continuation
- Correspondence with government, faculty, administration etc.
- Appendix: engineering specification
- Appendix: Budget / financial / fund raising information
- Video documentation

SUBMISSION EVALUATION CRITERIA

Team results will be evaluated both from the comprehensive systems perspective as well as from the component level. General criteria applicable to all teams are:

- Level of multidisciplinary collaboration
- Fulfillment of the requirement to, at least a minor extent address each of the four
- components
- Level of creativity and innovation
- Level of realism

JURY

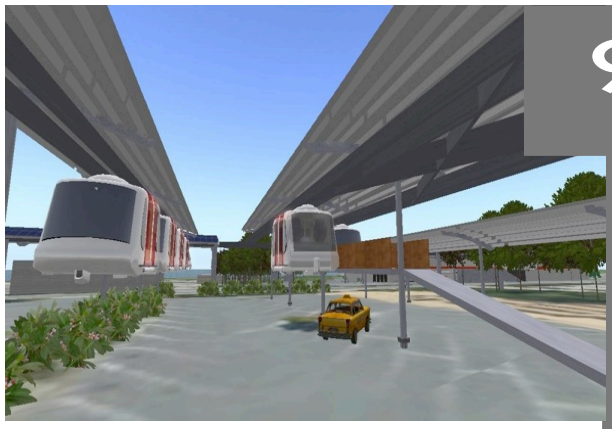
Submissions will be evaluated by a jury of experts from multiple disciplines. When feasible and equitable, jury members will visit student projects on site. The jury will include members of the executive and advisory boards of INIST, such as:

Ron Swenson

Co-founder and Executive Director of INIST. Also the President of Swenson Solar and cofounder of Encitra (**En**ergy, **Ci**ty, **Tra**nsport). Mr. Swenson has an extensive background in design, mechanical engineering, and education focused on the development of transportation systems powered by renewable energy. He was deeply immersed in solar car racing in the 1990's. He has conducted myriad solar education programs locally, nationally, and internationally. He is also a former Assistant Professor with the School of Engineering, San Jose State University.

Christer Lindstrom

Mr. Lindstrom is the founder of the Institute of Sustainable Transportation (IST) and co-founder of INIST. Furthermore, he is a board member of Carasoft AB, and the co-founder of Encitra. Mr. Lindstrom is leading a global effort to research and develop an urban podcar transportation system. With the support of agencies and government organizations in Sweden, he has created and manages the Swedish-U.S. General Transportation Fund, and has established an international industrial consortium for sustainable transportation.



Rod Diridon

Mr. Diridon is Chair emeritus of the California High Speed Rail Authority & Executive Director of the Mineta Transportation Institute at San Jose State University. He served as the chair of APTA in Washington DC and as the North American vice chair of the International Transit Association (UITP) in Brussels. He is the founder of the Transportation Research Board's study panel, "Combating Global Warming through Sustainable Transportation Policy". He advised the Federal Transit Administration and chaired the Transit Oversight and Project Selection Committee for the National Research Council's Transportation Research Board. Mr. Diridon received a BS in accounting and an MSBA in statistics from San Jose State University and has published numerous articles related to high-speed rail and sustainability.

Debbie Cook

Ms. Cook serves on the Board of Directors of Post Carbon Institute and is active in her community educating the public, elected officials, and policy makers about the energy challenges facing the world. She served eight years on the Huntington Beach, California City Council, serving as Mayor in 2002 and 2008. She held leadership positions on many regional boards and commissions including the Southern California Association of Governments, League of California Cities, and California Desalination Task Force. Ms. Cook holds a Bachelor of Science degree in Earth Science from Cal State Long Beach, a Jurisdoctorate from Western State College of Law, and a license to practice law in California.

TIMELINE

Registration due date November 30, 2012.

Submission of Final Project Documentation due date July 31, 2013.

CONTACT US

For additional information, visit http://www.inist.org/challenge. For questions email skywayschallenge@inist.org. The Solar Skyways Challenge can also be found on Facebook.

REGISTRATION FORM

Project title and acronym:

Team Name:

School/University Affiliation:

Faculty Advisor:

eMail:

Address:

Phone:

Primary Project Contact:

eMail:

Address:

Phone:

Team Members (names & departments):

Please note that registered teams will occasionally receive additional information and materials.