The SunStang Beacon

May 31, 2013

SunStang Solar Car Project Newsletter

Volume 1, Issue 1

Special points of interest:

- Car frame
- Batteries and solar cells
- Adopt A Cell
- World of Motorcycles Expo
- Speed and Custom Car Show

Inside this issue:

Rise and Shine!

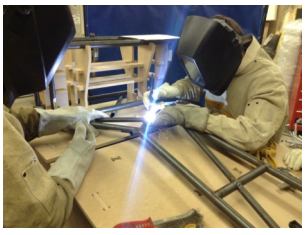
Welcome to the first issue of the SunStang Beacon. You are receiving this newsletter as a generous supporter of the SunStang Solar Car Project, someone without whom we would not be able to accomplish all we set out to do. With these newsletters, we hope to keep you informed about what the team has been achieving. This will be a sort of official record of all of our endeavours in one convenient location.

Inside this issue, you will read about what the team has been doing to bring SunStang's name back to life. We've made appearances at several public events, have made significant headway in the design and build of both mechanical and electrical components of the car, and have made many lasting relationships, one of which is with you.

Thank you for supporting SunStang. We hope you enjoy the peek inside our workshop as you flip the pages and see that your efforts and generosity are contributing to a brighter future! A new dawn has risen, and SunStang is ready to drive until sunset.

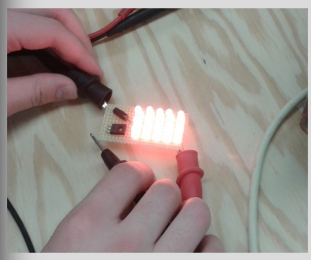
Mechanical Design

SunStang's mechanical team is responsible for the physical components of the car that you see. These parts make up the basic build of most cars. These are the students who have modelled and designed the frame, suspension and body of the vehicle. But they also do the building themselves! They have almost completed the welding of the frame, pictured to the left and on page 2. This involved not only the welding process, but also modelling and building the supports for the chrome-moly steel tubes to sit on as the team welded them together. Pictured to the right is our steering wheel which was 3D printed in ABS plastic, to our design, by University Machine Services. We added our own purple touch to it as well! Currently, the mechanical team is working on fabricating the suspension for the car. These parts will be made primarily of aluminum and carbon fibre tubing. Work on the body will be the focus of the summer.



Daniel Woodside and Patrick McJannett weld the steel frame together

The completed steering wheel.



One of the turning signal lights for the car.

Electrical Design

The electrical team is responsible for most of what you don't see: the quiet power of our beast. A solar powered car depends entirely on its electrical systems. Thus, these students manage some of its most important components, from the harnessing of solar energy through the solar cells, to the application of this electricity to power the motor and to be used throughout the car. As of yet, they have completed the design and fabrication of the turn and brake lights. In turn, the steering wheel has been wired according to the designed circuitry: one button for each turn signal, one for hazards, and one for cruise control. The signal lights are small panels of about 15 LEDs each, making them less than two square inches in size. The batteries have also been prepared for the car. We are using polymer lithium ion batteries, provided by BatterySpace.com, that will store the electricity produced by the solar cells. This electricity will be used to power our in-hub brushless DC motor and other features of the car. We will be adorning the car with a product by Jinko Solar, the 125 Mono Cell, which boasts an efficiency of over 18%. All that remains is the implementation of the motor controller, any other circuitry in the frame, and finally, the placement of the actual solar cells themselves.

"A solar powered car depends entirely on its electrical systems."

Business Team

Our business team is responsible for managing our funds, sponsorship, and promotional events. A project of this magnitude requires a great deal of financial attention. We have received a lot of support from some very generous sponsors. You can read about them below. To raise our own money for the project, we have also developed the Adopt A Cell program. This program allows any person to donate $30 to SunStang and become a part of our journey to worldwide races. In return, they receive a solar cell that was used by the '97 team, an promising symbol of our future success since the '97 car is SunStang's best achievement yet (placing 12th in the World Solar Challenge). Visit our website to adopt a cell of your own!

Along with finances, the business team deals with mediums for communication, such as our website (provided by Bark Communications), blogs, and this very newsletter. WOMEX and the Speed & Custom Car show were also products of the business team's direction.

The chrome-moly steel frame for the car.

Sponsorship

We are fortunate to have formed relationships with very generous sponsors. Here is a list of our current sponsors, to whom we are undoubtedly grateful, organized by the type of sponsorship they are providing us.

Mechanical Components:

- Henkel/Loctite
- General Plastics
- VR3 Engineering – Cartesian Tube Profiling
- Goodwinds LLC
- Kaiser Aluminum
- HNH Machine Ltd.

Promotional Materials/ Other:

- Stevens Exhibit Design Group
- Bark Communications
- Mercury Blueprinting
- Delaware Speedway

Electrical Components:

- Jinko Solar
- BatterySpace.com
- Elmo Motion Control

On Campus

SunStang believes that it is important to contribute to the community that supports us so well. We enjoy sharing our work and experiences with everyone who talks to us. We take pride in seeing the excitement in a person's face when they see our cars and learn about solar technology. Sharing knowledge and intrigue is how the world grows.

Western University holds two annual open houses to welcome prospective students to the campus and enlighten them on all of the programs offered, resources available, opportunities and everything else a nervous high school student might want to know. The day's events include tours, information sessions, and even mock lectures. The Fall Preview Day and March Break Open House attract thousands of prospective students and their families each year. Western Engineering showcases its diverse programs, its various labs and facilities, and its student clubs. The student clubs set up booths in the Claudette Mackay Lassonde Pavilion, informing visitors on what they do, displaying their best achievements and current work, and giving people the student perspective on engineering. SunStang opened our shop to show visitors the benefits of solar energy and what bright engineering minds can accomplish. We think we've recruited quite a few future Western engineers.

Michael Letwin, Justin Postlewaite and Daniel Woodside in front of our display at the World of Motorcycles Expo.

In the Community

To promote SunStang's name this year, we set up booths at two events held at the Western Fair District Agriplex. In February, the annual World of Motorcycles Expo (WOMEX) was our first taste of public entertainment. With us, we took the '97 solar car, some brochures and banners printed by Mercury Blueprinting, a fantastic display provided by Stevens Exhibit Group, and a little uncertainty of what to expect. Despite our extra wheel amongst the hefty two-wheelers, we were welcomed warmly by everyone who passed by. Many children and adults alike were intrigued by the futuristic shape of the 97 car. Some people had no idea what they were looking at, while many others recognized the car from its glory days when SunStang was a well-known name and made an appearance on the Discovery Channel. The most frequent reaction was that of surprise when an interested motorcycle enthusiast found out that solar cars can reach speeds of 130km/h. Some Western alumni, and even some SunStang alumni, also came by to take a look at what we've been up to and to wish us luck. Everyone we met had positive things to say about SunStang and our efforts, and wished us all the best in our plans for future races. Over the course of the weekend, the '97 car entertained dozens of bewildered children (and some adults!) in its cockpit. They were all so excited to be sitting in a solar car, that this gave us an interesting idea...

Our next event was London's annual Speed & Custom Car Show. Along with Western's Formula Racing Team, SunStang opened a booth to entertain and meet automobile enthusiasts of all kinds. This time, we also took the '05 car, and the '97 car... with a slight adjustment. Inside the low cockpit was a fully functional race simulator! We built and programmed our own system, connected to some makeshift pedals and the very steering wheel we'll be using in the upcoming car. The simulating system was connected to a computer running the state-of-the art racing software by Simraceway. The idea was to give people the opportunity to feel what it's like to race in a real solar car. Over 100 people tried our simulation, from small children, to grey-haired men, some of whom are champion racers in real life! We logged each person's fastest lap time and updated our website with these times, so they could see how they compare to our own top drivers and to the rest of the visitors..

We can't wait for our next public event!

"Sharing knowledge and intrigue is how the world grows."

A look at the simulator from inside the '97 car, photographed by the Western Fair District.

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SUNSTANG
SOLAR CAR PROJECT

Sunstang is an undergraduate engineering team at Western University that develops student potential through design and construction of solar racing vehicles. We believe that students learn best through application of knowledge and provide a team environment where all students can develop the skills they will need to excel in a professional environment. Thank you to all of our sponsors for providing each student with the opportunity to develop their full potential.

Find us online at sunstang.com

Western Engineering

Media

SunStang likes to keep its supporters and team up to date! To do so, we've taken to the Twittersphere, Facebook, and a traditional website. On our website, we have information about the team's history and current endeavours, including the upcoming car's design details, the events we partake in, and lots of photos. The blogs on the website are updated weekly to give readers a brief look at what is going on in our shop. Our Facebook page currently has over 90 fans. It is linked to our Twitter, so frequent updates show up on both mediums. On the Facebook page, we've also posted some photos of work nights and events. Our Twitter account is a way of conveying news quickly as it happens, such as delivery of important parts and a play-by-play of our weekend events. Finally, our Flickr account has a lot of photos from milestones such as WOMEX and our first frame welds.

We've also had our moment of print fame! A local paper, Metro News, did a special on the Speed & Custom Car Show and included an article about SunStang. The article can be found on page 30 of the March 22-24 weekend issue, available on the Metro News website.

To keep in touch with SunStang, give our pages a hit!

Some of the members of our dedicated team.