

Process report

Engineering Experience: building a SSV



SOLAR CELL RACING

Designing the Small Solar Vehicle (SSV)

First we started with establishing basic rules and methods for cooperation and communication (rules as defined in the cooperation contract). We made the documents for the first deadline and then we encountered our first problem: we had made all the documents in Dutch but as our coach didn't understand Dutch we had to rewrite them in English.

In the first meeting with our coach we got feedback about the gantt chart and the plan of approach. We also got our DC motor and the solar panel and were able to determine the diode factor.

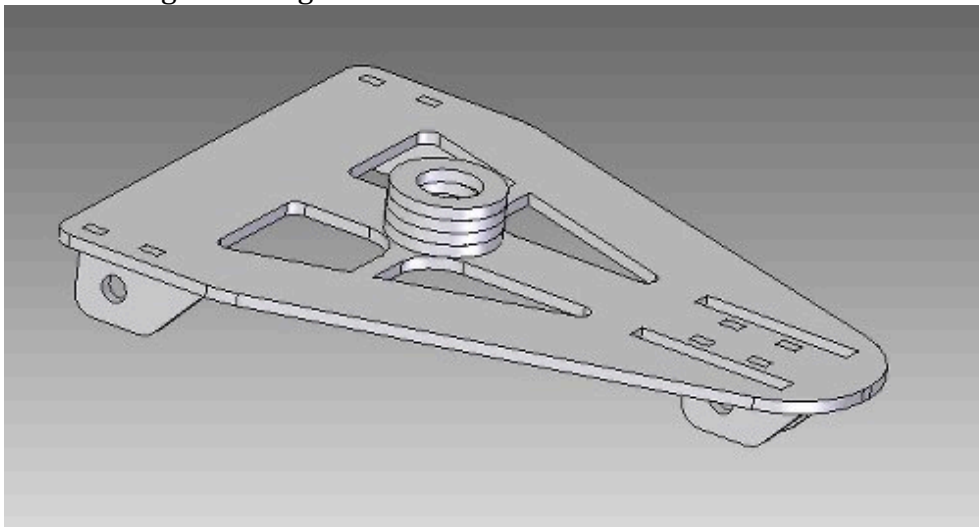
In week 3 we got some more information during the seminar and the work that was pending became clearer. The gear ratio, aerodynamics,... has to be calculated. We met every week and made a meeting report each time (see documents).

In week 4 we encountered some problems, we had to make some choices about the materials, a system to stay on the rail, wheel size,... We divided the tasks and started working. In week 5 we had a basic view on what the problem exactly was and what we had to do to solve it. We chose plexiglass for the wheels and the baseplate. We will fix the solar panel on the car with a ball and socket joint. Our baseplate is a triangle with some parts cut out to save weight. We bought 4 bearings and an axis of 1 meter and still have to attach it to the car. We also simulated in matlab and simulink, did the calculations for the gear ratio and the numerical calculations.

Description of the car at the moment

The car has no base yet and does not have a real form. We do have a basic idea about the design:

- the base is triangular,
- The solar panel will be attached so we can manually rotate it to the sun just before the race with a ball and socket joint
- Solid edge drawing of the base:



Documents

Cooperation contract:

[http://commons.wikimedia.org/wiki/File%3ASamenwerkingscontract -
_Solar_Cell_Racing_\(210\).pdf](http://commons.wikimedia.org/wiki/File%3ASamenwerkingscontract_-_Solar_Cell_Racing_(210).pdf)

Gantt chart:

[http://www.2shared.com/file/aAo-Op25/Gant Chart - Solar Cell Racing.html](http://www.2shared.com/file/aAo-Op25/Gant_Chart_-_Solar_Cell_Racing.html)

Work breakdown structure:

[http://en.wikiversity.org/w/index.php?title=File:Work Breakdown Structure -
_Solar_Cell_Racing_\(210\)_-eng.pdf&page=1](http://en.wikiversity.org/w/index.php?title=File:Work_Breakdown_Structure_-_Solar_Cell_Racing_(210)_-eng.pdf&page=1)

Plan of approach:

<http://en.wikiversity.org/w/index.php?title=File:PlanOfApproach.pdf&page=1>

Meeting reports:

1: http://commons.wikimedia.org/wiki/File%3AMeeting_1.pdf

2: http://commons.wikimedia.org/wiki/File%3AMeeting_2.pdf

3: http://commons.wikimedia.org/wiki/File%3AMeeting_3.pdf

4: http://commons.wikimedia.org/wiki/File:Meeting_4.pdf