

“SolarBullet”

Process Report

Team MP12

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Introduction

Every semester we have a course called EE, which gives us the opportunity to apply all the theory we have covered till now put into practice. This semester project consists of building a solar vehicle. Therefore we could choose between building the most innovative or most beautiful solar car. Because our team members chose to major in mechanical engineering, we decided to build the most innovative car.

After a lot of discussion and a lot of calculation, we achieved to build a solar car that in our opinion, theoretically, fit the profile to win the race. Off course theoretically is just a part of the project, now we have test how much of our theory is reachable in practice. Also we will try to optimize our result with trying to change little things.

In the end the main goal is still to build a solar car that can drive with a high speed and at the same time is able to survive a heavy collision and off course try to win the race.

Planning

Although we made all the deadlines, yet there were several parts that did not go as we had first planned in our Gantt Chart. Some parts were more difficult than we thought and sometimes some parts took less time than we had scheduled.

In the theoretical part, calculation of the optimal mass took us longer than expected. We were looking at the situation in wrongly at the beginning, but after some help of the coach we started to understand the situation.

Simulink and Matlab were the next parts that we underestimated. The understanding of Matlab code took a lot of time from everybody in the team. At some point even, we could not move forward anymore without understanding the code first.

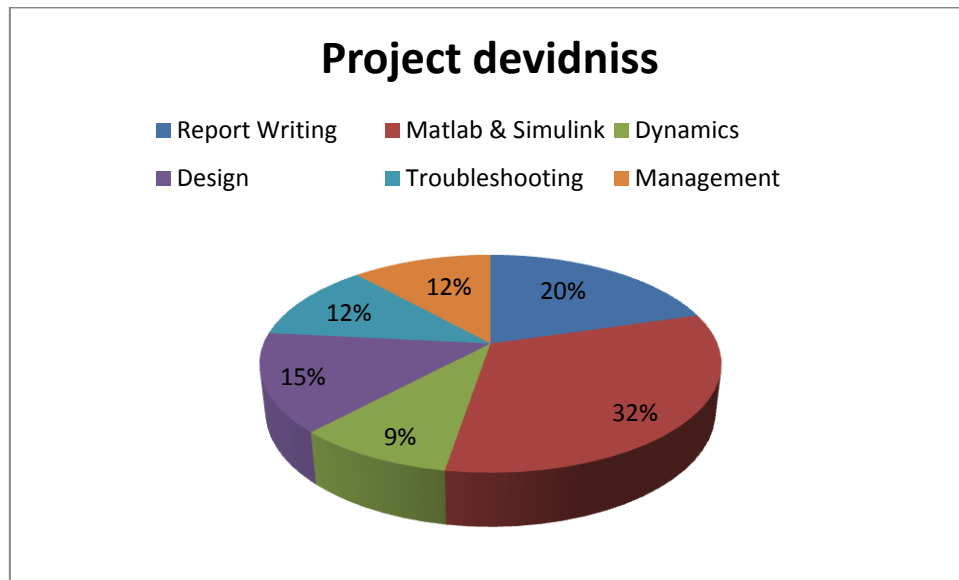
On the other hand, making the car itself took us less time than expected. But coming up with a design took much more time than we had calculated. Finding the right design was very important to optimize the result we wanted, but where also creativity was an important part in our project. Also finding the right material, the right size and most important of that all, the place we can buy this kind of materials. We had to search a lot to find the right place for buying everything. That was one of the things that we had not calculated at all in our Gantt Chart. This was a surprise for us, how much time that it took.

To finalize the differences between the reality and our schedule, testing took more time than we to expect.

To summarize the main problems of the differences, we come up with time, material and man power.

Cooperation

Our project contains four main parts: education, simulation, construction and management. We tried to spend same time in each part, but some parts just took more time then we calculated.



As you can see in above pie diagram, that are main parts in which we spend the most time. We worked as a team on each part, but each part had one person that took the responsibility of that part.

The responsibility was divided as follow:

As you can see, Matlab & Simulink took the largest part of our time. Because of the importance of this part, we divided the responsibility between two of team members. Sudip Khadka took the Matlab on him and Vuyyuri Vivek Varma, the Simulink. They had to make sure that everybody understand the codes and the program and can work with it.

Report writing was done by everybody, but it was the responsibility of Elnaz Ghavanlou. She had to make sure that each part is written on time and handed in.

Design was also a very important part of our project and that responsibility fell in the hands of Toran Chhantyal. He had a big responsibility, because he had to make sure that everything is working at the end and all the mathematical parts are respected as well.

Dynamics was the responsibility of the Budi Anand Swaroop. He had to make sure that the theoretical part is applied. He had to make sure we find the right equations on time.

As last but not least the management was done by our team leader Mei Lang Xiong. She had to make sure that the planning is followed and that each deadline is respected. She also had to make sure that everybody is involved at all time. Final check-up for corrections etc. were also done by her.

In our opinion, we are able to overcome any difficulty as long as everybody tries their best and we keep on going like a team.

Competences

One of the important advantages we had in comparing with other teams was that four out of six members already knew each other from the EE3 project. We already knew how to work with each other to optimize our project. The other two members were also very quickly accepted in the group. In our opinion that was one of the biggest competences in our team.

One of the other things was also our knowledge of the dynamics, electronics and mathematical background.

Of course we also developed some competences during the whole project. Like learning to work with Matlab and Simulink for example. These are important programs we will definitely need in the future.

Also Fablab was a big part. Before this project we knew Fablab as a place where we can buy some parts. But did not know how the machines there works. That was also a big challenge we experienced.

Conclusion

Knowledge and team work and leadership are the key of getting through the doors of success. Each goal is reachable if you put right mind and people on it. We did not just learned so much from this project, we also enjoyed our self in this project. We got to know new members and learned to have team work with them as well. At the end we worked like an oiled machine.