"SolarBullet"

Process Report

Team MP12

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Motivation and 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.

What we want to achieve is a solar vehicle 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 that will be held at the end. To be able to build the most innovative solar car, we have to consider many aspects e.g. the shape, the weather, the mechanical side,… . But that is why we are the future engineers.
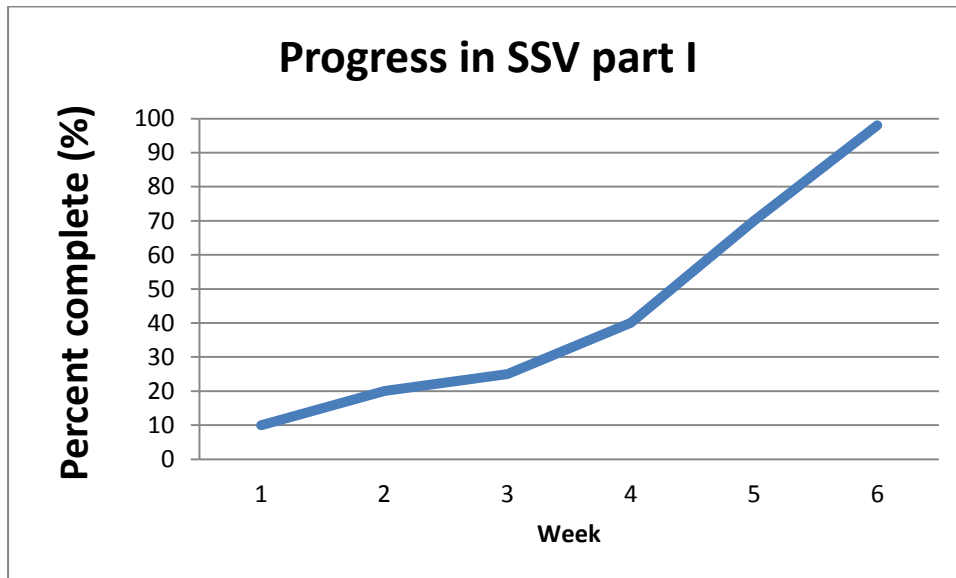
In reality, building a solar car is a big job, but because of this project we will get a general idea of how it the whole process of building looks like. It gives us also a better insight in producing sustainable energy in future innovations.

It is therefore undoubtedly a big challenge for all of us to achieve this goal with the available resources and practice. Since our group is consisted of four nationalities of different culture and language, different views on cultural, technological and social perspective will be mostly exchanged. This will definitely bring out a well-rounded team of future engineers preparing to take on any challenge.

Our team, "SolarBullet" consists of six members. Our team has one rule and that is every person has to participate and contribute to every aspect of the development of this technology. Each person should be able to understand the working principles and the implementation of the technology. The following main activities are distributed:

1. Mei Lang Xiong: Team Leader
2. Toran Chhantyal: Quality Inspector (vice-leader)
3. Sudip Khadka: President of Meetings
4. Vuyyuri Vivek Varma: Secretary of Meeting
5. Budi Anand Swaroop: File administrator
6. Elnaz Ghavanlou: Secretary administrator

Timeline of the Process and Motivation Curve

Progress in SSV part I

A line chart titled "Progress in SSV part I" with y-axis "Percent complete (%)" ranging from 0 to 100 and x-axis "Week" ranging from 1 to 6. The line rises from about 10% at week 1, to 20% at week 2, 25% at week 3, 40% at week 4, and continues up to about 98% at week 6.

Individual and Team Motivation

The team's motivation is overall excellent. Even though there are some problems, which is resulted in a plateau of our process. We were still able to maintain the team its positive atmosphere and achieve the proposed deadlines. As one could see from the introduction, we made sure that each person is responsible for leading each aspect of the project. This person would be the "head" of the respective aspect and had to make sure that the different stages are accomplished according to the design criteria at a designated time. The other team members are also responsible of contributing to the team work and must be able to understand and give inputs during the discussions.

In regarding to the team's meetings, the discussions we had had been lively. Even though there are some issues about which path to take in order to solve the problem, by the end of the meeting every team member is able to freely voice their reasoning as well as being part of the team's decision making. Moreover, the team its atmosphere has been positive throughout the project.

Individually speaking, the team leader, Mei Lang Xiong, has done a good job of setting the goals and motivating the team members throughout the project. Her job also entails that she had to organize the weekly meetings to discuss the process. At the same

time she involved herself in every aspect of the individuals to that they knew what to do and what had to be improved.

In charge of the quality aspects, Toran Chhantyal has been consistent throughout the project. His performance made sure that the team's expectation of the design criteria is achieved. He also try to stand by everybody who needs help.

Sudip Khadka is the president of the meetings. He made sure that the tasks are divided by the group members and he assured that everyone knew what we have to do in every meeting. He also led some team discussion about the possible solutions to some problems we had with Matlab. Overall, he has shown a solid performance.

Vuyyuri Vivek Varma is the secretary of the meetings. He makes sure that we have recorded everything we have done in every meeting. He always helps everybody who needed it.

In charge of file administrative is Budi Anand Swaroop. He makes sure that all the data and founded solutions are put in right place, so that each team member had excess to all the files at any time. He is very patient and he make sure that we have a positive atmosphere.

Finally, Elnaz Ghavanlou heads the report communication aspects of the project. Her job entails that she kept track of all the team's progress in the meeting report as well as jotting down problems encountered as well as the team its decision of the choice of solution. Under her supervision, the project's progress has been put into words and communicated within the time frame of the project.

Discussion

As you can see in the graph above, the progress is increasing steadily each week. But that does not happen linearly, because of several things. The first four weeks, we were trying to obtain knowledge about the Matlab program and also trying to develop some understanding of each aspects of the project. We also spend a lot of time to research the various routes to finish the project.

After week five we had all the basic knowledge to start the physical work. We began first with following tutorials for the programs and tried to implement what is necessary for our SSV. Then after the help of our coach and other classmates we figured out what the real problem was we had to solve and how we had to solve it with the help of the software. A lot of confusion was going on in the beginning due to lack of specific information. But after a lot of trying and questioning with the colleagues we obtained what we had to obtain.

Conclusion

If you work as a team and plan everything, you definitely can reach your goal. The strength of our team was forming a team and having an excellent leadership. Every member took its responsibility and stood by to other team members. Every time there was a problem, everybody tried to think and solve it together. At the end, what you need is the knowledge but also a good working team that can work like an oiled machine.