

## Reflection report

**Research theme:** Design and construction

**Research title :** Design of an abrasion strip and replaceable actuators for a complex rubber system

**Researcher** Bart Oude Luttikhuis

**Research period** From april 2011 to april 2012

**Company** Apollo Vredestein

**Supervisor** Dr. ir. W.W. Wits

## Background

Apollo Vredestein has signed a development and delivery contract with an automotive company. The goal of this project is to develop a complex rubber system. The research topic of the master assignment is to research the possibilities to make some parts of the system replaceable. The goal is to reduce the aftermarket maintenance cost.

## Assignment

Within the assignment two problems are analyzed; integrating an abrasion strip and develop a detachable connection. Firstly all aspects that are important to solve both problems are analyzed concerning; used materials, manufacturing, cost, behavior of the system and environmental influences. For both problems several concepts are developed. And finally for both problems one is elaborated. For the abrasion strip a concept is elaborated that uses plastic clickers for the connection. For the detachable connection a concept with a zipper is elaborated.

## Results

From the research it is concluded that integrating an abrasion strip is difficult due to a combination of factors; less space available, strict design requirements, large loads. The detachable connection; zipper seems to be a very promising solution; it is simple, functions very well and there will be even a cost saving for the system.

## Personal experience

During my master thesis at Apollo Vredestein I was also employed as team member for about 1-2 days a week. Therefore I gained a lot of information that was very helpful for my master thesis. All the time I was informed about the latest issues and solutions. The disadvantage was that it was sometimes difficult to concentrate for 100% on the master assignment. Sometimes I had to do several assignments at the same time. The topic of the research was very interesting but sometimes also quite difficult because of all different aspects that has to be researched.