Adaptive Cargo Balance System

INTRODUCTION

- I'm Menno Vermeer, and together with our team wich consists of Jeroen Van Der Berg, Lisanne Van Twillert, Manuel Rodriguez, Arie Goudsblom, Sebastian Gradinariu, Alex Horbach, we are creating a program to visualize the center of gravity of a truck and give advice to the driver regarding the placement of the cargo in respect to the safety while driving.
- More than 50% of all deadly accidents with trucks happen because of rollovers. That's why we wanted to make a program that visualizes the center of gravity and gives advice to the truck driver. Because a program like this isn't on the market yet, we think we could make a difference and reduce the number of fatalities in trucks.

JOURNEY & LEARNINGS

- The beginning of the project was a bit rough and messy. We didn't have a clear view of what we wanted to present at the end and the HOW was a big problem. We had multiple setbacks because of limitations for calculating the center of gravity, but with the ingenuity of the team member we found solutions to most of our problems. This and talking to the experts played a key role in the progress of our project. What kept us on track is that we didn't stop when we hit a limitation, but kept trying to overcome these difficulties.
- One of the things that surprised me the most is that the professionals in the industry are so enthusiastic about our project. Working together with big companies like Volvo and insurance companies and seeing how enthusiastic those people react to our ideas is such a great experience. Because of this, you get the feeling that people take you seriously and that you, as a team, are really capable of making a difference.

OUTCOME & IMPACT

- We made a proof of concept, something that will show that our idea works and shows it off to the people. We created a scale model of a box-truck. In the truck are 4 weight sensors mounted on the axles. With these sensors we can measure the load in the cargo area of the truck. Using this information, we made a program that calculates the center of gravity and displays this on the screen. This is the interface that the truck driver will see. Our program gives information about the safety of the placement of the cargo and will give advice on how this can be improved. Using our program, the safety of the driving capabilities of the truck will be greatly improved, thus reducing the risk of accidents.
- We hope that our proof on concept will be implemented in trucks in the future, either by us or through the truck manufacturers themselves. In this way, a truck will never be loaded incorrectly again. This will greatly improve the safety of the trucks on the road an will reduce (lethal) accidents.
- We are most excited to show are working scale model together with the program, with an actual truck in the background! People will be able to place the loads themselves and see the impact on the drivability.

