Designing a visualization of future mobility

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This project mainly focuses on creating future mobility and make it visualized. This topic can divide into two main topics, and the first one is designing future mobility, the second one is finding a way to display the design to consumers.

Background information

The Electric mobility team(systems engineering and multidisciplinary design, production, and management) at the University of Twente provided the project to the students to get the inspiration from the students how they think about future mobility. The research team thinks It is important to support users with the right information and visualization to make a conscious choice towards shared mobility.

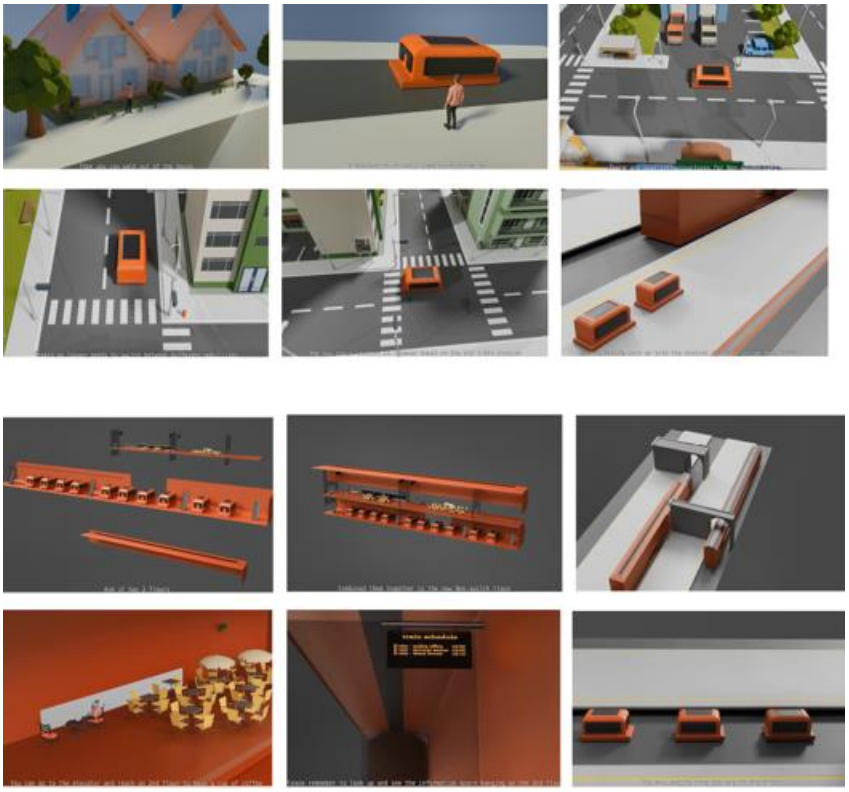
The increase in shared mobility proves that there are many benefits for both the economy and the environment. For example, the CO2 emission will be reduced, such that more energy will be saved. Besides, Shared mobility is cost-effective and also environment-friendly. Automated vehicles, in conjunction with shared mobility, have the potential to significantly increase the viability and user base of shared transportation services in the future. However, the public still has to resist the new design, so it is necessary to make a visualization to inform consumers why choosing future mobility.

The main research question is "how to visualize the future mobility," based on this, and there are some sub-questions to help process the project. The Hassenzahl user experience(Hassenzahl 2004) model is chosen to formulating four important factors to get the start of the project: human, technology, expenditure and aesthetics. In the "Human" part, a pre stakeholder analysis is conducted to select the key stakeholders. The key stakeholders are competitors, consumers and the research team in UT, and they will be researched in the following steps. The result of the consumer survey focuses on figuring out the disadvantages of the current survey, and their main demand is decreasing the switches. Besides, the result formulates the user scenario. There are literature reviews and expert interviews in the technology part. These two types of research help to investigate the technological possibility which can adopt into future system design, so autonomous electric cars will be used in the later design after this researches.

Furthermore, general financial data of future mobility are described in the expenditure parts to set the limit cost, which means the final design cost should not exceed the amount. The way of visualization is defined by analyzing digital design, an expert interview and a consumer survey; Low-poly animation made by Blender should be the most suitable and challenging way of visualization in this project. These all four parts' results will be listed in the requirement list and user scenario.

The concept is formulated by solving the problem of decreasing the switch. Besides, the final concept is selected by grading each concept based on the requirement list. Then, concept development is formed

on the highest graded concept. In detail, the station and trains should be rebuilt to fit the new system. Besides, the autonomous electric cars and the central system are also determined in this part.



Next comes the cost estimation; the details of the concept is used in this part to figure out the cost consumers need to pay per mile. The main goal of the cost estimate is to show the lower price in the later visualization to persuade customers to choose shared mobility instead of private cars. In the visualization parts, Using Blender as the main software in the project guarantees the well visual effect. The user scenario in the previous chapter will modify into a new storyboard for the video after building every model in this story. Besides, the video shows the cost per mile of a new system at the end of the video.

The outcome video got 8.2 in the test. The performance of the video is quite nice. However, it still has space to improve. Partial scenes are missing, such as how the car reach other users places, how to arrange routine and how car charge in the city, etc. Besides, the new system leads people to an unhealthy lifestyle.

This newly designed product also has a complete response to research questions, including the definition of the address user, and found the appropriate technology through rational reasoning, and also completed the cost estimate calculation, and the final design reached the standard. Video is perceived as the most efficient method revealed by a few surveys. Since the consumers are usually price-sensitive, including the price that consumers should pay in the video should be rational. Besides the video, almost 80% completed as a final product.

Reference

s.Hassenzahl, Marc. "The interplay of beauty, goodness, and usability in interactive products." Human-Computer Interaction, 19, no. 4(2004): 319-349.