

## APPENDICES

### A: Personal reflection

In this project my main goals were to gain an in-depth understanding of an unfamiliar user group, and to develop new skills in the context of smart home technology. (Main competencies: User & Society and Technology & Realization.) In the context of contributing to the field of smart product design, I chose to focus my research on the target group of blind people, and in what way designer can improve their experiences with such technology.

My approach to this project was very user-oriented, and focused on understanding the users and their needs throughout the process in accordance to my vision: I believe good design should come from a perspective of practicality and respect for the user's capabilities and experiences. In the context of design research, this means that understanding and valuing users' experiences and capabilities can offer valuable insights about the deployment of our work, and inspire the rethinking of our interpretation of a user group. This requires a thorough understanding of not only the target group, but also the larger social context in which they exist.

To gain such a holistic understanding of this target group, I conducted an extensive orientation study, consisting of a benchmark of current (smart) design for blind users and assistive (smart) devices, industry attitudes towards these users, popular accessibility frameworks and tools, and general information from organized interest groups for blind and visually impaired persons in the Netherlands. This helped me shape the direction of the project to promote the inclusion of this target group in mainstream smart product design rather than specialized design.

To gain further insight into the target group's capabilities and experiences I conducted user interviews and observations with blind people in their home environment, putting to use last semester's experiences setting up a structured study. I had planned to conduct two more interviews, but due to a scheduling conflict and time constraints this was not possible. Although I was able to gain a lot of interesting insights and information from these interviews, my research could have been more substantiated if I had taken these factors into account earlier in the process. In future projects will therefore approach the target group sooner to ensure availability. Another useful way to ensure this could be collaboration with another student involved with a similar target group, in which we can aid each other with finding participants for a user study.

Throughout this project I realized that I could make a more valuable contribution to the field by using these experiences and perspectives as a basis for an evaluation framework to assess how we interpret users' needs in smart design, in regards to usability. In my vision, I address the need for accessibility through the design of specialized products, but this opportunity to promote accessibility as an easily

graspable concept for designers is an opportunity I had not considered much before despite its importance. I therefore chose to create an evaluation tool for designers rather than design recommendations specifically for this target group.

To achieve this, design students were treated as an informal second target group in this project, in which I aimed to appeal to their experiences and expertise through discussions and workshops, and relate this back to the blind users' perspectives and guidelines.

This was my first semester in the DIGSIM squad. At the beginning of this project I was largely unfamiliar with working in the context of the smart home. Initially I had planned to create and deploy a research prototype in this study, which would allow me to develop new skills and gain experience working in this context. However, throughout the process it became clear that the direction of the research required no deployment of such a prototype.

My development in this context is therefore largely related to the understanding and evaluation of smart designs and their interconnectivity from both current smart technology and student projects. An interesting aspect of this was the greater awareness regarding the communication of information between the design and user, and between designs themselves. This has made me consider interaction design from a more interconnected perspective, and helped me identify specific requirements and desirable practices. Furthermore, I have a greater insight into interaction design in regards to the kind of information communicated to the user, and the relevance of this information for the usability of a design. Both my user research and the study of frameworks and principles like Interaction Frogger (Wensveen, Djajadiningrat, & Overbeeke, 2004), Rich Interaction (Frens, 2006), and alternative communication of visual information (Van Hees, Kris, & Engelen, 2005).

Last semester I found that it was sometimes a challenge to communicate my ideas clearly through visuals and presentation materials. Color use and visual language played a large role in this. This semester I set out to improve the quality and clarity of my visuals at the demo day. Despite the lack of a present demonstrator, I found that my visuals allowed me to communicate my research focus and goals effectively to others, and demonstrate the habits and experiences of users clearly. I also specifically asked workshop participants for feedback regarding their understanding of the framework, through which I was able to improve the clarity of the guidelines' use and presentation.

A personal development goal was to devote attention to improving the planning and documentation structure of my work process. I have struggled with this in previous individual projects due to both health concerns and planning difficulties, and have worked to develop more sustainable studying methods that respect my physical limits. During this research project I experienced a few

setbacks that affected both my health and schedule, which were mainly related to the increased workload compared to last semester. Despite the adjustments in my planning, a deadline extension was needed. Although this is regrettable, it has become clear how much work that I can realistically take on, which will be valuable experience approaching my next semester.

#### References

1. Frens, J.W. (2006). *Designing for Rich Interaction: Integrating Form, Interaction, and Function*. Unpublished Doctoral Dissertation, Eindhoven University of Technology, Eindhoven, the Netherlands. (Retrievable from: <https://pure.tue.nl/ws/files/1743335/200610381.pdf>)
2. Van Hees, Kris, & Engelen, Jan. (2005). Abstract UIs as a long term solution for non-visual access to GUIs. In *Proceedings of the 3rd International Conference on Universal Access in Human-Computer Interaction*, The 3rd International Conference on Universal Access in Human-Computer Interaction, Date: 2005/07/22 - 2005/07/27, Location: Las Vegas, Nevada, USA
3. Wensveen, S. A. G., Djajadiningrat, J. P., & Overbeeke, C. J. (2004). Interaction frogger. *Proceedings of the 2004 Conference on Designing Interactive Systems Processes, Practices, Methods, and Techniques - DIS '04*, (January 2004), 177. <https://doi.org/10.1145/1013115.1013140>