

The interconnection between aesthetics and interaction

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INTRODUCTION

A continuously increasing amount of designs we interact with incorporate smart technologies or screen-based interfaces. This often results in a design that is not intuitive and in which interaction and aesthetics are unconnected [1, 2, 4]. But when designing, it is important to pay attention to this connection by making use of several methods. This pictorial aims to describe these methods I used and the design process that they were applied to during the course, after which my personal view on aesthetics of interaction is formulated.

REDESINGING A SCREEN-BASED INTERFACE

To get a quick grip on understanding the aspects of intuitive interactions, feedback, and feedforward, the course started with the assignment to redesign a screen-based interface, aiming to improve its aesthetic interaction using the Frogger Framework [6]; a framework that helps to create designs with a strong connection between an action and its function. I redesigned the music player of the app Spotify. I focused on making the interaction intuitive. For example, by pressing the button in the center of the device, the user can save the song within the device. This interaction felt rather intuitive as the user actually “presses” the song into the music player. The same counts for activating the shuffle mode; the user shakes the device to hear the songs in random order.

RELABELING: EXPLORING INTERACTIONS

The project, for which we had to design an alarm clock with a specific focus on the aesthetics of interactions, started with a relabeling exercise. This technique is used to explore interactions using an existing product and its aesthetics [1]. Within the group, we applied this technique to several products to gather inspiration. We continued with this individually. Figure 1 shows an overview of the products that I found in my room and that I used to explore interactions that I found interesting or satisfying. The link to the video can be found in the references list. These explorations helped me understand how aesthetics and interaction are connected and that “The aesthetics of a product must be shaped according to its functions and roles.” [1]. I tried to keep this in mind during the next stages of the design process.

SKETCHING AND PROTOTYPING

Using the interactions that the group found interesting, we made a couple of sketches. We worked out some ideas by making lo-fi prototypes. For my prototype, I paid close attention to incorporating feedforward. Feedforward can be used to bridge Norman’s Gulf of Execution, which is the difference between the intentions of the user and the actions [3]. Vermeulen et al created a framework for designers to help them explore opportunities for feedforward [5]. For example, I put two circles on the sides of the two parts of the prototype (figure 3) so it becomes clear that the blocks can be connected there.

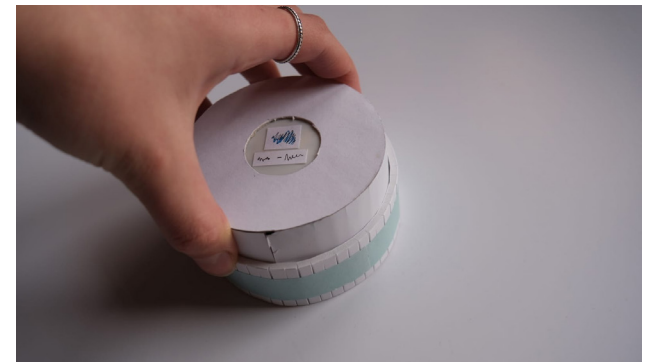


Figure 1: Own work, 2021, *Redesign of Spotify music player*



Figure 2: Own work, 2021, *Exploring interactions*

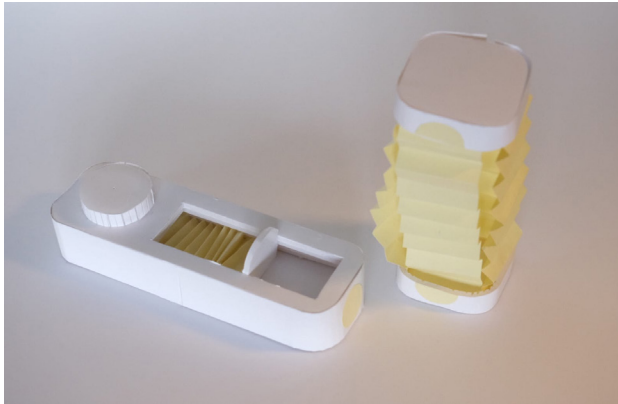


Figure 3: Own work, 2021, *Iteration prototype*

FINAL DESIGN

The final alarm clock (figure 4) consists of the main panel with a button. The physical appearance of the button, together with the marks on the panel, suggests that the button can be rotated and then pushed to set the time (figure 4A). This design decision takes into account the importance of feedforward and perceived affordances as explained by Vermeulen et al. [5]. Feedback is given in the form of light when the time has been set (figure 4B).

The panel is encircled by eight individual alarm clocks. These clocks are connected with magnets which results in a nice click (figure 4C). The curved sides of the clocks form a circle when connected to the octagon-shaped main panel. When the alarm is set, the alarm clock is

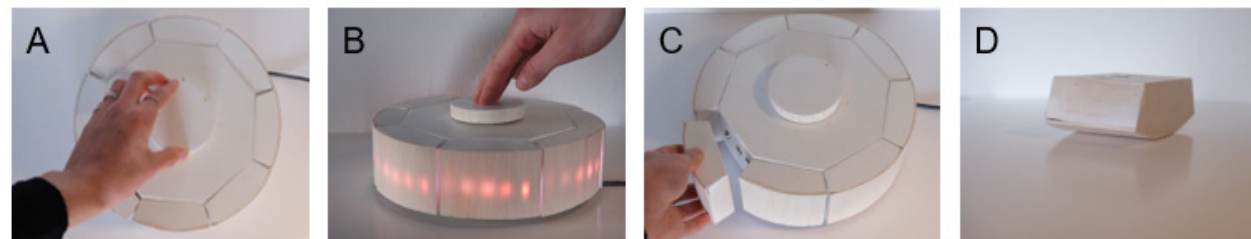


Figure 4: Own work, 2021, *Final alarm clock*

placed on its curved side and starts rocking back and forth (figure 4D) to wake up the user. The alarm is turned off by placing it on its flat side. This makes for intuitive interaction with the alarm. The link to the video of the final design can be found in the referencing list.

CONCLUSION

The provided literature served as a guidance for me throughout the course. I liked how we learned to use the methods by applying them to a design of an interactive system. This contributed a great amount to my understanding of aesthetics of interaction and I will take this with me in future projects. Focusing on the interconnection between aesthetics and interaction and applying the described methods and models when designing made me aware of how the intuitiveness of a design is influenced. It is important to keep this in mind as a well-designed, intuitive product helps the user understand how to use an unfamiliar product.

REFERENCES

- [1] Tom Djajadiningrat, Bill Gaver, and Joep Frens. 2000. Interaction relabeling and extreme characters: methods for exploring aesthetic interactions. In Proceedings of the 3rd conference on Designing interactive systems: processes, practices, methods, and techniques (DIS '00), Daniel Boyarski and Wendy A. Kellogg (Eds.). ACM, New York, NY, USA, 66-71. DOI: <http://dx.doi.org/10.1145/347642.347664>

- [2] Julie Heij. 2021. Exploring interactions. [video] Available at: <https://youtu.be/DWc59IO86ts>
- [3] Joep van der Kamp. 2021. Cyclock. [video] Available at: <https://youtu.be/VQ-0tnNMCjE>
- [4] Victor Kaptelinin. Affordances. The Encyclopedia of Human-Computer Interaction, 2nd Ed. <https://www.interaction-design.org/literature/book/the-encyclopedia-of-human-computer-interaction-2nd-ed/affordances>
- [5] Donald A. Norman. The Psychology Of Everyday Things. Basic Books, New York, USA, June 1988.
- [6] Marianne Graves Petersen, Ole Sejer Iversen, Peter Gall Krogh, and Martin Ludvigsen. 2004. Aesthetic interaction: a pragmatist's aesthetics of interactive systems. In Proceedings of the 5th conference on Designing interactive systems: processes, practices, methods, and techniques (DIS '04). ACM, New York, NY, USA, 269-276. DOI: <http://dx.doi.org/10.1145/1013115.1013153>
- [7] Jo Vermeulen, Kris Luyten, Elise van den Hoven, and Karin Coninx. 2013. Crossing the bridge over Norman's Gulf of Execution: revealing feedforward's true identity. In Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (CHI '13). Association for Computing Machinery, New York, NY, USA, 1931-1940. DOI: <https://doi.org/10.1145/2470654.2466255>
- [8] Stephan Wensveen, Tom Djajadiningrat, and Kees Overbeeke. 2004. Interaction frogger: a design framework to couple action and function through feedback and feedforward. In Proceedings of the 5th conference on Designing interactive systems: processes, practices, methods, and techniques (DIS '04). ACM, New York, NY, USA, 177-184. DOI: <http://dx.doi.org/10.1145/1013115.1013140>