Public summary

Designing a 3D interactive head for the Kapel van Verbeelding

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Background information

An artist, René Glaser, is changing his printing museum to an exhibit based on his philosophy: Mechanics of Thoughts. This philosophy is about what inspiration is and how it is developed. Important parts are movements and mechanics. Using your senses and experiences will accelerate the process of generating inspiration. It has always been a dream of the artist to have an actual working artwork in his museum. He is fascinated by mechanisms and the inner working of things; however, he lacks the expertise to build it himself. One of his ideas, that he would like to have in 3D in his museum, is the barometric head. Now adding the wish for interaction with the visitors of the museum to further enhance the experience. The head should be an interactive and innovative addition to the museum. [Glaser, 2024]

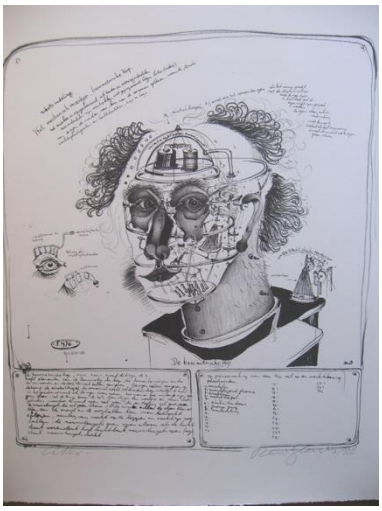

Figure 1 - The barometric head

Objective

The aim of the assignment is to design and prototype a 3D interactive head for a museum in Maastricht called the 'Kapel van Verbeelding'.

Approach

First, the message that the head needs to communicate had to be clear, therefore, the philosophy had to be understood. Then, research was done into interaction and its definition for this project. With this information, the ideation phase, where the basic interaction and attention seeking elements were decided, could get started. Using these decisions, the interaction was designed. Followed by doing research into how to achieve the decided-on motions. This is where the concept phase starts, the design depends on the mechanisms. Next was the detailed design phase followed by the start of the building process.

Results & limitations

Since the focus of the philosophy is the importance of movement and senses, these are the chosen focus points to be displayed in the interactive head. The finished product design consists of transparent 'skin'. The ears and nose are placeholders but realistically displayed while fitting with the context of the museum. The artist uses mostly paper and/or cardboard in his works so that is incorporated in the final design. The eyes and mouths are able to move and can therefore function realistically. Those mechanisms are displayed to show the movements.

Based on the interaction research I have done, the choice of movement as input for the interaction was made. This means that the visitors' movement determines the outcome of the interaction. The difference between strong interactivity and weak interactivity is regarding the structure of the media. With strong interactivity the structure is formed by the visitors, while with weak interactivity the structure is only entered ["The Ontology Of Interactive Art On JSTOR", n.d.]. The based-on movement option was classified as the second strongest form of interaction; however, the strongest form of interaction would need shared focus and not full focus on the head, the movement option was preferred and thus chosen.

With AI and a camera, information about the visitors is determined. This is the input data. The eyes follow the visitors when walking by. If they then notice and look at the head, the eyes will wink. The mouth will make a small movement, in combination with a "kuch" sound, to grab the attention of the visitors. In case that still fails to capture the visitor's attention, the top part of the head will rotate. When it is detected that the visitor is paying attention to the head, the brains will open, and a hologram will appear. Based on the movements of the visitors, relevant parts of the philosophy will be displayed.

Conclusions & recommendations

The design of the head is finished, and a building plan is made. I have started building the final product already, resulting in the prototype shown in figure 2 and 3. In the future, user testing should be used to further improve the product and see if the interaction process works as intended.

Figure 2 - Head in context (wink)

Figure 3 - Head in context (open brain and mouth)

References

- René Glaser, personal communication, 11-04-2024
- The Ontology of Interactive Art on JSTOR.
  (n.d.). *www.jstor.org*. https://www.jstor.org/stable/3333787