Interactive Display

Redesigning the hardware and appearance of an interactive display

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Figure 1 – Old concept: The Interactive Banner

Figure 2 – New concept: The Interactive Display

This document is a part of a bachelor assignment for the Industrial Design curriculum. It has been executed for the company 100%FAT, located in Enschede. 100%FAT is a company that is specialized in developing interactive installations that are custom made for a variety of customers. Now, the company is also developing products that can be sold to multiple companies. This new development within the company led to the development of the interactive banner. The interactive banner, see Figure 1, consists of a pull-up banner screen, a projector, a motion sensor, the Microsoft Kinect for Xbox One and a computer with software developed by 100%FAT. Users must stand in front of the banner screen and can influence the projection by moving arms or legs, which is detected by the Kinect. 100%FAT wants to improve this concept, by looking at possibilities to update the current hardware and to reshape the design. As a result, the research question for this assignment is:

How can the interactive banner be improved by examining the current hardware and how can the hardware be incorporated into a new design?

To answer this question, research has been done into the placement of the motion sensor, an alternative projector, an alternative projection screen and a new design. At first, a preliminary analysis was executed to get insight into the market and the current concept, which resulted in the insight that the current market is in favor of an inexpensive transportable interactive display. The result of the preliminary analysis was a set of requirements for the new concept. Tests were executed to find out at which location the Kinect functioned the best for its purpose. Results show that different heights don't have much influence on precision. The decision was made to place the Kinect on the ground, which is better for stability of the construction. Also, a projector was found that meets the set requirements and a different projection screen has been searched for. This is because the current projection screen has

wrinkles in it, which deforms the projection. Dibond was found, a stiff material that consists of two aluminium outer layers with a polyethylene core layer in between. A sheet of dibond was tested and it turned out that dibond is not suited as projection screen without projection paint. Further research must be done to find out whether dibond is the best option to function as the projection screen.

After making the decision for the hardware, the appearance of the interactive banner was redesigned. Idea generations and different product styles were presented to and discussed with 100%FAT. After different sketching phases, a final design was chosen, see Figure 2, considering the set requirements and consulting with 100%FAT. The final design was developed in more detail, see Figure 3, by considering usage scenarios and production methods. This all resulted in a SolidWorks model of the new concept that can be shown to potential customers, see Figure 4.

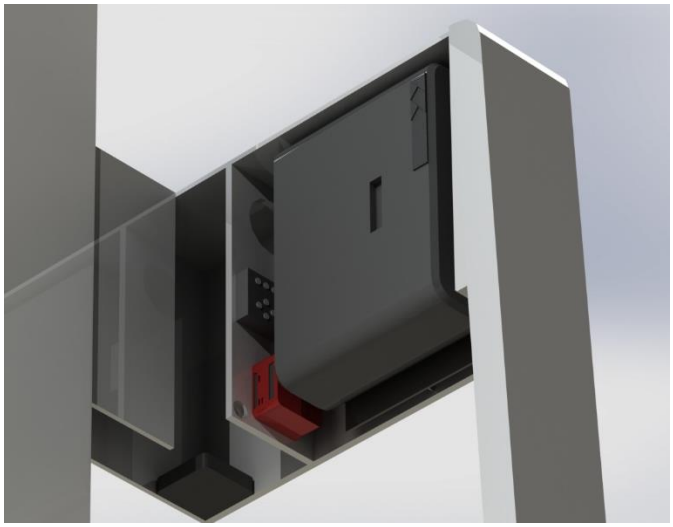

Figure 3 - Inside of the module

The answer to the research question is a new product concept with well-founded choices for hardware and a newly shaped design. The objectives have been achieved by transforming the old concept of the interactive banner into the new concept of the *interactive display*. Recommendations have been made how to further develop the concept and which aspects need more attention to make the product customer-ready.

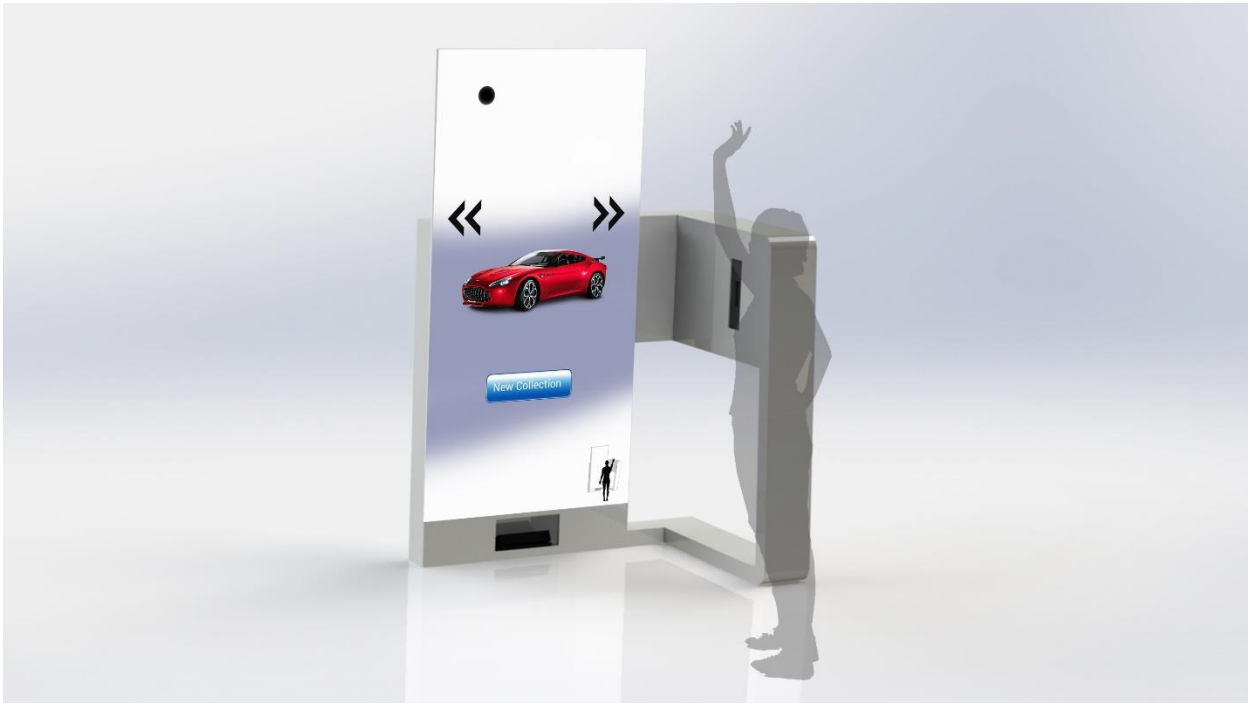

Figure 4 - Scenario of end usage of the Interactive Display