The design of a modular wall decoration system

Anne Pasman, Industrial Design, University of Twente, the Netherlands 07-09 '17

This project is carried out for Cubiqz. Cubqiz is a small company, that delivers cardboard furniture for furnishing and selling empty houses. Alongside their current products, Cubiqz has the idea to bring a modular wall decoration system to the market. The goal for this project is to develop Cubiqz's idea into a producible and sellable product. The project starts with an existing idea from Cubiqz for which the target group and market is already known. For this reason, the focus in this project was on the concept and the detailing phase. The existing idea is a system that connects different panels. These panels can consist of wood, textile, an image on canvas and other materials. The system must enable the user to easily change the panels and the composition.

A modular wall decoration system gives the user the possibility to add an eye-catching decoration piece to their interior that evolves with them. This replaces the situation in which the user buys a big decoration piece and hangs it, due to the price, unchanged on their wall for a long period.

The research question for this project is defined as follows: How can the Cubiqz's idea for a modular wall decoration system be developed into a producible product?

The complete process can be divided into four phases. The analysis-idea phase, the concept phase, the detailing phase and the realisation phase. The process starts with getting a more complete image of the basic idea, setting more specific requirements and obtaining more background knowledge needed for the design process. From the analysis, it is concluded that the product needs a minimalistic and light appearance, that the focus for the usability will be on easily changing the composition. Moreover is it concluded that the product can distinguish itself by a good price/quality ratio and by giving the user more freedom in the composition, for example by the possibility to create a composition of which the outer shape isn´t a rectangle. Based on these and other requirements, ideas are generated on how to realize this. The ideas are generated by creating constructions that make the product modular and thereby enable different variations and by creating ideas on how the customize the panels. Furthermore, more focused ideas are generated for the general shape of the product, with the goal to have more defined construction requirements in the concept phase.

In the following phases, the product is divided into three parts, the construction, the texture plates[1] and the accessories. In the concept phase the construction is developed into three different concepts. For all concepts, different compositions can be created and changing them is simple. The concepts differ in the shape of the panels and the special possibilities, for example the possibility to create extra space between the panels. During the complete process, a small production scale with good price-quality ratio is considered. This translates into minimizing the number of different parts, avoiding complex parts or using existing complex parts on the market and lastly into creating an efficient assemblage. Weekly meetings with Cubiqz's coordinators made sure that the product developments were in line with their ideas. The maturity of the project was 14 weeks. Due to the limited time, the process was mainly focused on the aspects that fall out of reach of Cubiqz's field of expertise.

The result of the project is a final product as prototype and SolidWorks model, with associated work drawings, cost-price estimation, production- and assembley plan and user guide. The designed wall decoration system distinguishes itself from other products by renewing possibilities for the

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composition and the texture plates[1]. Furthermore, the number of actions that the user must undertake falls within the required number, which partly defines the usability. However there has not been a user test to examine the complete usability, for example the comprehensibility of the product. The cost-price of an average panel is around 22 euros and a complete system with four regular panels costs around 120 euros to produce.

Reflecting upon the research question, it can be said that the final product is in line with Cubiqz's ideas. Furthermore, a production- and assembley plan is made, so the product can be produced. To really produce the product the plan must be translated into a production line. This includes choosing the suppliers which can result in making some minor adjustments in the product. All the requirements from the program of requirements are fulfilled, except for the market price. With a cost price of 22 euros, one panel cannot be sold for 25 euros and so cannot be bought as a present. This is compromised by selling the texture plates[1] separately from the frames, this keeps a low threshold for varying the panels and buying them as a gift.

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