Redesigning the external hardware housing of the FAT-Table

Bachelor Thesis Industrial Design Engineering

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Company information

100%FAT is a creative production company founded in 2009, located in Enschede. Their main objective is to come up with and create innovative products and experiences by combining relevant technologies with creativity. They have a broad portfolio of products that have been introduced in museums, that offer interactive experiences to the user.

Objective

These days, however, the company wants to turn its direction toward more commercial uses, to offer more practical products that can be used by other companies. The topic for this assignment is the redesign and development of their interactive FAT-Table, a technologically advanced table that can be used to innovatively showcase a brand's products or portfolio.

The goal of this project is to redesign the interior (hardware housing) of the FAT-Table into not only a more compact, but also a more efficient, lightweight, and timeless design. The company wants to be able to use a single hardware box where all the necessary components can fit inside, after which they can customize the exterior according to their customer´s demands. Also, they want something that can be manufactured more regularly, while still being able to please all potential customers. The product should, in the end, be capable of selling itself off of looks, as well as feasible applications. This is a project that has long been present in the company, but without sufficient time and/or resources to be properly developed.

Process

Throughout this project, subsequent phases like the analysis phase, ideation phase, concept phase, and prototyping phase have been covered. After discussions with the client and different stakeholders that own the product, requirements were set that the redesign must include, including interior and partly exterior requirements. This also allowed the research plan to be refined before the start of the project.

Following market research on competitors and similar products, including knowledge of the technology and ergonomics, the ideation phase resulted in many different mechanisms and housing methods that could be applied to the product. After a concept had been chosen, based on the requirements and client feedback, it had been developed into proper 3D models, with many practicalities considered, and adhering to the previously established requirements.

During the concept and prototyping phases, tests had been done regarding certain practicalities, like heat dissipation, strength, and more. After the results of these tests were considered sufficient according to earlier established requirements, the design was given green light.

Results

The redesign could be split into two parts; the interior enclosure, housing the hardware components, and the exterior enclosure, wrapping everything inside an aesthetic cover. The interior had been fully defined, using digital drawings, CAD models, technical drawings, an assembly manual, and a mock-up prototype, while the exterior part resulted in three potential suggestions, each worked out on a different level, from practically sufficient to mere conceptual. The interior enclosure resulted in multiple frames and 3D printed parts that hold all of the hardware components in place with a modular assembly and serviceable design while being relatively lightweight and cost-efficient.

Conclusion

In the end, the product gave the client a well thought through vision of what the new FAT-Table could look and work like, with most practicalities considered regarding materials, manufacturing, assembly, and maintenance. The concept product is left to be further developed and refined by the client, or to be served as inspiration, with their superior knowledge and expertise. Various recommendations are mentioned with regard to manufacturing and to making the product ergonomically friendly and more forgiving to maintenance.