

Intuitive User Interface Design for the backend of a 3D house configurator for Residential Construction Professionals

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Topic of the assignment: Analysing methods on how to design an intuitive user interface.
Keywords: backend, configurator, residential construction, usability, user interface design, work flow

The design of an user interface for a computer program is crucial for the usability. With a poorly designed interface, the functionalities can be hidden or unclear. This results in frustrations for the user as he does not understand how to work with the computer program. When an interface is designed with the mind of the user in mind, the flow and ease of use will increase. The better the program is adjusted to the needs and wishes of the user, the better the user will be able to work with the computer program.

The process of designing an intuitive user interface is researched with this thesis. The research question that is investigated is "How can an interface for a 3D house configurator for residential construction professionals be designed in such a way that it is intuitive and easy to use?". As a research case, a user interface will be designed for a new tool for Innobrix by Smart2IT. One of the products of Innobrix is a house configurator for potential new-built house buyers. Residential construction companies make three dimensional models of houses, which are turned into a configurator by Innobrix. The goal of the new tool is that the process of turning the models into a configurator is atomized and optimized in such a way that it can be done by the residential construction company employees themselves.

The process of creating an intuitive user interface can be divided in several steps: the analysis, the work flow, the detailing, and the evaluation.

Analysis

During the analysis phase, the starting point of the process is investigated. This includes, but is not limited to, analysing the needs and wishes of the stakeholders, the needed functionalities of the tool, the position and other companies on the market and the style of the company. Besides that, a literature research is done into the requirements of creating an intuitive user interface.

Work Flow

The first thing that is designed is the main work flow of the computer program. This is an iterative process with a lot of quick sketches and different ideas. Paper mock-ups are created for validation of the ideas with user testing. The result of this phase is a digital prototype of one intuitive work flow. The work flow that is chosen is a combination of a navigation bar in the form of a hamburger menu, and a 'what you see is what you get' inter-

face that resembles the final look of the configurator. Much like an interface for a document or video or photo editor interface, the final product is always visible as well as additional editor tools.

Details

When the design of the work flow is completely set, elements of the interface are looked upon in detail. These details are elements of the main menu, the work flow of specific pages, and details of one single page. Each element is incorporated in the digital prototype. To determine which details need further investigation and which details are worked out in the right way, this step is also combined with validation with user testing. An example of such a detail is the design of the buttons. The usual method of button design in user interfaces is investigated and this information is combined with iterative designs to optimize the interface. Eventually, the prototype is completely optimized and worked out when the usability tests are executed without any problems.

Evaluation

The last step of the design process is to evaluate the created design. In the evaluation, the design is compared with usability concepts and heuristics, as well as with the requirement specification. The interface lives up to the expectations of the requirement specification. The design is also in line with the discussed usability concepts and heuristics, apart from a couple of features that have to be added in the development phase.

Design Guide

To provide an overview of all the insights that are created during this research, a poster is created. This poster is a step-by-step guide of the most important parts of the above mentioned process. With this guide, Smart2IT can develop new intuitive user interfaces in the future.

Recommendations

The research ends with future recommendations for the user interface. These recommendations includes elements that have to be added in the development phase as well as recommendations for future improvements of the tool.

The above mentioned design process can be seen as an answer to the research question. The intuitiveness and ease of use of the user interface is determined by usability tests and the use of theories and concepts about usability. The decisions made in the project, are based on research, design thinking and user validations. Each of these inputs were of great importance for every step of the design process.

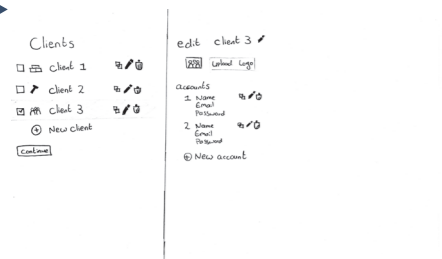


Figure 1. Work flow Mock-up 1

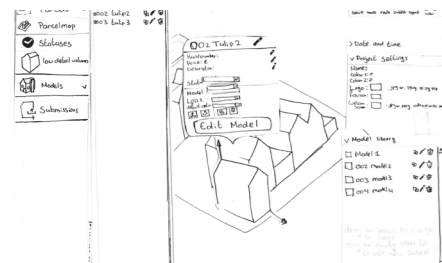


Figure 2. Work flow Mock-up 2



Figure 3. Work flow Mock-up 3

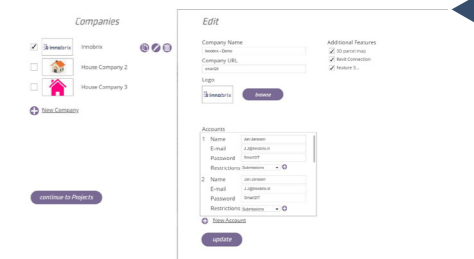


Figure 4. Digital Prototype 1



Figure 5. Digital Prototype 2



Figure 6. Digital Prototype 3