Design and Development of Material Selection Software

Jithin Krishna C T
Pallavi Yellamelli

Bachelor's Thesis Project
Department of Design

OVERVIEW

The final Material Selection Software helps the user to find intangible and sensorial properties associated with materials in addition with tangible properties. The software can also use FBS frameworls to help with the solution space of the problem being solved.

LITERATURE REVIEW

Literature review was conducted to find out the following:
1.How designers actually ideate? How different is the ideation process of professional designers and novice designers?
2.Are there any researches conducted in the domain of improving creativity? If yes, what are the existing methods to improve creativity?
3.Is there any way to represent products so as computer can help in supplementing the process of creating new products with computational methods?
4.What are the requirements of designers when they select a material?
5.What is the process of material selection? When does designers start selecting materials for the product they are designing in the process timeline?
7.What are the current solutions available to do material selection? What are the shortcomings of the current solution?

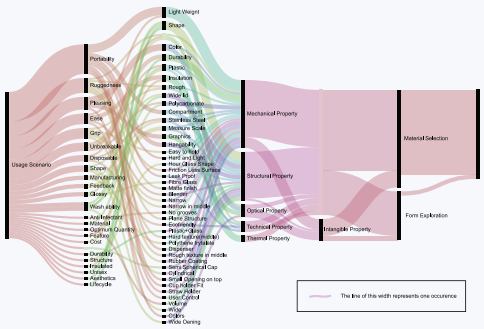
USER RESEARCH

After the literature research, with information from the literature research, we designed two experiments to find out how students of Department of Design and Department of Computer Science, Indian Institute of Technology Guwahati designed. The experiment was conducted in two phases, both analysed by think aloud method. This was conducted to find out the following:

1.How designers under training and students without no design background react to design problems?

2.From where does the participant introduce newer features to solve the problem?

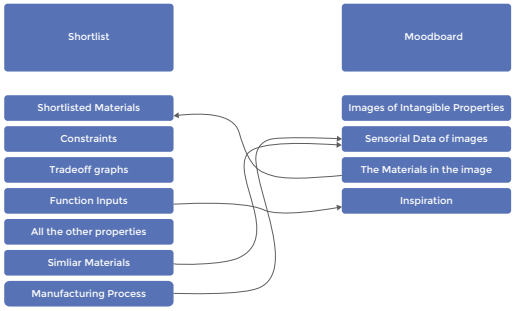
3.How does the participant react to a problem with cue cards? Will this increase creativity in terms of creativity as discussed earlier in the introduction?



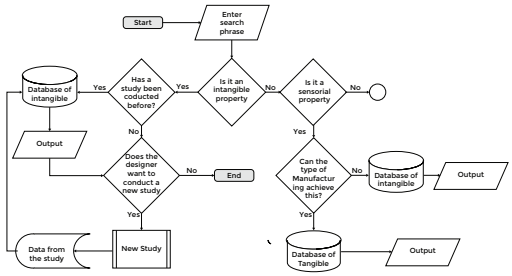
It was later analysed using an alluvial diagram as shown above.

THE SYSTEM DESIGN

The software works on a web based platform with user generated data for intangible properties.

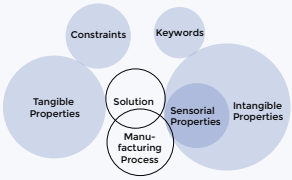


Two Sections of the System



Working of Intangible and Sensorial Properties

The software gives the designer option to add materials or images to 'Shortlist' and 'Moodboard' respectively. These are the two sections, which forms the backbone of the software. The Moodboard would be the right hand side of the program handling the aesthetics and user perceptions. While Shortlist handles technical constraints and trade-offs.



USER TESTING

The questions we tried to answer:
1. Does the user understand the meaning of Intangible/keywords/meanings?
2. Are the users able to find relations between sensorial properties and intangible properties?
3. Does the user think that it is easier to navigate and find materials than CES (a material selection software)?
4. Does the user understand what a study is and how to conduct them? a. When intangible properties are shown first as user searches for them. b. When no data shown and user directly redirected to conduct study.
5. Does the user understand the meaning of 'Shortlisted materials' when he first adds intangible meanings? Does the user understands the meanings of 'Moodboard' when he first adds materials to the shortlist?