
Designer Experience Through Magical Bits

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Abstract

This paper describes a method for designers to brainstorm around, and to experience, an end product before it is even conceptualized. Magical Bits are simple physical models representing the main property of the technology and the main function of the future end product. Knowing the end product's main function, and using these models as if they were working products, can help to put the experience in focus. By stepping away from the computer, technical limitations and "single solution thinking", the aim of this method is to let a designer develop through experiencing the users' perceptions and emotions.

Keywords

Designer Experience, design tool, Magical Bits

ACM Classification Keywords

H5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

Introduction

A product is, among other things, representing the designer's perception of people, possible users and possible use. This can of course limit the experience of the end product, especially if the product is outside the designer's actual interest and use. We need to find a

way to experience what we are designing for and emphasize this in the beginning of the design process.

Also, sometimes when we design, we find ourselves trapped in the computer box and have a hard time focusing on the main function of the product. When we are distracted by all these other impressions, it is hard to focus on the perceptions and feelings that we want to create, mediate or bring the user through the product.

Magical Bits

Magical Bits is a playful idea generation method aiming to focus on a technology's properties to find new areas to apply it. At the same time it is a way for a designer to experience the end product through a simple model that is representing the end product's main function. We have taken a step out of the computer box and looked at what properties we actually want to work with and put our focus on.

Magical Bits can be used as one of the initial steps in a design process, of what some people would call a technology-driven design process or "grounded innovation" [1]. However, we believe this technology-driven design method also fits in under the user experience concept. Our main question is: *How can we merge and optimize technology-driven and user-centric design?*

The idea of Magical Bits arose from another project, a method called *Inspirational Bits* [2], where our goal was to create physical models that would inspire to design possibilities through revealing a technology's properties. In a design process, Magical Bits would work as a good step after *Inspirational Bits*, when you

know what technology, and what property, that represents the main function in the product (table 1). This can be compared to a commonly used step in product development, called Functional Decomposition [3]. In this step however, still on an idea generating level, the user and the experience is in focus.

Technology	Feature	Magical Function	Function	Magical Bit
Image recognition	Add information to places	Write things on views	Write	Magical Pen
Image recognition	See information at places	See things that are not there	See	Magical Glasses
RFID	Add information to things	Put invisible notes on things	Note	Magical Post-it

Table 1. Examples of technologies and the Magical Bits that could represent possible features and functions of them.

In the most rewarding brainstorming or idea generation sessions people are not inhibited to express their irrational ideas and thoughts. However, sometimes technical limitations, or the lack of competence in the field, is interfering with our fantasy and liberalization. The Magical Bits help to distract from logic and preconceived meanings by being direct and simple. And magical. By intentionally making the Magical Bits look "magical", or even silly (figure 1), we believe that one can easier reach the state of mind, open and loose, that is ideal for brainstorming.

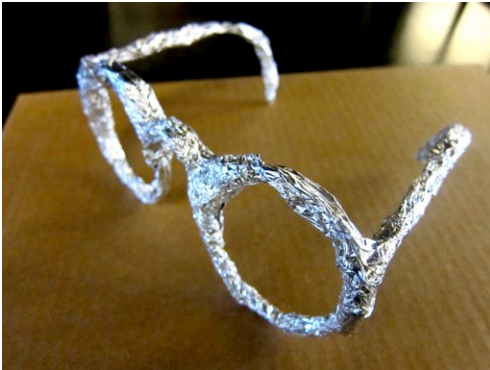


Figure 1. Magical Glasses representing a feature of image recognition. These glasses let the user see anything, anywhere, at any time.

Example: Magical Pen & Magical Glasses

We started out with computer vision and image recognition for mobile applications. Two interesting design properties of this technology is that one can add virtual things and information to places that can only be seen through the display of the mobile phone. The main functions here is that one can *add things and see things that do not exist*. A pen (figure 2) and a pair of glasses (figure 3) are simple tools that everyone is familiar with, which is why they make good models for this technology and functions.



Figure 2. Magical Pen that can write on anything, on air for example.



Figure 3. Magical Glasses in action.

Magical Bits in action

If you put on these magical glasses you will be able to see anything, anywhere, at any time. Wherever you look there is the information or augmentation provided, specific for your interests. What would you use them for?

The Magical Bits method was tried out in a small workshop. The aim of the workshop was to come up with new ideas of mobile applications based on different

sensors in the phone. The main focus was on using the camera for applications for image recognition. The participants in the workshop had different backgrounds ranging from design, programming and social science.

We started off with brainstorming around image recognition. Instead of introducing image recognition as a main focus to this group of people, where only a small part was familiar with the technology, we introduced the main function of the technology. In this case it was illustrated in the form of a pair of magical glasses. The participants were informed that these were a pair of magical glasses and with these on one would be able to see whatever one could wish for in different contexts. The participants were asked to describe what they would use the glasses for, for example in the subway, in the grocery store or in the city room.

The workshop was quite successful and we got a lot of new ideas to elaborate. We got the impression that the participants found it easier to let loose in the brainstorming session than what they had at earlier brainstorming occasions. The designers, with little technical knowledge in comparison, were not holding back because of insecurity about the technology. And the programmers seemed to be able to fantasize more freely, when not being reminded of technical limitations.

We also found that the participants were living in the role of actually using these tools as real products, similar to Method Acting [4]. They were not only talking about the use and the function of the possible products, they were also able to describe their thoughts and emotions while using them.

Biography

Katja Grufberg is a Design Engineer and is working at the Mobile Life Centre in Stockholm, Sweden. She holds a Master of Science in Engineering, within the degree programme in Design and Product Realization, at the Royal Institute of Technology in Stockholm. Katja is currently doing research based on engaging design and the understanding of technology through tangible illustrations.

Lars Erik Holmquist is Professor in Media Technology at Södertörn University, manager of the Interaction Design and Innovation lab at SICS, and a research leader at the Mobile Life Centre in Stockholm, Sweden. In his work he has developed many pioneering interfaces and applications in the areas of ubiquitous computing and mobile services. He has published extensively in the fields of ubiquitous computing, human-computer interaction, information visualization and mobile applications.

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