THE REFASHION LAB:
BUILDING DIGITAL MATTER AND HYBRID SPACE

Tobi Schneidler
Interactive Institute SMART Studio
**tobi.schneidler@tii.se [smart.interactiveinstitute.se]**

Abstract:

The exploration of architectural space, its conception and articulation is so far mostly modeled on a static understanding of structure and material, in relation to its inhabitation and use. Contemporary buildings are mostly frozen entities, enveloping organization and activities of its inhabitants through physical mass and form.

Interactive Media embedded in architectural settings can create new forms and organizations of mixed reality environments: enjoyment of the immediate physical nature of our built environments can be blended with the ephemeral nature of animated and interactive digital content.

1. Introduction

The use of interactive media in architectural spaces, like exhibitions, museums and shops has created a certain conservatism in the application of digital tools. Visitor have grown used to devices, such as interactive kiosks or wearable CD guides in a museum, expecting media applications to be trapped in such awkward technical boxes. But how can we liberate the understanding of digital, interactive media as something, that does not, by default, have to inhabit those obvious devices and gadgets? How can we make media truly part of the environment, a natural part of the structure, organization and ambience of a physical place? For some time already, media has been discussed as a force in the background, that can surface and augment real life situations, a notion also known as ubiquitous computing.

But beyond emphasizing the technological value of ubiquitous, or pervasive computing, it is important to recognize its potential impact on design and media disciplines as well. The nature of interactive artifacts or environments that are created in this realm, are by definition a hybrid between tangible things and the effects of digital media converging in real life situations. In this paper I want to introduce the notion of a hybrid architectural fabric, a spatial structure that is a composite of physical architecture and the digital domain. We produced two projects that use similar means: the 'ReFashion Lab' (www.refashionlab.com) and a media enabled historic blast furnace hall in Avesta / Sweden (www.tii.se/avesta). To illustrate the thoughts in this paper, I will focus on the 'ReFashion Lab', a prototype fashion store, that was shown in late 2001 at the Modern Museum in Stockholm.
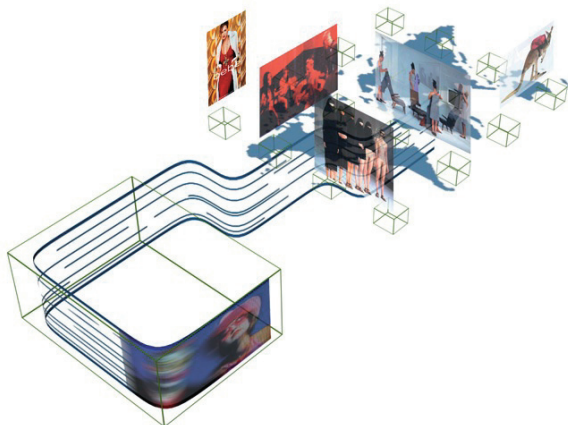
1.1 converging media and physical organisations
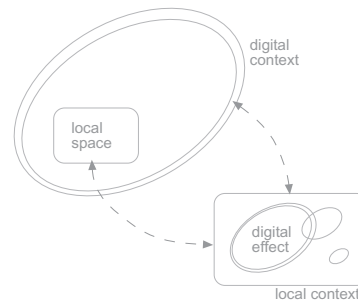
1.2 locating the physical space within a digital context

2. The ReFashion Lab

In the ReFashion Lab we are showing a new hybrid understanding of architectural space, one that is composed not just of physical structure. The underlying digital infrastructure becomes an integral, but invisible part of the spatial structure, organization and form. The ReFashion Lab is an interactive, media enabled fashion store that experiments with these new possibilities. The project was conceived as a conceptual and technological platform, joining artists, designers and engineers in the effort.

The space was modeled on known typologies found in retailing, like the shop window, changing room or probing mirrors. Visitors could therefore assume a natural role in exploring the space. But we also introduced some alien features, inviting an artist to play with the same infrastructure, using the interactive space as a kind of new canvas. Before describing two sample scenarios from the installation, the technological basis should be explained.

The infrastructure

The technical basis for this kind of media enabled environment is an invisible electronic infrastructure that maps onto the actual physical space. It features a standard Ethernet network, a server, sensors and output devices. Visitors are tagged with discreet radio frequency chips, which are worked into the fashion items. This allows the system behind the space to track the items, and therefore also the visitor's movement and actions. The sensors, or antennae for the chips are invisibly distributed throughout the space, corresponding to the active zones in the fashion store. This could be described as a spatially distributed interface, or 'interspace', reacting on the visitor with a number of different output media that are controlled by a central server. Media types can include audio-visual events, but also actuators that control spotlights or even kinetic events. Media content and interactive instructions can now be associated to single fashion items, creating a hybrid between physical artifact, media content and surrounding space.

Crucially, the tagged item carried into the space, and relating to the electronic infrastructure can support a great deal of totally different scenarios and applications. And this makes it a great design challenge, to think as much about the physical setting and the media content, and not just about the technology for its own sake. Since all three areas, namely design, media and technology have to be conceptually, functionally and formally integrated, the production of this kind of project has to be pursued within a true inter-disciplinary mindset.

3. Sample one: The MetaMirror

The MetaMirror is one of several distinct active zones in the ReFashion Lab. It is a hybrid between animated wall, mirror and information device. It is part of the architecture, relating in scale to the room and the visitor. In its idle state, a large animation is back-projected on it's surface, that was produced by Tomato Interactive in London. The scale of the installation makes it act like an animated wallpaper, continuously changing the ambience, light and feel of the space. Played with movie clips, it offers a space for artistic expression. But it can just as well act as a large, animated information billboard.
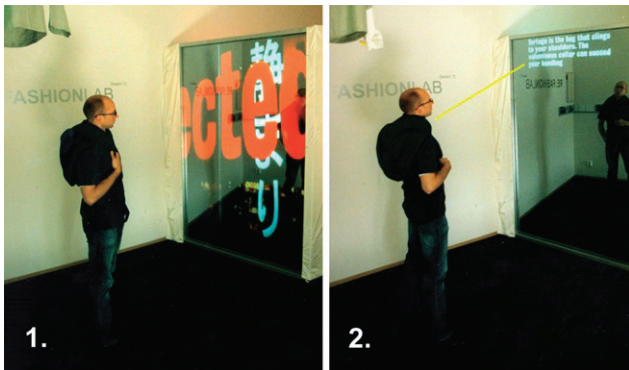
3.1 personalised event when the MetaMirror is approached

Once a visitor is approaching the large and animated display, the antenna behind the installation registers the item he or she is wearing. Now the actual interactive event can be unleashed. In the case of the MetaMirror we used a special semi-transparent mirror, which can act both as a normal mirror, as well as back-projected display. When the visitor's fashion item is detected , the display is fading from animation mode to mirror information mode. Above the persons reflection, on top of the panel, a message of information appears, one that specifically relates to the fashion item and visitor. The code of the tag is send to the server to source the information from the network in realtime. The visitor's reflection of photons in the mirror is overlaid with a reflection of digital content, relating to the hybrid artifact he or she is wearing.

Thus the link of ephemeral media, the space and physical object is creating a new conceptual entity, that is by definition hybrid in nature. This kind of hybrid entity is inhabiting the physical and the digital domain at the same time, challenging notions of physical presence, ownership and time. Physical matter and digital bytes are converging into new cultural products. Body and information are forming new relationships, while the environment takes the role of the enabling interface.
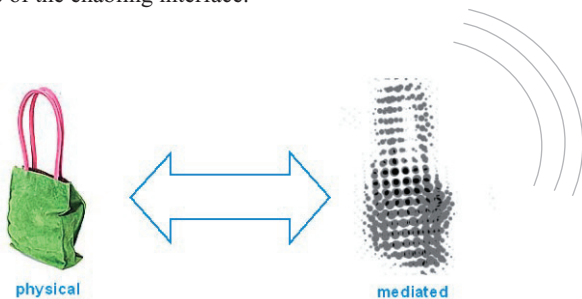
4. Sample two: The AudioScape

AudioScape is showing how the notion of music, interactivity and space can be reinvented. Layers of a specially composed music piece are playing, depending on the presence and movement of visitors in their specific fashion items around the active zones. Each fashion item has a unique sequence of sounds associated to it, in the form of digital files. Those files can be played back over a speaker that corresponds to the position of the visitor. With four active zones for the AudioScape, the movement of different visitors is creating a synchronized and spatial acoustic experience, that is unique at each moment in time. The interactive ambience of the space is thus mysteriously changing and adopting to the unfolding social situation.
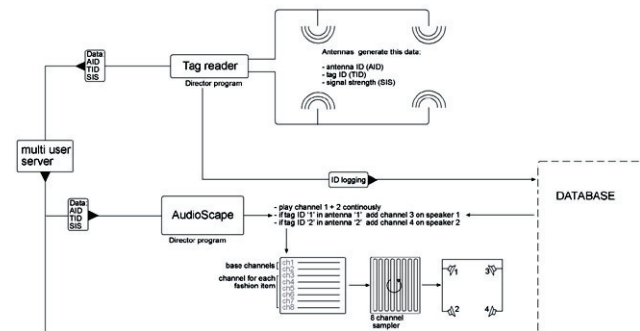
4.1 information architecture for the AudioScape

AudioScape is using the same underlying infrastructure of antennae as the MetaMirror, but it is occupying a different experiential territory. The artist Scanner contributed the sound composition that was used to augment the fashion items. The fashion piece as a hybrid entity in this case, is producing ambience and entertainment, rather than a specific information event.

5. Reflections

These examples are showing two very different ways of utilising the interactive potential of the system. One is direct and informative, addressing the person in the interactive space. The other is ambient and evocative, but still reacting to the visitors inhabitation of the space.

The issue of interaction design is part of the larger design challenge. It is a complex cognitive issue , to make the linking of the information and effects with the physical artifacts obvious to the visitor. Since the common interaction metaphors, such as buttons or touch screens are deliberately excluded, the user will not react to such an environment with the usual technology expectations, like towards an interactive gadget or device. Much more the installations are experimenting with a new thinking, that the interactive experience is part of the natural exploration of the physical place.

6. Speculations

This hybrid environment is stretching through the immediate physical, as well as the digital domain. The conceptualization and production of these interactive spaces requires new modes of interdisciplinary thinking and practice. The organizational, material and formal quality of the space is extended or augmented; not creating multimedia- , but multi-sensual interactive spaces.

The organization and use of space is commonly described as the 'architectural program', the challenge now is to converge the space, media and information technology into a new hybrid design of real life build designs.

At last, Architecture will be truly coded.