SpringFlow – A Digital Spring-Sign

Charlotte Axelsson, Eva Eriksson, Daniel Lindros, Marie Mattsson
IT-University, Box 9718, 402 75 Gothenburg, Sweden
+46 704 989909
{it1axch, it1erev, it1lida, it1mama}
@ituniv.se

ABSTRACT
We present SpringFlow, a digital Spring-sign, which, from February to May, changes its characteristics to indicate how far gone spring is. With the aid of our Spring-sign, you navigate through time just like you would with a calendar. Its construction resembles a hollow ball, while the appearance of it depends on the users interactions. By tilting it, changes in sound, light, heat and cold will be produced. Based upon prior work in ubiquitous computing, SpringFlow incorporates old techniques to create something new. This paper describes the components, interaction, implementation, conceptual approach, but most of all the aesthetics

Keywords
Aesthetics, interaction design, interactive installation, computer technology, human-computer interaction, open interface, computer aesthetics, tangible media, ubiquitous computing.

INTRODUCTION

Mankind no longer has the intimate relationship to nature as her ancestors did, who's everyday lives had to be adapted to nature's variations. The modern man often lives in a city and works indoors, thus missing out on the first signs of Spring's arrival.

With this background, we wanted to create a digital Spring-sign that indicates when spring is on its way, and how far gone it is. The spring-sign has attributes associated with spring and its purpose is to attract curiosity, rather than wake specific feelings.

The purpose of our design research is to explore a new role for the electronic object, a more poetic mode of habitation.

NordiCHI 10/02 Århus, Denmark

Dunne [1] names this a social research, to integrate aesthetic experience with everyday life through 'conceptual products'. We wanted to add new poetic dimensions to new experiences of everyday life.

We also wanted to explore the possibilities of using ubiquitous computing to help man to discover the changes of seasons, and especially spring.

We wanted to explore how the aesthetics of the artifact could be shaped in order to make the user more inclined to interact with it and understand its purpose. Another issue was whether it was possible to integrate two so dissimilar things as computational technology and spring-feelings into one object.

The focus of our work has been concentrated on the spring-signs expression and the aesthetics. This is a project where we have been working to sculpt computational material into new expressive forms. A new interface has been used to create an everyday object that communicates emotionally.

SpringFlow contains all of the elements of spring: increasing light, typical sounds, defrosting, heat and cold.

We conducted a survey of what factors people associate to spring, and based on this we designed and prototyped our concept.

PROTOTYPE DESIGN

SpringFlow is a sphere, divided into two hemispheres. The hemispheres are made of plastic cast in acrylic, which is semi-transparent but a bit frosty and milky in appearance. They are cast in a vacuum-machine, based on the shape of a natural stone. Our intention was to use a shape sculpted in nature to show the rebirth of nature, its growth and its increasing light. The choice fell on a stone because we wanted a form sculptured by nature.

The lower hemisphere include parts of copper, which, being a metal, has the attribute of conducting heat fast. We have placed two peltier-elements against the inner walls of the metal, giving us the ability to produce heat or cold on either side of the sphere. In the center of the sphere there is also an accelerometer that measures the tilt of the sphere, which in turn controls the intensity of the peltier-elements and three krypton-lamps (for the variations of light). The

inside of the lower hemisphere is covered in small stones to increase the characteristics of natural stone, to give the sphere an increased weight and to hide the electronics.

The sphere is connected to speakers, and generates different characteristic sounds depending on the tilt.

INTERACTION DESIGN

The interaction is time-limited, one can't interact when the sphere is "out of season". This means that SpringFlow is inactive during the summer, autumn and winter. It becomes active and starts to awaken right after the New Year, glowing almost unnoticeable, resembling the amount of daylight. This glow is meant to wake curiosity and a lust for exploring its secrets and what's hidden inside of it.

One has to lift up SpringFlow to be able to interact with it. When it's tilted, the sounds, amount of light and heat/cold changes according to the amount of tilt. We decided that when the sphere is being tilted to the right, one moves toward the summer, thus making it warmer and brighter. The sounds that are being generated shift from spring-sounds to summer-sounds. When the sphere is tilted to the left the light decreases, as does the temperature, because we are moving closer to winter. The sounds will become more and more like early spring and winter sounds.

The sounds we have chosen are natural sounds found in nature; sounds that people we have asked associate with the season. In late winter, sounds like snow-blizzard are being played. When the winter starts moving towards spring, the sounds played are ice-cracking, water dripping, rain and thunder. When spring comes, the sounds are birds singing. When the season turns towards summer, the sounds become waves, sea-gulls and splashing water.

The reason we have used these kinds of sounds, without using illustrative pictures or songs, is because instead of the artifact being a collection of predetermined symbols, it should be more abstract. We have an open interface, which gives a unique and individual experience. By connecting the sounds, the light and the temperature, people are supposed to draw their own pictures and opinions of what the sphere represents. Every person will create their own personal experience, depending on what memories and pictures they recognize from their own life.

DISCUSSION

Our project acts on tangible media, as the interaction occurs with a physical object and not through the traditional type of interface. Tangible media struggle to give physical shape to digital information and interactive surfaces. It has shown that Human Computer Interfaces can be created from natural parts of our daily environment, and that this integration can be an important step of placing the technique in the background, rather than in focus of attention [2]. SpringFlow utilizes this concept as it abstracts the information it is intended to provide during the interaction. The information in its original form is a type of calendar information, which through abstraction reduces the extent of detail in the presentation.

A reason for using abstract representation could be to create a presentation that is easier to adapt, to protect peoples integrity through not presenting to much information, or to create an aesthetic or entertaining way to display the information [3].

EXPERIENCE

We wanted people to be able to affect the dynamics of the digital content. The computer is an integral part of the design, and the interface allows a wide range of open ended and harmonious interactions, which is often lacking in computer based environments. The artificial environment created by this technological artifact is gaining more poetic and metaphysical relationships to expand the notion of design aesthetics. SpringFlow is an example of how technological design can be considered as art that improves the quality of our relationship to the artificial environment. IT is an attempt to convert computational technology and design into social benefits.

ACKNOWLEDGMENTS

We thank our professors at the Human Computer Interaction program at the IT-University, Lars Hallnäs, Johan Redström, Peter Ljungstrand, Staffan Björk, as well as our fellow students, for all their valuable advice and support.

REFERENCES

1. Dunne, A. Hertzian Tales; Electronic products, aesthetic experience and critical design. *RCA CRD Research publications*; London, UK, 1999.
2. Hallnäs, L., Jaksetic, P., Ljungstrand, P., Redström, J., & Skog, T. Expressions - Towards a Design Practice of Slow Technology. *Interact 2001, IFIP TC.13 Conference on Human-Computer Interaction*, July 9-13, Tokyo, Japan
3. Redström J., Ljungstrand P., Jaksetic P. The ChatterBox: Using Text Manipulation in an Entertaining Information Display. *Proceedings of Graphics Interface 2000*, Montréal, Canada.