Design by Fire
2007

The E Design Team
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Introduction
Welcome to the E presentation at Design By Fire. Today I will be presenting with my colleague, Paul Geurts, who is Lead Project Philosopher for the Project. Sandra Karis and Arjen Sondag, who won't be speaking today, were responsible for Lead Project Development and Lead Technical Development respectively. My name is Renato Valdés Olmos and I was responsible for Lead Product Design.

First of all I'd like to thank the organization for providing us with the opportunity to present at this event. We will be giving you an overview of our product and a detailed description of our research, findings and conclusions. Sources, links and other material related to this presentation will be available for download afterwards.

Project Description
To start off: our product. E - a vertically integrated brand concept, experience or service, consisting of three context-aware products: Exo, Evo and Eco. Exo is an anthropomorphic communicational device, which is operated through gestures. Evo is a smart, wearable social networking tool and Eco is the network and user interface used to manage both devices.

E was designed out of one simple philosophy: Invoking human face-to-face interaction. We wanted to translate a web-based service to the physical world, by applying multidisciplinary conventions to provide a user-centered solution.

My colleague Paul will now elaborate on some of the theories, research and philosophy regarding Project E.

The Physicality of the Web, Tomorrow
We are gathered here to discuss, human computer interaction in relation to design and emotion. HCI is dying it is no longer a legit term to discuss the field interaction design. HCI is a demon which awoke when there where still two worlds the world, of bits and atoms. There have never been two actual different worlds. Even the use of atoms to be a metaphor for bits I find discussable. Bits have always been bits of atoms. Or to put it in the words of Bruce Sterling in his lecture for the Waag Society, "If someone blasts away your servers tomorrow, your internet will be down" .

Not only this scientific attitude is changing my perception of the internet rapidly. I see

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the changes emerging around me, the internet used to be a different pane on which we communicated. Now the internet is becoming more and more a part of everyday society. It has become the place where we trade, Where we build relationships,where we destroy them. It has become a huge discotheque, a marketplace a playground and a university. The internet takes away the boundaries which physicality brings along. It is just a new medium to communicate. It for sure is not as Gibson describes in his novel Neuromancer a cyberspace where you jack in to.

We see more and more physical manifestations of the web. I recently acquired a discount card for dutch Public transport. The card is loaded on to a RFID Card called a OV-Chipcard, this is a comparable system to the blue oyster card in the london public transport system. One could argue that this has nothing to do with interaction design or human computer interaction. As designers we face an interesting period where we use the benefits of the internet, namely taking away the physicality factor with the benefits of physicality.

Let me use my OV-Chipcard as an example. It has to be physically present at the time I use it. It has to pass a RFID reader where I check in, and one where I check out. The card has to be present to make me pay for my journey. So far so good. Now lets look at the other end. The data which is gathered from the system can be used to improve public transport. If one subway train is always busy near the time the "Autorai" hits Amsterdam, the subway could address extra trains in that period. By logging the data they can easily monitor the peaks in their system and they can do it realtime or even afterwards. They don't have to be present in the trains anymore to count the passengers. If there are a lot of people neglecting the fare this will show in the discrepancy between actual travelers and the data.

In Japan they have seen the rise of the interactive image named the QR code. Although not as popular in Europe it is highly popular in Japan. We shot this picture in a bus from the airport to the hotel we just landed in japan and we already seen the first examples of QR usage. Later when | looked in my passport to see the stamp from the journey I saw they applied a QR code instead of a stamp in my passport.

We see the physicality of the internet emerging around us. More and more physical variables are being used in systems we call this context awareness. We let variables of the physical world be known to our systems. A simple example is temperature monitoring in cooling systems.

We use context awareness throughout our system. E is a context aware system, as we

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will show you later on in this presentation. Exo notices when someone with a EVO approaching him. EVO's notice each others presence. The entire system is context aware. And uses variables from the physical world in a digitized environment.

The Speed of Communication at the Pace of Live

Using the context awareness in our systems makes them smarter and more efficient. It requires less user handling. We communicate more efficient and smarter with our systems. Instead of pushing a button to create light, I just walk into my garden and the light automatically functions, given the condition that it is dark enough.

Through the trend of ambient experiences and context awareness. We see a change in human system interaction. This is combined with a the faster communication phenomena we see today. People communicate faster and easier through the use of mobile phones, the internet and text messaging. The rise of the instant message and the latest trends we see today the micro-blog, Twitter is one of these technologies which speeds up communication even more. Recent research by the National Academy of Sciences has shown that the faster we communicate the faster we walk and move around. There is a connection between the speed of communication and the speed of life so to say. The more efficient people communicate the faster people move and the faster cities grow. We will provide a link so you can download this article.

The Experience Economy

We used to have a economy based on goods. People would trade things for other goods later we replaced these goods with money. The goods became services, People would pay someone to find the cheapest mortgage for example. The internet is changing our economy rapidly, we see that these people are now no longer required, since anyone can compare mortgage rates on the net trough easy to operate search engines. We are moving to a more advanced service economy where every business is a stage. I would call it the experience economy. Let me give you a example of the experience economy we see happening around us. Coffee is a typical commodity. Coffee is a typical good of the old economy. People pay and they get their coffee. Lets look at the campaigns from the Dutch coffee producer Douwe Egberts. One of their first slogan's is "Douwe Egberts Coffee is good Coffee" focusing purely on their product. Douwe Egberts has made the shift towards a different campaign and marketing. |n the service economy they made the shift towards a system of collecting points which you could trade for goods. They no longer sell coffee they sell experiences, they are on top of their game, they sell a lazy afternoon and energetic morning. They sell a blend for each moment of the day, a summer afternoon relaxing in the city; why not take a ice coffee. They sell you an image an experience.

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Web Exhibitionism

The internet has brought the world into a wave of massive change. It has undoubtedly manifested itself in many facets of our everyday lives, and continues to do so steadily, at a pace which is for many, incomprehensible. The internet caused a widespread social change through the coming of the Web 2.0. Engaging, sharing and communicative communities of people worldwide collaborate and socialize through web-based services.
In our opinion however, face-to-face interaction is still the most valuable interaction.

Computer-mediated-communities are virtual communities that are characterized by the fact that users are separated in time and space. Co-present or wearable communities however, are characterized by direct interactions in face-to-face settings. A wearable community is a computer-mediated co-present community. It uses wearable computing technology in the same way an online community uses Internet. They are based upon embodied real-world human encounters, augmented by wearable computing technology. Wearable communities attempt to reunite physical place and social space. They are situated in rich social context and environments. The difference between creation of online- and wearable communities is based upon the interaction between users. They differentiate themselves from online communities in three important ways: social-, usage- and technical context.

In social context, communication partners will be aware of whom they are interacting with and be able to observe important social cues including gender, clothing and gestures. They might even be able to talk to each other. The addition of social context triggers the user's willingness to engage with strangers and the particular manner in which they interact in an embodied experience.

Usage context: When wearable computing devices are involved, the users' attention is scarce. Instead of sitting in front of a computer where a user can pay full attention to the computer and its operation, wearable computers are used in situations where the user's attention is occupied by demanding real-world tasks like driving, operating a machine, or simply having a conversation with other people.

You could almost say we're becoming more and more exhibitionistic. But with E, instead of keeping people confined and individualized behind a screen, we want them to meet each other in real life. But at the same time, providing them with online services to keep up with their social life or meet new people.

Product Presentation

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Like I described at the beginning of this lecture, E consists out of three products: Exo, Evo and Eco.

Please have a look at an interview we gave earlier, to get an impression of our product.

Uncommon Grounds

We were educated as interaction designers, and had the possibility to absorb as much theory and practice available through our academic process. In these past years however, we've learned that in order to create real user-centered experiences, we have to look beyond our familiar field to conventions, methods and paradigms from other disciplines. E was a combination of research, conceptualization, interaction, product, and graphic design. Hardware design and engineering, all performed by the four of us as interaction designers. While most of us have a broad sense of the practice of design, we learned how to prototype with other things besides paper. Traditional interaction design usually doesn't reach beyond paper-prototyping and the evaluation of flowcharts. We worked with with plastics, circuit boards and LED lighting. We conceptualized and applied user-centered design principles throughout this whole process. Hereby, interaction design did not only bridge the gap between the system and the user, but also between a varying amount of design disciplines. We called this interdisciplinary interaction. And by combining these methods, we were able to create balance between technology, aesthetics and usability.

Paul will now describe how interdisciplinary research affected the outcome of Exo's ambient lighting system.

Designing the Emotions

We designed a system that is on the fringe of the things we have seen happening in Ambient Experience design until now. A lot of this type of design still focuses on productivity. We developed E as a graduation project, this gave us a chance to look at the future of the interfaced world, the internet of things. We deliberately used emotions because real emotion is still a part of the physical world. Systems can not adequately communicate emotion, you are thinking of emoticons in your im program. Emoticons are a facade for actual emotion communication. As soon as you are asked to code your emotions they are meaningless and they odd to be seen in the context of the IM conversation. We decided to build a system where you communicate emotion an ambient experience. Our system take communication away from the computer and moves it back to its core. Our system E is a entity we did not only market it that way but we even designed it in such a fashion. You put the EXO in your living room and it resembles the presence of your friends. It communicates in a very natural way. If you shake the EXO

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vigorously it will communicate that you are angry. If you wiggle it like a baby it will communicate the Emotion love.

One of the hardest tasks is creating a good schedule for emotions picking out al the primary and secondary emotions. I believe Emotion is like a Deleuzian Rhizome, it is a cloud, emotion is not to be separated or simplified. We had to come up with a few basic emotions to simplify our design task. We chose 5 basic emotions; love, anger, fear, joy and sadness. We simplified the emotions, this is only for the sake of the design to make sure that we could accomplish the task in the short time stake of marly 6 months. We believe emotions have a richness which can not be brought down to 5 or 6 basic emotions.

We did research and we looked at different theories we looked a people like Ekman, Picard and Fryda. Picard works at the ambient lab of MIT and is writer of "affective computing" an interesting read for all of you in my opinion. Fryda has written the book "the emotions" and she is a general theorist on Emotion. Ekman is a theorist in emotions and he has come up with different systems of categorizing the emotions. We compared the systems and opinions of all the theorists and used common sense to come up with our basic emotions. Because they only hold a small part of the spectrum they are not that relevant we want to create a broader selection over time. This just to give a prove of concept.

We choose to use physical movement for input. You have to engage with the product to use it. Pick it up shake it cuddle it or lift it. We believe these movements stand close to the actual feeling you have at that time. We tested this with different audiences.
We would show them a card displaying the Emotion and hand them an artifact with which they had to preform the movement they felt with that emotion. We used different peer groups and we started to see patterns. We used this patterns to create the movements for each emotion. This became our final method of input.

They input is quite unique. So is the output. We designed an artifact that even breaths like a human-being. It is an entity in your living-room. They output of the emotions happens trough ambient lighting and sound. As we have seen in the example shown earlier this lecture. We used an external sound designer to create the audio used with the emotions.

The Future of Interaction Design
I think most of you are familiar with many science fictions films like Blade Runner, Kubrick's 2001, or even Star Wars. The future sketched in these films we're written decades

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ago, when there was no such thing as an internet, graphical user interfaces or even a personal computer. The first Mac wasn't even ready to infiltrate a consumer's home office. Yet these films did sketch the obvious: technology is the factor to carry mankind into the future. The factor which makes us the earth's dominant species.

In these past years we've seen design-awareness emerging, people choosing ease-of-use over functions. This caused not only our systems to change, but it highly affected our objects. And in our opinion, the interaction designer is a crucial asset to the way our future in services, experiences and devices are shaped. The coming of computer ubiquity, minimization of hardware and range of communicative networks also cause the internet to change. We're no longer confined to our desktops to access our services. This calls for new conventions, a new way for interaction designers to approach projects. Will existing conventions be enough to cope with future problems? Is the Interaction Designer experienced enough to survive the transition to a physical internet? What will be the future of physical interaction in relation to HCI?