

Study of Digital Jewellery

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Abstract— The aim of this research was to explore the possible integration of digital technologies and contemporary jewellery towards the development of digital jewellery. I sought to investigate the relevance and appropriateness of such integration as extensions of contemporary jewellery through personally and emotionally significant experience. The combination of microcomputer devices and increasing computer power has allowed several companies to begin producing fashion jewelry with embedded intelligence i.e., Digital jewelry. Digital jewelry can best be defined as wireless, wearable computers that allow you to communicate by ways of e-mail, voicemail, and voice communication. I developed a practice-centred methodology rooted in craft practice that tests the appropriateness of contemporary jewellery practice as a creative strategy and research tool in the development of personal and emotionally significant digital jewellery. My process focused on the involvement of individual participants with the aim of weaving aspects of their personal histories that were emotionally meaningful to them into pieces of digital jewellery. Even the devices we use are protected by passwords. It can be frustrating trying to keep with all of the passwords and keys needed to access any door or computer program. This paper discusses about a new Java-based, computerized ring that will automatically unlock doors and log on to computers.

Key words: Digital jewelry, Digital Jewelry and Its Components, contemporary jewellery

I. INTRODUCTION

The latest computer craze has been to be able to wear wireless computers. The Computer Fashion Wave, "Digital Jewelry" looks to be the next sizzling fashion trend of the technological wave. The combination of shrinking computer devices and increasing computer power has allowed several companies to begin producing fashion jewelry with embedded intelligence. Today's manufacturers place millions of transistors on a microchip, which can be used to make small devices that store tons of digital data. The whole concept behind this is to be able to communicate to others by means of wireless appliances. The other key factor of this concept market is to stay fashionable at the same time. By the end of the decade, we could be wearing our computers instead of sitting in front of them.

A. Definition Of Digital Jewellery:

- Digital Jewelry is the fashion jewelry with embedded intelligence.
- "Digital Jewelry" can help as to solve problem like forgotten password and security badges.
- Digital jewelry will be the evaluation in digital technology that make computerelement entirely compatible with the human form.
- They have the potential to be all-in-one replacement for your driver license, key chain,

business card, credits card, health insurance card, corporate security badge and loose cash.

II. DIGITAL JEWELRY AND ITS COMPONENTS

Soon, cell phones will take a totally new form, appearing to have no form at all. Instead of one single device, cell phones will be broken up into their basic components and packaged as various pieces of digital jewelry. Each piece of jewelry will contain a fraction of the components found in a conventional mobile phone. Together, the digital-jewelry cell phone should work just like a conventional cell phone. The various components that are inside a cell phone : Microphone, Receiver, Touch pad, Display, Circuit board, Antenna, and Battery . IBM has developed a prototype of a cell phone that consists of several pieces of digital jewelry that will work together wirelessly, possibly with Blue tooth wireless technology, to perform the functions of the above components.



Cell phones may one day be comprised of digital accessories that Work together through wireless connections. Here are the pieces of computerized-jewelry phone and their functions.

A. Earrings:

Speakers embedded into these earrings will be the phone's receiver.



B. Necklace:

Users will talk into the necklace's embedded microphone.



C. Ring:

Perhaps the most interesting piece of the phone, this "magic decoder ring" is equipped with light-emitting diodes (LEDs) that flash to indicate an incoming call. It can also be programmed to flash different colors to identify a particular caller or indicate the importance of a call.



D. Bracelet:

Equipped with a video graphics array (VGA) display, this wrist display could also be used as a caller identifier that flashes the name and phone number of the caller.

Traditional sterling silver watch
(silver plated to hide firestain)



With a jewelry phone, the keypad and dialing function could be integrated into the bracelet, or else dumped altogether -- it's likely that voice-recognition software will be used to make calls, a capability that is already commonplace in many of today's cell phones. Simply say the name of the person you want to call and the phone will dial that person. IBM is also working on a miniature rechargeable battery to power these components.

III. CREATING DIGITAL JEWELLERY

Our analysis of craft, jewellery and digital technologies arises from a doctoral research investigation, conducted by the principal author, exploring the integration of digital technologies within contemporary jewellery objects. Within this research one aim is to learn elements of what is personally significant to someone and to echo fragments of this back in the form of digital jewellery. The aim is not to translate existing modes of communication, such as mobile phones, into digital jewellery, but to create objects which echo those types of communication that are significant to people in a far less prescribed way. The pieces are meant as objects for the specific individuals involved in the research, not as prototypes for mass manufacture, and is an approach that echoes a tradition within craft and jewellery practice. The pieces pose a polemic for the design of digital jewellery: what this new category of object can potentially be and how it can be an extension of contemporary jewellery rather than of current digital devices or gadgets. Within the research six individuals shared stories, memories and reflections of their lives through a set of 'stimuli', which draw influence from 'Cultural/Domestic Probes' (Gaver 2001) and jewellery project 'KPZ-02' (Bartels and Lindmark-Vrijmann, 2002). The set of object based 'stimuli' involve action, play and reflection to ask questions, tell stories and create images to gain insight and information of experiences, interactions, relationships, events and memories etc. which, for each individual, are important and valued. The stimuli are related to the themes of:

- (1) personal ideas of preciousness, significance and symbolism
- (2) the meanings and roles attached to each person's ideas of jewellery, in practical, evocative and emotional terms
- (3) communication, both interpersonal and concepts of existing and future modes
- (4) positive memories, aspirations and goals
- (5) transience and permanence

Within the researcher's practice jewellery has often played the role of objects that stimulate a discussion or act as a focal point within a relationship. The use of objects as mediators in the collection of inspirational data about each participant is therefore a continuation of the way jewellery often functions within the researcher's practice.

The digital jewellery pieces result from an interpretation of these shared fragments. The process does not instruct an audience what they should want or need, nor is the individual dictating to the maker what to make, but through a conversation of perspectives found through the iterative process an empathic, intuitive idea arises. One key importance of the process is an openness, which allows the audience to interact as individuals, adding their own interpretations within the interaction. From the six response packs, three were selected for development as digital jewellery pieces. Each of the three pieces produced consist of a crafted jewellery object together with aDVD to illustrate the digital potential of the piece.

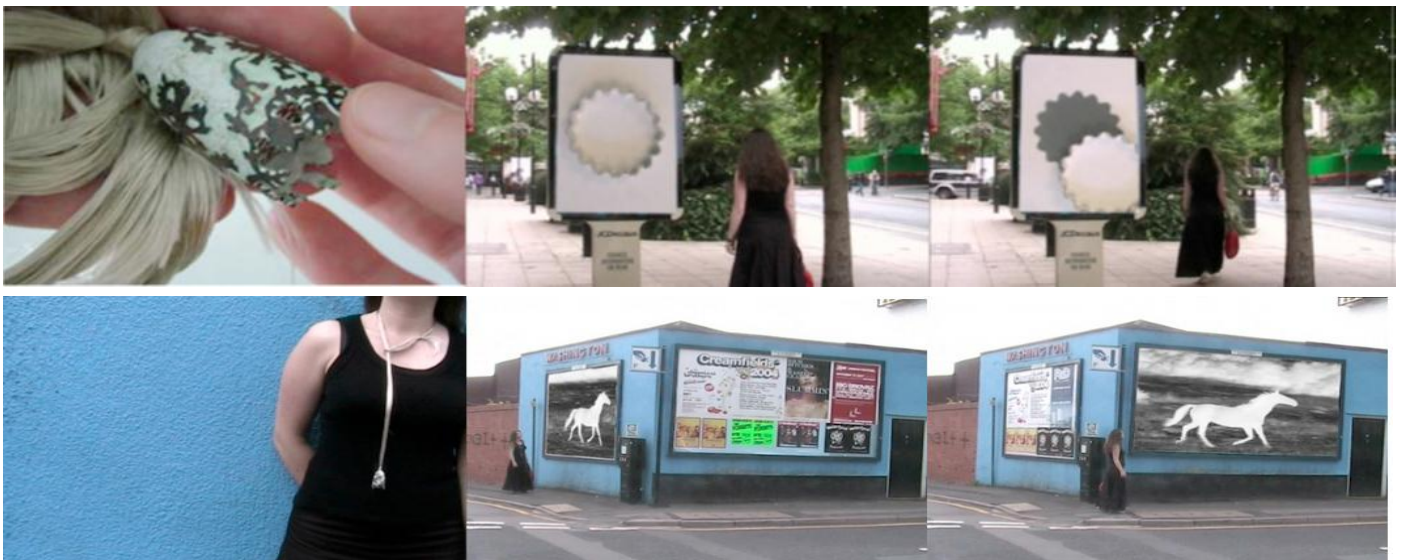


Fig. 6: Jayne Wallace 2004 'Sometimes'

A. Jewellery As Communication:

Randall White, professor of anthropology at New York University suggests that any discovery of collective human coexistence can be described as a society if there is evidence of jewellery in that collective. He states that "What people wear, and what they do to and with their bodies in general, forms an important part of the flow of information - establishing, modifying, and commenting on major social categories." [1] This perspective provides a view of jewellery, which establishes it as a defining signifier of society and the power relationships within it. There is evidence throughout history that objects have been worn or attached to the body to symbolise status, difference and a way of asserting individualism. These first connections between purpose and self-adornment form the precursors of what we now know as jewellery. Traditionally jewellery has followed in these footsteps. It has been used to symbolise wealth, social status and cultural positioning. However the power an object has, particularly one worn on the body, to exemplify and express many broader concepts has advanced the medium of jewellery from this traditional role.

IV. TECHNICAL SPECIFICATIONS OF DIGITAL JEWELRY

Digital jewelry devices consist of a screen or display for information, most likely consisting of 7-16 segment, or dot matrix LEDs, LCDs, or other technologies such as electroluminescent material (EL) or others, which could become an optional display. So too, an audiovisual or other 'display' could consist of a speaker, a single flashing light, a sensor of some kind (such as a temperature driven EL display), or other informational aesthetic. The display layer sits on a face of the device, which is enclosed in some material such as plastic, metal, crystal, or other material. It has external switches and buttons on its side and a data-port for accessing the programmable electronic circuit inside. Digital Jewelry can be made in many different sizes and shapes with a variety of materials ranging from plastic and metal to rubber and glass. They utilize electromagnetic properties and electronics to display information through a screen or display of some kind. This could range from LED 7-segment, 16-segment, dot matrix, and other programmable

LEDs devices to LCDs, OLEDs, and other display devices. A micro controller that is a surface mounted device (SMD) on a printed circuit board (PCB) with resistors (R) and capacitors (C) are the internal 'guts' of the jewelry. Digital Jewelry can be made in many different sizes and shapes with a variety of materials ranging from plastic and metal to rubber and glass. They utilize electromagnetic properties and electronics to display information through a screen or display of some kind. This could range from LED 7-segment, 16-segment, dot matrix, and other programmable LEDs devices to LCDs, OLEDs, and other display devices.

V. DISPLAY TECHNOLOGIES

The digital jewelry display, for instance, every alphabet and number system has found representation within the electronics realm and 'dot-matrix' (a matrix of single LEDs) is used to display Chinese and Japanese and other character sets, as can the alternative display for LCDs (liquidcrystal-displays) also be used, as often found in watches.

alphanumeric or graphic Display Types



VI. CURRENT AND ONGOING ACHIEVEMENTS

A. Intelligent Spectacles:

Intelligent Spectacles this could be the shape of designer glasses to come. These intelligent spectacles let you surf the web or check your e-mail, whenever and wherever you want. Your eye would serve as a mouse, with menu items selected by focusing your attention on an item on screen.

B. Smart Wrist Watch:

Having the power of a computer on your wrist may sound like science fiction. But this is the idea behind the wrist

watchPDA. It would have a widescreen display to watch video, and voice recognition technology so that you can use it by simply talking to your wrist. And of course, it also tells you the time.

C. Charmed Communicator Eyepiece:

Charmed Technology is already marketing its digital jewellery, including a futuristic-looking eyepiece display. The eyepiece is the display component of the company's Charmed Communicator; a wearable, wireless, broadband-Internet device that can be controlled by voice, pen or handheld keypad. The Communicator can be used as an MP3 player, video player and cell phone. The Communicator runs on the company's Linux-based Unix operating system. The eyepiece above displays images and data received wirelessly from the Communicator's belt module.

D. Mouse Ring:

The Optical Finger Mouse is created by Logisys. The innovative way of browsing your computer via this optical mouse is just so tremendous. It seems so easy to use. Just strap the mouse on to your middle finger or index finger and find a flat surface and you can maneuver the cursor on the screen with your hand free to do what you want with only slight finger or hand movement. Don't worry about the typing as, this mouse allows you to type while using it and much more. It is connected to the CPU via USB cord and can be used with mobile laptops as well. I am sure if this mouse is in our market the users will try it out as it is a coolly designed futuristic piece of equipment.

E. GPS Toe Rings:



GPS Toes, toe rings which act as directional indicators and are wirelessly connected to a GPS receiver kept in a bag or worn on a belt.

VII. FUTURE ENHANCEMENT

Digital jewellery and handshakes posited as the future of payments: The report, Pay Your Way 2025: Future Payments, looks beyond the probable to take a broader look at what could become available in 2025 for the most enthusiastic consumers of technological advances. The Payments Council commissioned its own research into consumer perceptions of payments trends and asked

futurologist Dr Ian Pearson to offer his view of the potential developments in payments.

VIII. CONCLUSION

The basic idea behind the digital jewellery concept is to have the convenience of wireless, wearable computers while remaining fashionably sound. It provides security and easy to carry. However, several bugs remain. Charging capabilities and cost are just a sample of the problems that lurk.

Jewelry is worn for many reasons -- for aesthetics, to impress others, or as a symbol of affiliation or commitment. Jewelry might double as our cell phones, personal digital assistants (PDAs) and GPS receivers. Each piece of jewelry will contain a fraction of the components found in a conventional mobile phone. Simply say the name of the person you want to call and the phone will dial that person. IBM is also working on a miniature rechargeable battery to power these components.

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