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Digital Trinket

[1] L. Manisha Priya
[1] B.E, Computer Science, Jeppiaar Institute of Technology.

Abstract: This paper describes the use of Trinket in a digital way. Trinket worn for many reasons -- for exquisite, to impress others, or as a symbol of affiliation or commitment. Basically, Trinket embellish the body, and has very little practical purpose. However, researchers are looking to change the way we think about the beads and bobbles we wear. In the next wave of mobile computing devices, our trinket might double as our cell phones, personal digital assistants (PDAs) and GPS receivers. In the next age of computing there will be an explosion of computer parts across our bodies. It can defined as the wireless wearable computers that allow you to communicate by different ways. This paper enlightens on how various computerized Trinket (like ear-rings, bracelet, ring, necklace etc) will work with mobile embedded intelligence. 'Digital Trinket' can help you solve problems like forgotten passwords and security badges.

Keywords: Wearable Computers, Mobile Computing, Embedded Systems, Wireless Computing.

INTRODUCTION

The latest computer craze has been to be able to wear wireless computers. The Computer Fashion Wave, "Digital Trinket" 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 be able to communicate to others by means of and security badges.

WHAT IS DIGITAL TRINKET?

Digital Trinket is the fashion Jewelry with embedded intelligence. "Digital Trinket" can help you solve problems like forgotten passwords and security badges. "Digital Trinket" is a nascent catchphrase for wearable ID devices that contain personal information like passwords, identification, and account information. They have the potential to be all-in-one replacements for your driver's license, key chain, business cards, credit cards, health insurance card, corporate security badge, and loose cash. They can also solve a common dilemma of today's wired world – the forgotten password.

DIGITAL TRINKET 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.

"Figure 1"

Here are the pieces of computerized-Jewelry phone and their functions:
• Earrings - Speakers embedded into these earrings will be the phone's receiver.
• Necklace - Users will talk into the necklace's embedded microphone "Fig 1".
• Ring - Perhaps the most interesting piece of the phone, "Fig 2" this "magic decoder ring" is equipped with light-

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emitting diodes (LEDs) that flash to indicate an incoming call. It can also be programmed to flash different colours to identify a particular caller or indicate the importance of a call.

The same ring that flashes for phone calls could also inform you that e-mail is piling up in your inbox. This flashing alert could also indicate the urgency of the e-mail.

Magic decoder rings will flash when you get a call. "Figure 2"

Bracelet - Equipped with a video graphics array (VGA) display, "Fig 3" this wrist display could also be used as a caller identifier that flashes the name and phone number of the caller.

With a Jewelry phone, the keypad and dialling 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.

"Figure 3"

TECHNICAL SPECIFICATIONS OF DIGITAL TRINKET:

Digital Trinket 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 audio visual 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. 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 Trinket.

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 EYE PIECE:

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

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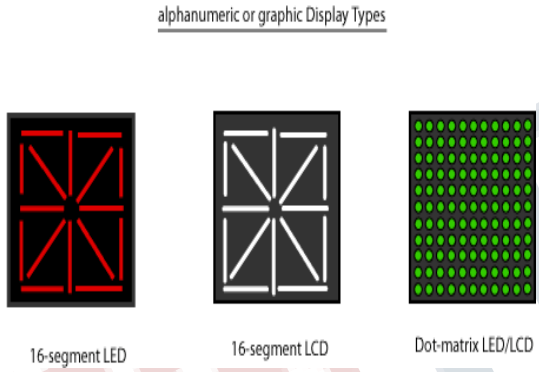
with your hand free to do what you want with only slight finger or hand movement. Don't worry about the typing as, this mouse allows you to type while using it and much more. It is connected to the CPU via USB cord and can be used with mobile laptops as well. I am sure if this mouse is in our market the users will try it out as it is a coolly designed futuristic piece of equipment.

DISPLAY TECHNOLOGIES:

The digital Trinket display "Fig 5", 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 (liquid-crystal-displays) also be used, as often found in watches.



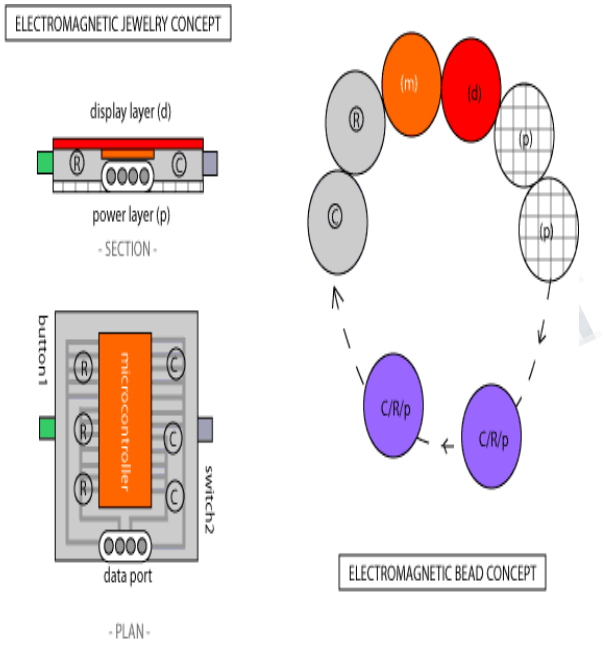
" Figure 4"

Digital Trinket can be made in many different sizes and shapes with a variety of materials ranging from plastic and metal to rubber and glass "Fig 4".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 displays, which are all driven by the self-contained trinket devices themselves.

ELECTROMAGNETIC BEADS:

The closest comparison to this model is that of 'beads' which are strung together to make a custom necklace or bracelet, with interchangeable electromagnetic component systems or devices. One bead may be a capacitor on the inside, and a solar panel on the outside. Another bead may have an internal resistor which feed power into a programmed microcontroller bead which drives an external screen, with other options available in a variety of bead configurations which compose a circuit, including beads with a piezo element, voltage regulator, crystal, or rechargeable battery as part of the modular jewel circuit. The number of data pins on the microcontroller needs to be enough to easily program the display layer plus the switches without overly complex and advanced coding methods

The key to the device's ability to work effectively is a balancing of electronic components within the circuit with a light-duty processing and limited power consumption required for the display (d) layer.



"Figure 5"

THE JAVA RING:

It seems that everything we access today is under lock and key. 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 "Fig 6". Dallas Semiconductor is developing a new Java-based, computerized ring that will automatically unlock doors and log on to computers. A Java Ring is a finger ring that contains a small microprocessor with built-in capabilities for the user, a sort of smart card that is wearable on a finger. Sun Microsystem's Java Ring was introduced at their JavaOne Conference in 1998 and, instead of a gemstone, contained an inexpensive microprocessor in a stainless-steel iButton running a Java Virtual Machine and preloaded with applets (little application programs). The rings were built by Dallas Semiconductor.

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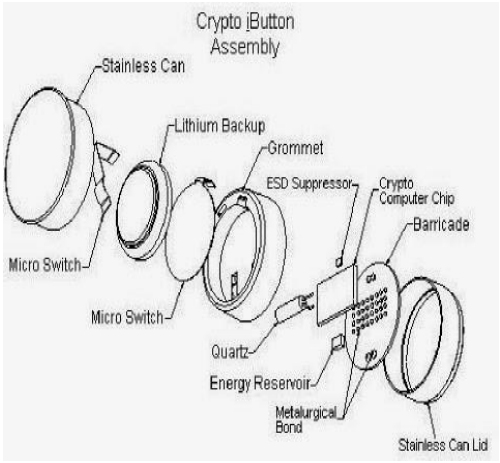

"Figure 6"

The Java Ring can be programmed to give you access to every door and device.

BLUE DOT RECEPTOR:

"Figure 7"

The Blue Dot Receptor "Fig 7" is used, in conjunction with the USB 1-Wire Master, to communicate with the iButtons during the configuration and downloading of data from the logger. Features include: Provides a positive and durable connector for iButtons.

The Java Ring is a stainless-steel ring, 16-millimeters (0.6 inches) in diameter, which houses a 1-million-transistor processor, called an iButton. The ring has 134 KB of RAM, 32 KB of ROM, a real-time clock and a Java virtual machine, which is a piece of software that recognizes the Java language and translates it for the user's computer system. Digital Trinket, (designed to supplement the personal computer,) will be the evolution in digital technology that makes computer elements entirely compatible with the human form.

Operating system of java ring:

A special operating system was designed and stored in the ROM of the Crypto iButton to support cryptography and general-purpose financial transactions - such as those required by the Postal Service program. While not a Java virtual machine, the E-Commerce firmware designed for this application had several points of similarity with Java, including an object- oriented design and a byte code interpreter to interpret and execute Dallas Semiconductor's custom-designed Ecommerce Script Language A Compiler was also written to compile the high-level language representation of the Script Language to a byte code form that could be interpreted by the E-Commerce VM. Although the E-Commerce firmware was intended primarily for the USPS application, the firmware supports a variety of general electronic commerce models that are suitable for many different applications. The E-Commerce firmware also sup-ports cryptographic Protocols for secure information exchange such as the Simple Key- Management for Internet Protocol (SKIP) developed by Sun Microsystems Inc. 5. Application of java ring It seems that everything we access today is under lock and key. 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. Dallas Semiconductor is developing a new Java based, computerized ring that will automatically unlock doors and log on to computers. User simply has to press the signet of the java ring against the blue dot receptor and the system connected to the receptor performs the function that the applets instruct it to.java ring has the user profile and the same profile is present in the door embedded system also, when the user press the signet of the java ring against the java ring reader which is embedded at the handle Research Article ISSN: 2319-507X Mohit Popat, IJPRET, 2013; Volume 1(8): 150-158 IJPRET Available Online At www.ijpret.com of the door the data is transferred from the ring to door system. if the profile is authentic means user is authentic to open the door the applets president in the ring instruct the door to open electronic commerce models that are suitable for many different applications. The E-Commerce firmware also sup-ports cryptographic Protocols for secure information exchange such as the Simple Key-Management for Internet Protocol (SKIP) developed by Sun Microsystems Inc. 5. Application of java ring It seems that everything we access today is under lock and key. Even the devices we use are protected by passwords.

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Highlights of Java Ring:

• Runs Java better (plus portions enhance Java Card 2.0)
• Careful attention to physical security (rapid zeroization)
• Durability to stand up to everyday use
• High memory capacity (up to 134K bytes NV SRAM)
• Retail connectivity to 250 million existing computers (less if designed-in before manufacturing).

FUTURE ENHANCEMENT:

Through methods involving cognitive processes of recognition on an individual level identifying elements of personal significance a series of practice based investigations will be undertaken exploring memory and significance. These investigations are firstly intended to look at the notion of significance, then significance in interactive objects and aim to show that there are possibilities through the use of contemporary jewellery knowledge to enable interactions that are unusual and new. The IDEO design company has proposed for the design of CELL PHONE RING and TOE JEWELLERY.

CONCLUSION:

Digital Trinket can best be defined as wireless, wearable computers that allow you to communicate by ways of e-mail, voicemail, and voice communication. The Trinket pieces work as a set. For example, imagine that your set consists of earrings, a necklace, and a watch. You can pick-up your messages and display them on your watch. In order to hear the message, if it's a voice message, you can listen to it in your earrings. If you want to send out a message, you can talk into your necklace and it will allow you send a voice message. The works much like that of a cellular phone. It does almost all the same functions but looks nicer. Each piece has a small button on the backside of the accessory that when pressed activates the piece. You then use each piece accordingly. You may also, once marketed, choose to buy extra pieces for the set. This may include a ring that has a vibrating chip in it. The ring would vibrate to inform you of any incoming messages. The basic idea behind the digital trinket concept is to have the convenience of wireless, wearable computers while remaining fashionably sound. It is hoped to be marketable soon, however, several bugs remain. Charging capabilities and cost are just a sample of the problems that lurk.

REFERENCES:

1. Mobile Communications --Jochen Schiller
2. Bluetooth Connect without Cables-- Jennifer Bray and Charles F Sturman.
3. Nico Fremann, Dennis Wilmsmann, "Digital Jewelry– The teochnical part".
4. B. Guruprasath, "Digital Jewellery made possible using wireless Communication".
5. P. Ahde and J. Mikkonen. Hello: bracelets communicating nearby presence of friends. In Proceedings of PDC ’08, pages 324–325. Indiana University, 2008.
6. NicoFremann, Dennis Wilmsmann - Digital Jewellery – The technical part.
7. Digital jewellery and family relationships - J Wallace, Dan Jackson, CasLadha and Patrick Olivier Culture Lab, Newcastle University.
8. Jayne Wallace-A practice-centred enquiry of digital jewellery and personal emotional significance -A thesis submitted in partial fulfilment of the requirements of Sheffield Hallam University for the degree of PH.D July 2007