5 PEN PC TECHNOLOGY

K. Dharani
Student
Computer Science and Engineering
R.M.D Engineering College, Chennai, India

Abstract: P-ISM ("Pen-style Personal Networking Gadget Package"), which is the new discovery under developing stage by Japanese technology company NEC. 5 Pen PC Technology is a gadget package including five functions: a pen-style cellular phone with a handwriting data input function, virtual keyboard, a very small projector, camera scanner, and personal ID key with cashless pass function.P-ISM's are connected with one another through short-range wireless technology. The whole set is also connected to the Internet through the cellular phone function. This personal gadget in a minimalist pen style enables the ultimate ubiquitous computing. This pen sort of instrument produces both the monitor as well as the keyboard on any flat surfaces from where you can carry out functions you would normally do on your desktop.

I. INTRODUCTION

The conceptual prototype of the "pen" computer was built in 2003. The prototype device, dubbed the "P-ISM", was a "Pen-style Personal Networking Gadget" created in 2003 by Japanese technology company NEC. The P-ISM was featured at the 2003 ITU Telecom World held in Geneva, Switzerland. The pen was a logical choice. Further, the intent is to allow for an office anywhere." A conceptual prototype of the "pen" computer was built in 2003 and such devices are not yet available to consumers. The design concept uses five different pens to make a computer. One pen is a CPU, another camera, one creates a virtual keyboard, another project the visual output and thus the display and another communicator (a phone). All five pens can rest in a holding block which recharges the batteries and holds the mass storage. Each pen communicates wireless, possibly Bluetooth.

II. COMPONENTS:

- CPU pen
- Camera
- Communication Pen
- LED Projector(Display)
- Virtual Keyboard

Figure 2: 5 Pen PC Device

2.1 CPU PEN:

The functionality of the CPU is done by one of the pen. It is also known as computing engine. Dual Core processor is used. The CPU pen works with Windows operating system. It is the primary element carrying out the computer's functions.

2.2 DIGITAL CAMERA:

The digital camera is in the shape of pen. It is useful in video recording, video conferencing. Thus simply it is called as web cam. It is also connected with other devices through Blue tooth. It is a 360 degrees visual communication device. This terminal will enable us to know about the surrounding atmosphere and group to group communication with a round display and a central super wide-angle camera.

2.3 COMMUNICATION PEN:

It is a Wireless Bluetooth Technology. It is connected to internet through cellular phone function. This pen uses Wi-Fi technology. They exchange information with wireless connection. They are used at the frequency band of 2.4 GHz ISM. P-ISM's are connected with one another through short range wireless technology.

Figure 2.2: Digital Camera

Figure 2.3: Communication Pen

2.4 LED PROJECTOR:

The monitor is LED Projector. Its size is A4. The resolution capacity is 1024*768 approx. It gives more clarity and good picture. This video projector use a very bright light to project the image, and most modern ones can correct any curves, blurriness, and other inconsistencies.

Figure 2.4: LED Projector

2.5 VIRTUAL KEYBOARD:

The Virtual Laser Keyboard (VKB) is the ULTIMATE new gadget for PC users. The VKB emits laser on to the desk where it looks like the keyboard having QWERTY arrangement of keys i.e., it uses a laser beam to generate a full-size perfectly operating laser keyboard that smoothly connects to of PC and most of the handheld devices. As we type on the laser projection, it analyses what we are typing according to the co-ordinates of the location. A virtual keyboard is a software component that allows a user to enter characters. A virtual keyboard can usually be operated with multiple input devices, which may include a touch screen, an actual keyboard, a computer mouse, a head mouse and an eye mouse. The purpose of a virtual keyboard is to provide an alternative input mechanism for users with disabilities who cannot use a physical keyboard. Another major use for an on-screen keyboard is for bi- or multilingual users who switch frequently between different character sets or alphabets.

Features:

1. VKB settings can be changed by Sound.
2. Controllable Virtual Keyboard sound effects (key clicks).

3. Connection: Connection to the appropriate Laptop/PC port.
4. Intensity: Intensity of the projected Virtual Keyboard.
5. Timeouts: coordinated timeouts to conserve the Virtual Keyboard's battery life
6. Sensitivity: adjustable sensitivity of the Virtual Keyboard.
7. Auto-repeat: Allows the VKB to automatically repeat a key based on prescribed parameters

Table 2: Function and Reliability of Components

Concept Component	Function	Reliability
CPU Pen	Computing Engine	Open
Communications Pen	Cell Phone, Pressure Sensitive Pointing Device, Pointer and ear piece. Communications using Bluetooth	Near Term
Display	LED Projector A4 Size Approx. 1024 X 768	Slightly Farther Out Than the Phone and Camera
Keyboard	Projected keyboard with 3D IR Sensor	Slightly Farther Out Than the Phone and Camera
Camera	Digital Camera	Near Term
Based	Battery Charger and Mass Storage	Open

III. BATTERY:

The most important part in portable type of computer is battery and storage capacity. Usually batteries must be small in size and work for longer time. For normal use it can be used for 2 weeks. The type of battery used here is lithium ion battery. The storage device is of the type tubular holographic which is capable of storing. The use of lithium ion battery in this gadget will reduce energy density, durability and cost factor. By making Five Pen PC feasible, it will enable ubiquitous computing therefore it is easier for people to use. Many applications can be imagined with this new technology. As it makes use of E-finger printing the gadget will be more secure, which allows only owner to activate the Pc. So even if we lose it, no one else can access the gadget. All PC's communicate each other with the help of Bluetooth technology and the entire gadget is connected to internet (Wi-Fi). This technology is very portable, feasible and efficient. Everybody can use this technology in very efficient manner. Some prototypes have been already developed in 2003 which are very feasible, but currently unclear. The enhancement in this technology can be expected in coming years.

IV. IEEE 802.11:

IEEE 802.11 is a set of standards for implementing wireless local area network (WLAN) computer communication in the 2.4, 3.6 and 5 GHz frequency bands. They are created and maintained by the IEEE LAN/MAN Standards Committee (IEEE 802). The base current version of the standard is IEEE 802.11-2007.

V.MERITS:

5.1 Portable:

The first and most important advantage of the 5 pen PC are that they are portable. Due to its size they can be carried anywhere. These PC's are in the shape of pens and that's why they can be carried in small bags or even in our pockets. A portable computer is a computer that is designed to be moved from one place to another and includes a display and keyboard. They can also be called a 'Portable Workstation' or 'Portable PC'.5Pen PC are the most easily portable pc ever made. Another major merit is that its works on battery and so it can be used whenever we want.

5.2 Ubiquitous computing:

Ubiquitous computing (ubicomp) is a post-desktop model of human-computer interaction in which information processing has been thoroughly integrated into everyday objects and activities. In the course of ordinary activities, someone "using" ubiquitous computing engages many computational devices and systems simultaneously, and may not necessarily even be aware that they are doing so. This model is usually considered as advancement from the desktop. More formally Ubiquitous computing is defined as "machines that fit the human environment instead of forcing humans to enter theirs".

5.3 Wi-Fi technology:

Another major important merit of a 5-pen PC is that it has a Wi-Fi technology built in it through which the user can connect to the internet very easily. Wi-Fi, is a mechanism that allows electronic devices to exchange data wirelessly over a computer network. A device enabled with Wi-Fi, such as a personal computer, video game console, smart phone, tablet, or digital audio player, can connect to a network resource such as the Internet via a wireless network access point. An access point (or hotspot) has a range of about 20 meters (65 ft) indoors and a greater range outdoors. Hotspot coverage can comprise an area as small as a single room with walls that block radio signals or a large area, as much as many square miles, covered by multiple overlapping access points. To connect to a Wi-Fi LAN, a computer has to be equipped with a wireless network interface controller.

VI. CONCLUSION:

The communication devices are becoming smaller and compact. This is only an example for the start of this new technology. We can expect more such developments in the future. It seems that information terminals are infinitely getting smaller. However, we will continue to manipulate them with our hands for now. We have visualized the connection between the latest technology and the human, in a form of a pen. P-ISM is a gadget package including five functions: a pen-style cellular phone with a handwriting data input function, virtual keyboard, a very small projector, camera scanner, and personal ID key with cashless pass function. P-ISMs are connected with one another through short-range wireless technology. The whole set is also connected to the Internet through the cellular phone function. This personal gadget in a minimalistic pen style enables the ultimate ubiquitous computing

REFERENCES:

[1] International Journal of Current Engineering and Technology E-ISSN 2277 – 4106, P-ISSN 2347 – 5161

[2] IOSR Journal of Computer Engineering (IOSR-JCE) e-ISSN: 2278-0661,p-ISSN: 2278-8727, Volume 16, Issue 6, Ver. II (Nov – Dec. 2014), PP 07-13.