

5-Pc Technology

Abstract: In Present days when we want to write note, we use normally pen and paper. By using the 5 pen pc technology with digital pen and paper makes it possible to get a digital copy of handwritten information, and it is sent to digital devices via Bluetooth. P-ISM (Pen-style Personal Networking Gadget Package), is the new discovery which is under developing stage by NEC Corporation. It is a new invention in computer and it is associated with communication field. P-ISM have a great impact on the computer field. P-ISM including 5 functions: a pen-style cellular phone with a handwriting data input function, virtual keyboard, camera scanner, a very small projector, and personal ID key with cashless pass function. P-ISM's are connected with one another through short-range wireless technology. P-ISM connected to the Internet through the cellular phone function. This personal gadget in a minimalist pen style enables the ultimate ubiquitous computing.

Keywords: P-ISM

1. INTRODUCTION

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 intent is to allow for an office anywhere." However although a conceptual prototype of the "pen" computer was built in 2003; it uses five different pens to make a computer. One pen is a CPU, another camera, one creates a virtual keyboard, All five pens in a holding block which recharges the batteries and holds the mass storage. Each pen communicates wireless, mostly Bluetooth." Five pen pc shortly called as Pen-style Personal Networking Gadget Package, is nothing but the new discovery, which is under developing stage by NEC Corporation. P-ISM is a gadget package includes five functions: a CPU pen, communication pen with a cellular phone function, virtual keyboard, a very small projector, and a camera.

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P-ISM's are connected with one another through short-range wireless technology. This device is connected to the Internet through the cellular phone function. This personal gadget in a minimalist pen style enables the ultimate ubiquitous computing.

2. HARDWARE REQUIRED

A. CPU PEN

The general function of a CPU is done by one of the technical pen. This is also known as computing engine. It consists of dual core processor which is embedded in it and it works on the platform of operating system. The central processing unit is the heart of a computer system that executes out the instructions of a program, and its primary function is carrying out the Multiple functions. The CPU executes each instruction of the program in step by step format, CPU can perform ALU Operations.



Fig. Diagram of CPU Pen

B. COMMUNICATION PEN

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. They are connected through Tri-wireless modes (Bluetooth, 802.11B/G, and terabytes of data, exceeding the capacity of today's hard disks. This is very effective because we can able to connect whenever we need without having wires. They are used at the frequency band of 2.4 GHz. Bluetooth mechanism is used for exchanging signal status information between two devices. This techniques have been developed that do not require communication between the two devices (such as Bluetooth Adaptive Frequency Hopping), the most

efficient and comprehensive solution for the most serious problems can be accomplished by silicon vendors. They can implement information exchange capabilities within the designs of the Blue tooth.



Fig.Diagram of Communication Pen

C. VIRTUAL KEYBOARD

The Virtual Laser Keyboard (VKB) is a new gadget for the PC users. The VKB emits laser onto 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 are using the laser projection, it analyses the letters typed in the keyboard according to the coordinates of the location. A virtual keyboard is a software component that allows a user to enter characters without external keyboard interface device. A virtual keyboard can be operated by using with multiple devices, such as touch screen.



Fig. Diagram of Virtual Keyboard

D. DIGITAL CAMERA

IN this type we use a digital which will be placed in Pen. Which can be used in video recording, and for video conferencing, we can even use it as a web cam. It has a possibility to be connected with other devices via Bluetooth. It can rotate 360 degrees for visual communication device. By using this we will know about the surrounding atmosphere and group to group communication with a round display and a central super wide angle camera.



Fig: Digital Camera

A digital camera (or digicam) is a camera which can take the video or captures the images, or both, which can be done digitally by recording images via an electronic image sensor. Most 21st century cameras are digital. Displaying images on a screen immediately as soon as they captured , storing thousands of images on a single small memory device. IN the present days we are using the most compact cameras, can record moving video with sound as well as still photographs. Some have a GPS receiver built in, and can produce Geotagged photographs.

LED Projector takes the role of monitor which projects on the screen. The size of the projector is of A4 size. The approximate resolution capacity of LED Projector is 1024 X 768. So it gives more clarity and good picture.

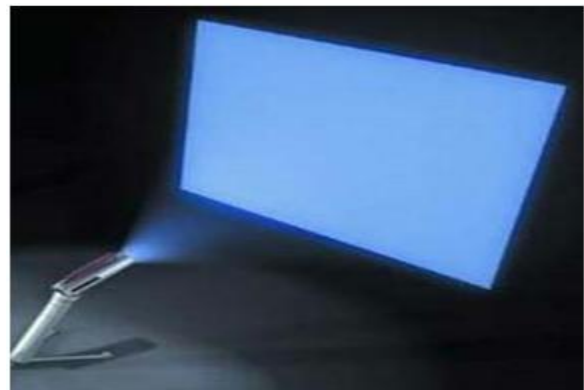


Fig.: Led Projector

A video projector receives a video signal and projects the corresponding image on a projection screen by using lens system. All video projectors use a very bright light to project the image, and latest projectors can correct any curves, blurriness, and other variances through manual settings. Video projectors are mostly used in conference halls for presentations, classroom training, home theatre and live events applications. LED Projectors are widely used in many schools and other educational institutions, connected to an interactive whiteboard to interactively teach students.

4. FUNCTIONAL DESCRIPTION

4.1 CPU PEN

4.1.1 CONTROL UNIT

The control unit of the CPU contains circuitry that uses electrical signals to direct the entire computer system to carry out, stored program instructions. The control unit does not execute program instructions. the control unit directs other parts of the system. The control unit must communicate with both the arithmetic unit (ALU), logic unit and memory.

4.1.2 MICROPROCESSOR

In last generations central processing units were implemented as discrete components and small integrated circuits (ICs) on one or more circuit boards. Microprocessors, are CPUs manufactured on a very small number of ICs. it is usually just one. The smaller size of CPU results it has to be implemented on a single die means faster switching time because of physical factors like decreased gate parasitic capacitance. It allows synchronous microprocessors to have clock rates ranging from tens of megahertz to several gigahertz. The ability to construct exceedingly small transistors on an integrating circuit has been increased and the complexity and number of transistors in a single CPU has been increased dramatically. It is described by Moore's law, which proves that fairly accurate predictor of the growth of CPU complexity to date.

4.1.3 OPERATION

The CPU operation includes 4 steps i.e fetch, decode, execute, and write back., fetching means retrieving an instruction (which is represented by a number or sequence of numbers) from program memory. After the completion of fetching the Program Counter is incremented by the length of the instruction word in terms of memory units. The fetching instruction must be retrieved from relatively slow memory, causing the CPU to stall while waiting for the instruction to be returned. The last step is write back, simply "writes back" the

results of the execute step to some form of memory. The results are written to some internal CPU register for quick access by subsequent instructions. After the execution of the instruction and write back of the resulting data, the entire process repeats, with the next instruction cycle normally fetching the next-in-sequence instruction because of the incremented value in the program counter.

4.2.1 TYPES

The purpose of a virtual keyboard in personal computer is to provide an alternative input mechanism for users with disabilities who are unable to use a physical keyboard. The major use for an on-screen keyboard is for bi- or multilingual users who switch frequently between different character sets or alphabets. hardware keyboards are available with dual keyboard layouts such as Cyrillic/Latin letters in various national layouts, the on- screen keyboard provides a handy substitute while working at different stations or on laptops, which seldom come with dual layouts. The on-screen keyboard utility on most windowing systems allows hot key switching between layouts from the physical keyboard parallelly changing both the hardware and the software keyboard layout. In addition, a symbol in the systray alerts the user to the currently active layout. Linux supports this fast manual keyboard layout switching function. Virtual keyboards are commonly used as an on-screen input method in devices with no physical keyboard, such as a pocket computer, personal digital assistant (PDA), tablet computer or touch screen equipped mobile phone. Virtual keyboards are also used as features of emulation software for systems that have fewer buttons than a computer keyboard. Virtual keyboards can be categorized based on following aspects such as Physical keyboards with distinct keys comprising electronically changeable displays integrated in the keypads. Virtual keyboards with touch screen keyboard layouts or sensing areas. Optically projected keyboard layouts or similar arrangements of "keys" or sensing areas. Optically detects human hand and finger motions. [Virtual keyboards allows to take input from a variety of input devices, such as a computer mouse. An optical virtual keyboard has been invented by IBM. It optically detects and analyses human hand and finger motions and interprets them as operations on a physically non-existent input device like a surface having painted keys. All the mechanical inputs can be replaced by using virtual devices, which will be optimized for the current application and for the user's physiology maintaining speed, simplicity and unambiguity of manual data input.

3.2.2 SECURITY CONSIDERATIONS

Virtual keyboards may be used in the areas to reduce the risk of keyboard logging then it will be very difficult for the malware for monitoring the keyboard display and mouse to obtain the data entered via the virtual keyboard.

3.3 Bluetooth

Bluetooth works on IEEE 802.11 is a set of standards for implementing wireless local area network (WLAN) computer communication which uses the frequency band of 2.4, 3.6 and 5 GHz.. A cellular network which is distributed over land areas which will be known as cells, each served by at least one fixed location transceiver known as a base station. When all the base station are joined together these cells provide a large radio coverage on geography. This will help mobile to communicate with each other anywhere in the network, via base stations, even if some of the transceivers are moving through more than one cell during transmission. Cellular networks offer a large number of advantages over the present situation.

Increases the capacity reduced power use larger coverage area. Reduced interference from other signals.. A simple view of the cellular mobile-radio network consists of the following: A network of Radio base stations which will form the base station subsystem. The core circuit which is used for switched network for handling voice calls and text messages. A Packet switched network for handling mobile data (Internet)

3.4 PROJECTION TECHNOLOGIES

In present days we use CRT projector which will work based on cathode ray tubes. This typically involves a blue, a green, and a red tube. This is the oldest system but still in regular use, but disadvantage of CRT of largely because of the bulky cabinet. However, we have a drawback with CRT which does not provide the largest screen size for a given cost.. Second project is LCD projector which will work using LCD light gates. This is the simplest system, making it one of the most common and affordable for home theaters and business use. Its most common problem is a visible "screen door" or pixelation effect, although recent advances have minimized this. The disadvantage of LCD projector is that it will not clear in all directions LCDS projector uses Liquid crystal on silicon. LED projectors use one of the above mentioned technologies for image creation, with a difference that they use an array of Light Emitting Diodes as the major source, negating the need for lamp replacement. Hybrid LED and Laser diode

system developed by Casio. Uses a combination of Light Emitting Diodes and 445nm laser diodes as the light source, while image is processed with DLP (DMD) chip. Laser diode projectors have been developed by Micro vision and Aaxa Technologies. Microvision laser projectors use Microvision's patented laser beam steering technology, whereas Aaxa Technologies uses laser diodes + LCo

4. RESULT

4.1 ADVANTAGES

- Portable Feasible Ubiquitous
- Makes use of Wi-Fi technology
- Mobility
- Touch and feel the technology

4.2 DISADVANTAGES

- Currently unclear
- Cost
- Easily misplaced
- As the gadget is very costly the consumer cannot afford to purchase them.
- The virtual keyboards are already present in various companies like Lumio and Virtual Devices Inc.

3. CONCLUSION

The communication devices are becoming smaller and compact. This is only a 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. "The design concept uses five different pens to make a computer. One pen is a CPU, another camera, one creates a virtual keyboard, another projects 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.”

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