



Revolutionary 5-Pen PC Innovation: Redefining Portable Computing

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Abstract: *P-ISM which is also known as “Pen-style Personal Networking Gadget Package”. It is just a new discovery by NEC Corporation, which is under developing stage. P-ISM is a gadget package of 5 pens and each pen is having a different function. These functions are: a CPU pen, Communication pen, virtual keyboard, a very small projector and a camera. This whole set is connected with each other through a wireless technology and the whole gadget packet is connected to internet through cellular phone function. This gadget enables ubiquitous computing.*

Keywords: CPU, PEN, NEC, Digital Copy.

Introduction

5 Pen PC Technology is a very new invention which is invented by human beings and it will take the journey of discovery to the next level. As we know to write quick notes pen and pencil are always being the best method. Just imagine a world where you can write with your pen and you can directly send those notes to your friend via email. That’s all about the 5 Pen PC Technology. Digital copy of handwritten data and information can be taken through this. P-ISM(“Pen-style Personal Networking Gadget Package“) is discovered by NEC Corporation which is under developing stage (it means it is not well implemented yet). This Package consists of 5 Pens and each pen is having a different function. 5 different functions are: a communication pen with a cellular phone function with handwritten input function, a virtual keyboard, a projector and a camera. This whole set is connected with each other through a wireless technology and the whole gadget packet is connected to internet through a cellular phone function. This gadget enables ubiquitous computing.



Fig.1: Diagram of 5 Pen Pc Technology.



History

Few years ago, we can't find out that somebody has built any miniaturized devices such as camera and telephone as these are common examples of new upcoming technologies. So the next logical step is the miniaturized personal computers.

In 2003, the conceptual prototype of the "pen" computer was built. In year 2003, an ITU Telecom World exhibition held in Geneva where a Tokyo based NEC Corporation displayed a conceptual prototype that was dubbed a "Pen-style Personal Networking Gadget Package (P-ISM)". "Toru Ichihashi" is the designer of the 5 Pen PC Technology. When he was developing this concept of 5 Pen PC Technology he asked himself – "What is the future of IT when it is small?" So he found a pen as a logical choice and Toru wanted a product that he could feel and touch.

P-ISM is a gadget package of 5 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). There is a holding block in which all five pens can rest and which recharges the batteries and holds the mass storage. This whole set is connected with each other through a wireless technology possibly Bluetooth and the whole gadget packet is connected to internet through cellular phone function.

NEC described the components of P-ISM as follows-

1) CPU PEN-

In P-ISM gadget packet, one of the pen do the functionality of the CPU which is also known as computing engine. It works with the windows operating system and it consists of dual core processor which is embedded in it. All the instructions of a computer program are carried out by central processing unit (CPU). All the instructions of the program are carried out in sequence by CPU to perform the basic arithmetical, logical and input/output operations of the system.



Fig. 2: Diagram of CPU Pen.

The CPU contains:-

Control unit:-

As we all know the control unit does not execute program instructions; it only directs the other parts of the system to do so. So, to direct the entire computer system to carry out stored program instructions the control unit contains the circuitry that uses electrical signals.

**Operations:-**

Fetch, decode, execute and write back are the steps which all CPUs use in their operations. Fetch means retrieving an instruction from program memory. Decode means to make the instruction simpler. Execute means running that instruction and getting the final result and write back means writing the result of the instruction to some form of memory.

Clock rate:-

The speed at which microprocessor executes instructions is known as clock rate. The rate at which all instructions are executed and all computer components are synchronized is done by the internal clock of a computer. To execute each instruction the CPU requires a fixed number of clock cycles.

Performance:-

The performance, we can also say speed of a processor depends on the clock rate and the instructions per clock (IPC) which together are the factors for the instructions per second (IPS) that CPU can perform. Multi-core processors are used for increasing processing performance of computers. Ideally, we can say that a dual core processor would be nearly as powerful as a single core processor.

2) COMMUNICATION PEN-

P-ISM's are connected with each other through a short range wireless technology and the whole gadget packet is connected to internet through a cellular phone function. They are connected through Bluetooth, 802.11 B/G and terabytes of data. As we do not need wires in this technique, so this is very effective. Frequency band of 2.4 GHz ISM is used. Between two devices Bluetooth mechanism is used for exchanging signal status information. So within the designs of the Bluetooth implement information exchange capabilities.



Fig.3: Diagram of Communication Pen.

3) VIRTUAL KEYBOARD PEN-

The ULTIMATE new gadget for PC users is the Virtual keyboard (VKB). It emits laser on the desk to generate full-size perfect keyboard and that keyboard is having QWERTY arrangement of keys and it smoothly connects to the PC and most of the handheld devices. Co-ordinates of the location are used to analyze what we have typed. A virtual keyboard is software which is used to enter characters.



Fig. 4: Diagram of Virtual Keyboard.

4) DIGITAL CAMERA PEN-

The digital camera is also known as web cam and it is used for video recording, video conferencing and in many other applications. This web cam is in shape of pen and it is also connected with other devices through Bluetooth. It is a portable device and it enables 360 degree visual communication device which tell us about the surrounding atmosphere and group to group communication with a round display and a central super wide angle camera.



Fig. 5: Diagram of Digital Camera.

5) LED PROJECTOR PEN-

LED projector is an alternative of monitor which projects on the screen and the projections size is of A4 size. It's resolution capacity is 1024 X 768 approx. so it's clarity and picture quality is good.

A video projector is a device that projects the image on a projection screen using a lens when it receives a video signal. It use a very bright light to project the image. These are mainly used in conference room presentations, classroom training, home theatre and live events applications.



Fig. 6: Diagram of LED Projector.

REMARK-

->ADVANTAGES

It is a portable device.

It is feasible.

It provides ubiquitous computing.

It makes use of Wi-Fi technology.

It is just a touch and feel technology

->DISADVANTAGES

Currently it is unclear.

It is very costly.

It can be easily misplaced.

Virtual keyboard concept is not new as it is already present in various companies like Lumio and Virtual Devices Inc.

As the gadget is costly so the consumers cannot afford to purchase them.

Conclusion

In present days the communication devices are becoming smaller and compact. This is only an example which takes the level of discovery to the next level. Even from this, we can expect more such developments in future. Here we have visualized the connection between the latest technology and human, in a form of a pen i.e. P-ISM technology.

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