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5 PEN PC TECHNOLOGY: PEN-STYLE PERSONAL NETWORKING GADGET

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ABSTRACT: In the subject of pen computing, "5 pen pc technology" is a recent discovery. Pen computing is a computer-like user interface that employs pen-like instruments that are more user-friendly than current systems. The majority of us are ignorant of how important computers are in our lives. The ENIAC, a computer the size of a large room with the processing power of hundreds of modern computers, was constructed in 1943. Modern integrated circuit computers are small enough to be carried in a pocket. Desktop computers are currently among the smallest computers available, with the iPad being the most popular beast, being 9 inches long and weighing over 700 kg. Think about getting a computer that fits in your pencil case. The P-ISM (Pen-style personal networking Gadget bundle) is a collection of five pens that operate together to produce a virtual computer environment. All five pens are linked using wireless technology, ideally Bluetooth (802.11 BG). All five pen technologies are linked to the internet using the cellular phone pen. This 5 PEN PC TECHNOLOGY is being developed by NEC Corporation, a Japanese technical corporation.

KEYWORDS: P-ISM, pen computing, Bluetooth, virtual keyboard, CPU pen, camera, Battery

I. INTRODUCTION

5 pen pc technology shortly called P-ISM(“Pen-style Personal Networking Gadget Package”), is nothing but a new discovery, which is in the developing stage by the NEC Corporation. The Tokyo- based NEC Corporation showed a conceptual prototype of P-ISM at the ITU Telecom World exhibition in Geneva in 2003. TORU ICHIHASH created the 5 Pen PC technology. It is essentially a technological advance in the sphere of communication in the computer world. This technology consists of a handwriting input device, a Central Processing Unit, a small projector, a camera, as well as a mobile phone. Wireless technology allows all devices to communicate with one another, and it can be connected to mobile phones and other internet connections. Bluetooth is widely utilized because it eliminates the need for wires to carry data and establish connections. 5 Pen PC Technologyis really useful since it lets us connect whenever we need it without having to use wires.

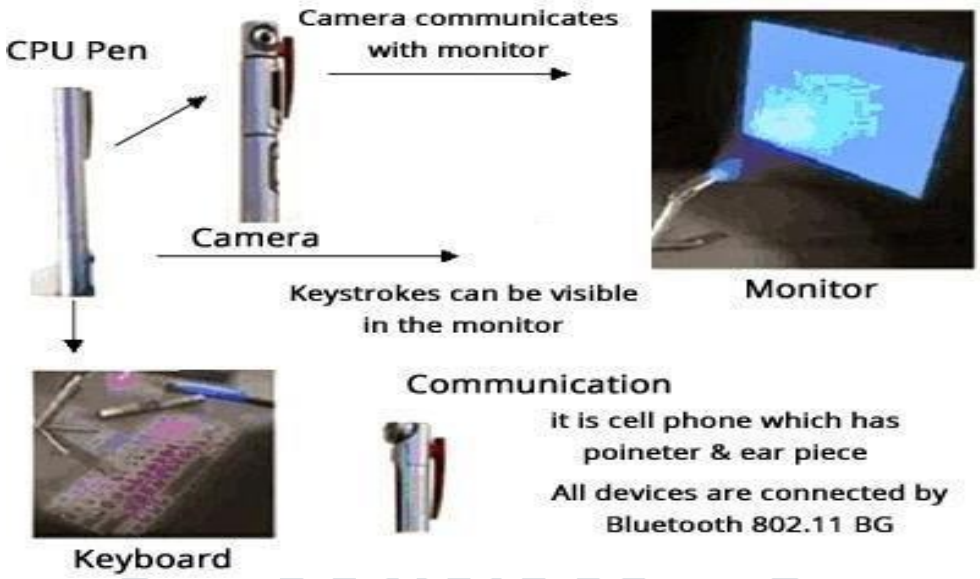

Figure 1: Diagram of 5 PEN PC TECHNOLOGY

II. LITERATURE SURVEY

The "pen" computer's conceptual prototype was constructed in 2003. The "P-ISM" prototype gadget was a "pen-style Personal Networking Gadget" designed by Japanese technology company NEC in 2003. In 2003, the P-ISM was introduced at the ITU Telecom World in Geneva, Switzerland. . The designer of the 5 Pen Technologies, "Toru Ichihash", said that "In developing this concept the asked himself- "What is the future of IT when it is small?" The pen was a logical choice. He also desired a product that could be handled and felt. Furthermore, the intention is to enable the establishment of an office anyplace. Even though a conceptual prototype of a "pen" computer was built in 2003, such devices are still not available to the general public. [5 Pen PC technology, Mrunal Shidurkar, Mohammad Usman]

"To create a computer, the design concept employs five different pens. One pen serves as a processor, another as a virtual keyboard, and yet another as a display and communicator (a phone). All five pens can be charged and stored in a holding block. Each pen interacts via Bluetooth or Wifi."[Review on Improving the 5 Pen PC Technology, Monika1 , Yashpal Singh2]

Personal Networking Toolkit in Pen Format Information terminals appears to be permanently shrinking. We'll manipulate them without using our hands for the time being. We've represented the interaction between cutting-edge technology and humanity in the form of a pen. P-ISM is a five-in- one device that includes a pen-style phone with handwriting data input, a virtual keyboard, a very small projector, a camera scanner, and a personal ID key with cashless pass functionality. P-ISMs uses short-range wireless technologies to connect. The full set is also connected to the Internet via cellular phone capability. This portable device, which is shaped like a pen,

provides the most advanced mobile computing. The prototype on show at ITU Telecom World, on the other hand, was reputedly the only one produced and cost $30,000. While the prototype may have demonstrated that such technology is possible, it is currently unknown when or even if such portable computers will be made available to the general public. There seems to be little information accessible concerning future plans several years after the initial launch of the P-ISM conceptual prototype. [A Review Paper on 5 Pen PC Technology, Nirav Nayani, Shrey Bavisi, and Harish Narula]

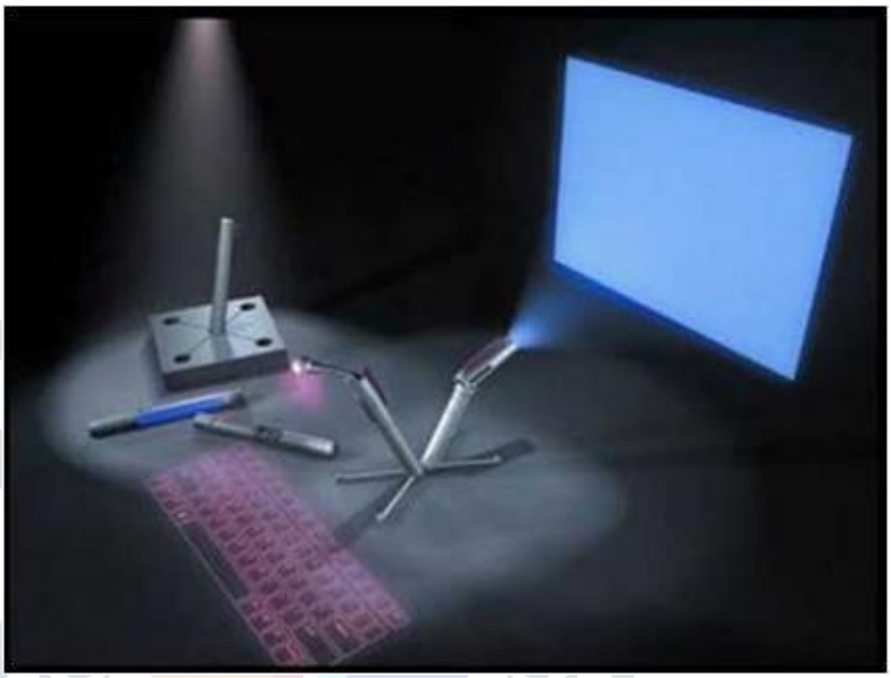

Figure 2: 5 PEN PC TECHNOLOGY

III. PROBLEM STATEMENT

- Laptops and desktop computers Increases waste and impact the environment
- Desktop computers are not portable
- Battery backup is low in laptops and desktop computers
- Laptops are Prone to damage
- Laptops are only having a small life
- Laptops are having Possible overheating problems
- To install desktops, a lot of space and a dedicated desk area is required.
- Desktops use much power since they have to power a high wattage power supply, a monitor, and multiple components inside the machine

IV. OBJECTIVE

- To improve the portability
- To enhance the battery life
- To reduce the electronic wastage
- To make a better arrangement by placing the LED and Virtual keyboard on the docking stand
- To make use of wireless technologies for better communication

V. PROPOSED METHOD

The P-ISM (Pen-style Personal Gadget package) is a set of five pens, each with its purpose, that works together to provide a virtual computing experience by projecting a monitor and keyboard onto any flat surface, allowing you to perform tasks that you would normally do on your desktop computer. ISMs communicate with one another via a short-range wireless technology called Bluetooth. Through the cellular phone capability, the entire set is connected to the internet. A pc that works as an electronic pen is known as STYLUS as opposed to a console for input. PEN PCs, for the most part, demand a unique working framework that supports recognition so that clients can write on the screen. These five PEN PCs are small handheld computers with a small keyboard. It will use the camera or virtual keyboard that is produced on level surfaces to take input from the client, and it will make use of Electronic perception technology. An EPT is a low-effort chip that generates a laser or lightning, allowing electronic components to build a 3-D model of their surroundings and observe what their clients are up to. As a result, the monitor and keyboard are built on a flat surface. These keyboards and monitors provide similar operations to a standard personal computer (PC). For input, it largely requires a stylus (pen). It runs on a customized operating system that can recognize handwriting. It's a compact, portable device.

ELECTRONIC PERCEPTION TECHNOLOGY

Electronic Perception Technique (EPT) is a single-chip imaging technology that allows electronic components to construct a three-dimensional picture of their surroundings and see what their users are doing. A "virtual keyboard" projected a laser keyboard onto a table and detects which keys the user is pressing by viewing their hands and detecting where their fingers are touching the table. Currently, EPT keyboards can recognize up to 400 characters per minute. EPT systems determine depth by giving out light pulses and timing how long it takes for the reflection to return to the sensor. This is not the same as how the human brain determines depth, but it is still effective. EPT systems are capable of precisely determining brightness and distinguishing objects. Automobiles that can perceive and avoid barriers before an accident, video games that can feel the player's

movements without a joystick, and even home security systems that can tell the difference between a family member and an invader are all possible future applications of this technology. Consider the possibilities in a world where technologies and electronics are no longer "blind."

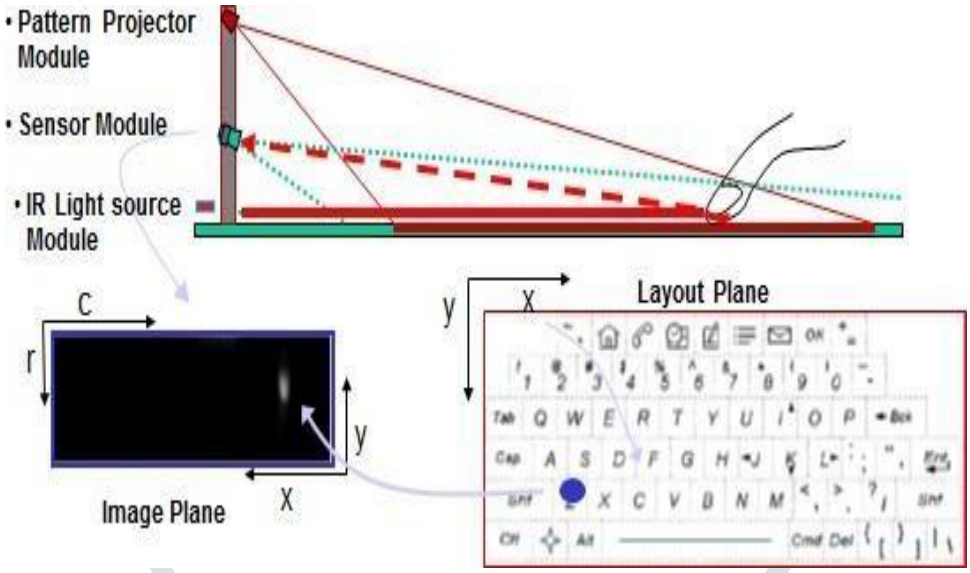

Figure 3: ELECTRONIC PERCEPTION TECHNOLOGY

COMPONENTS

The PISM consist of 5 components in it

- CPU Pen
- Communication Pen
- Projector Pen
- Digital camera Pen
- Virtual keyboard Pen

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 Father Out Than the Phone and Camera
Keyboard	Projector keyboard with 3D IR Sensor	Slightly Father Out Than the Phone and Camera
Camera	Digital Camera	Near Term
Based	Battery Charger and Mass Storage	Open

Table 1:5 PEN PC COMPONENTS

CPU PEN

It does the functionality of the CPU and is also known as a computing engine. It uses a Dual Core processor and it works with Windows operating system. It acts as a central device that connects all other pen devices. The CPU is in the direction of all styles of computing maneuvers, like tablets, PCs, and laptops. since you are surfing connected to the internet, producing papers, holding entertainment, or physical punishment packages, your calculating's calculating calculates and interprets guidances. it's an essential part while not that your laptop wouldn't function. each program direction is dead for one C.P.U. unit so concerning complete bureaucracy's fundamental arithmetic, rationale, and recommendation/manufacturing movements. The software on this pen can not be transformed. it's energetic by a two-fold-core computer chip and functions on Windows. This discussion has existed used because the early 1960s in the calculating manufacturing. CPUs have progressed tremendously in agreements of form, design, and exercise because of the initial instances, still, their essential movement has waited mainly the same. Early CPUs were personalized as few as best, sometimes unique calculating. However, the launch of building processors that are made for individual or many uses has replaced the damaging practice of conceiving specific CPUs for a particular application. This learning of uniformity started in the cycle of discrete electronic device's computer calculations and has increased severely accompanying the extensive approval of integrated circuits (IC). Miniaturization and uniformity of CPUs have increased their presence in up-to-date history much further the restricting application of hard-working estimating parts. Nowadays Microprocessors canbe in the direction of an expansive range of output, containing automobiles, cell phones, and toddlers' toys.

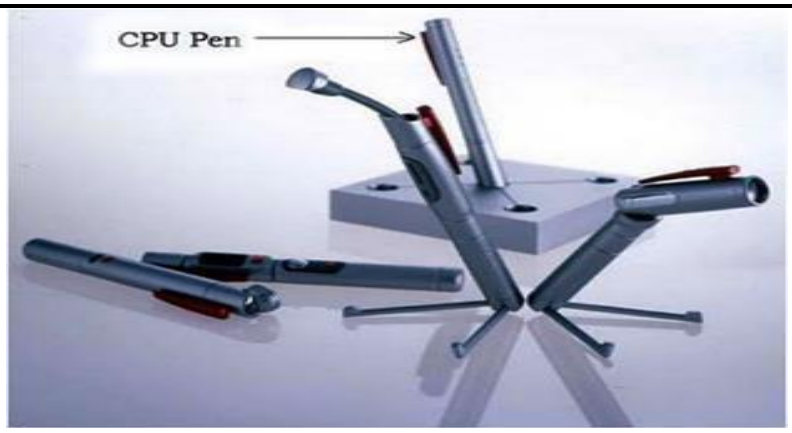

Figure 4 :CPU PEN

COMMUNICATION PEN

short-range wireless technology connects P-ISMs. The cellular phone function connects the entire set to the Internet. They are linked by Tri-wireless modes (Bluetooth, 802.11 B/G) and can transfer terabytes of data, much exceeding the capacity of today's hard drives. This is quite convenient because we can connect whenever we want without using wires. They work in the 2.4 GHz ISM band. Bluetooth allows two devices to communicate signal status information. Silicon suppliers can give the most efficient and comprehensive solution for the most significant problems because these techniques don't require communication between the two devices (like Bluetooth's Adaptive Frequency Hopping). Bluetooth designs can include information-sharing features.

Figure 5: COMMUNICATION PEN

PROJECTOR PEN

This projector pen functions as a standard projector. Its maximum display resolution is 1024x768 pixels, resulting in a high-resolution image. For a better user experience, it should be projected on a flat surface, and the clarity relies on the distance between the projector pen and the projected surface. The greater the distance between the two, the less clear it will be. It can be used in conjunction with a communication pen or a camera pen. A little stand can be connected to the projector pen for stable projection on any flat surface. To project the image, all video projectors use a bright light, and most newer ones have manual settings that can fix any curves, blurriness, or other abnormalities. Conference rooms, classrooms, and home theatres all employ video projectors. This pen functions similarly to the LED projector pen. On a level surface, the laser pen emits a laser keyboard that seems like it has a QWERTY layout. When the keys on the laser keyboard are typed, the device recognizes the input. It has essentially identical functions to a computer keyboard or an on-screen keyboard.

Figure 6: PROJECTOR PEN

VIRTUAL KEYBOARD PEN

This pen functions similarly to the LED projector pen. On a level surface, the laser pen emits a laser keyboard that seems like it has a QWERTY layout. When the keys on the laser keyboard are typed, the device recognizes the input. It has essentially identical functions to a computer keyboard or an on-screen keyboard. The computer's information is sent to the CPU through the displayed keyboard (virtual keyboard). The laser beam is normally projected onto a flat surface where appropriate typing may be done, and the main component is connected through a short-range Bluetooth connection. Unlike the hardware keyboard, the virtual keyboard does not require a cable. The connection is established over a wireless channel (Bluetooth). One of the 5 pens is used as a camera in capturing images that are stored in the internal memory.

Figure 7: VIRTUAL KEYBOARD PEN

CAMERA PEN

One of the 5 pens is used as a camera in capturing images that are stored in the internal memory. This pen isuseful for video conferencing and recording. Webcam is another interpretation. It can also be linked to otherdevices via Bluetooth. It's a visual communication device that works in all directions. With a spherical display and a central super wide-angle camera, this terminal will allow us to learn about the surrounding environment and communicate with other groups. The majority of digital cameras synchronize the environment to provide the most realistic image possible. An intermediate network channel sends the image taken by this pen to the central processing unit (CPU). Various studies have improved the quality of digital cameras available today. More research into augmented reality will result in high-quality, cohesive visuals that accurately portray the genuine nature of such images.

Figure 8: CAMERA PEN

ADVANTAGES OF 5 PEN PC TECHNOLOGY

[1.] Portability is the main advantage of 5 pen pc

[2.] It has a very long-lasting battery life (Up to 2 weeks)

[3.] It reduces electronic waste • It supports wireless technologies

[4.] The 5pen PC can be easily placed on a docking stand, allowing us to project LED and a virtual keyboard onto a flat surface.

LIMITATIONS OF 5 PEN PC TECHNOLOGY

[1.] The placement of pens is crucial. Minor disturbances would cause the entire setup to fail.

[2.] For seamless operation, the projection surface for both the display unit and the virtual keyboard mustbe flat.

[3.] Cost is very high

[4.] It can be misplaced due to the small size

[5.] It has a limitation on range due to the use of wireless technology

VI. CONCLUSION

The company's prototype demonstrates that creating such complex technology is possible, however, it is unknown what the company's objectives are for this technology due to a lack of knowledge regarding its latest advances. Communication gadgets are becoming more compact and smaller. This is just a starting point for this new technology. The use of fewer communication equipment allows for a reduction in space. Those tactics can be readily moved from one location to another anyplace in the world. As a result, they are transportable. P-ISM is a gadget package including five distinct functions. A pen-style CPU, Projector, Cellular phone function, Virtual keyboard, and Camera, connected International Journal of Computer Science & Information Technology (IJCSIT) Vol 8, No 2, April 2016 86 with short-range wireless technology (Bluetooth) and via a cellular phone (internet). The entire pen recharges its batteries with a holding block and holds the mass storage. Each pen communicates wirelessly, The P-ISM was created for people who want to travel with a full-sized computer in a tiny pack, but the

added benefits of being lightweight and pocket-sized have expanded the target audience to include corporate users and police officers. This product will have a very competitive market because the concept is so simple that it can easilybe created by numerous organizations.

VII. FUTURE SCOPE

The project for the 5 Pen Pc Technology began in 2003. However, no details concerning its release have been made public. Because of its exorbitant price of 30,000 dollars, it is still unclear whether it will be available for public usage. The company's prototype demonstrates that creating such complex technology ispossible, however, it is unknown what the company's objectives are for this technology due to a lack of knowledge regarding its latest advances

VIII. REFERENCES

[1.] 5 pen pc technology
https://www.mepits.com/project/256/techno-innovations/5-pen-pc-technology

[2.] 5 pen pc technology, Rose mol joy (2018)
https://www.ijert.org/research/5-pen-pc-technology-IJERTCONV3IS28003.pdf

[3.] 5 pen pc technology, Adarsh Kumar (2018)
https://www.ijedr.org/papers/IJEDR1803036.pdf

[4.] What is pen computing?
https://www.easytechjunkie.com/what-is-pen-computing.htm

[5.] 5 Pen PC Technology, Mrunal Shidurkar, Mohammad Usman (2013)
https://www.ijser.org/researchpaper/5-pen-pc-technology.pdf

[6.] FIVE PEN PC TECHNOLOGY, B. SARANYA, S. MURUGANANDHAM (2015)
https://www.ijrcar.com/Volume_3_Issue_1/v3i105.pdf

[7.] 5 Pen PC Technology, Chirag Manghnani
https://www.a2zgyaan.com/5-pen-pc-technology/