



VIRTUAL REALITY FRAMEWORK FOR SMARTPHONE: AN EXHAUSTIVE SURVEY

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ABSTRACT-

Smartphone users and the number of mobile apps availability are both constantly expanding. It's typical to anticipate that a smartphone would operate similarly like a computer. For the same we introduce the Virtual Smartphone over IP system, which allows users to design virtual Smartphone images in the mobile cloud and modify each image to fulfil specific requirements. VISP, a cloud-based platform for virtual smart phones, is suggested by this study. The hardware capabilities of each mobile device vary widely, which has an impact on how users engage with their smart phones. To address this, we offer cloud-deployed virtual smart phones.

KEYWORDS: Virtual machine, virtual reality, smartphones VSP.

INTRODUCTION:

For every living creature, communication is the way by which they can express themselves to another. Every human on the planet is connected to others via the internet with the use of a wide range of communication tools, including smart mobile phones, tablets, PCs, and laptops, and many other. People increasingly choose to use lightweight, portable devices for communication. Due to their portability and connection, smartphones are being used more frequently in place of laptops and desktop PCs. Smartphone hardware resources including the central processing unit (CPU), memory, storage, and battery are usually more limited than those of classic computers. VSP is generally a computer-vision-based wearable and gestural information interface that involves using simple hand gestures as the means of interacting with the information it adds to the physical environment around us.

Virtual Smart Phone is related to transfer of data and establishing communication from one human to other human or from one human to a device or vice-a-versa without any platform dependency. It is an attempt to make communication between human and a device more interactive's is a way to connect both physical and virtual world.

The regular development of thousands of new programmes makes smartphones one of their most energy-intensive components. These programmes enhanced a smartphone's software capabilities while also assisting it in overcoming hardware limitations. Through offloading, cloud computing reduces the amount of energy required for computationally intensive applications to function on smartphones.

Another key characteristic that distinguishes cloud computing is hardware independence. As a result, the smart phone is more scalable and no longer requires regular hardware updates. Cloud Based Virtual Smart Phone enables users to run mobile applications remotely, improving battery life, storage space, and CPU power.

COMPARATIVE STUDY

The research methodology used in this case is the comparative technique since we tend to compare a few discoveries that researchers have held onto based on their characteristics, potential limitations, and distinctive qualities that set them apart from competing products.

There are different qualities in each of our four goods that set them apart from one another. The five major processes in the operation of a virtual smartphone are to enable and authenticate the VSP, place and receive calls, take pictures and videos, copy data, and paste it onto other VSPs and digital devices. Two of our four products are bracelets, while the other two are glasses. the evaluation of various products against one another to determine which is superior.

This system gives customers the freedom to use and access their personal information on their smartphone whenever they want, from any location, using any internet-enabled device. Users will have their own accounts generated with a distinct username and password, making the programme extremely secure as well. Also, even if a user loses their smartphone, they won't lose all of the info on it. Users only need to sync their mobile device with the server and download all of their data onto a new mobile device. Mobile devices that support a variety of multi-touch interactions enable users to access user interface elements using their natural

hand motions. Because of the virtual smartphone, the digital part of our life has grown more interactive, natural, and intuitive. Online smartphones enable Real-time mobile content can be accessed and used by users from any location on any internet-capable device.

Users can speak with their friends and family using any chat programme, such as Snap Chat. By using each user's unique face recognition, secret sign or pattern, face recognition, and palm line detection, the chat system may be kept secure. With the help of the internet or intranet, two virtual users can interact, and their chat data may be kept on the cloud. Voice recognition technology enables users to interact with virtual counterparts. Users can utilise a virtual keypad to write data or use voice recognition to record words while conversing with others. One user to another can upload photographs and videos using cloud storage via the internet or intranet.

High end Smartphone device with pre-installed Android Operating System or Windows Phone Operating System is recommended to run Virtual Machine on a smartphone device. The device must be rooted to run the VM kernels and Virtual Machines in smartphone. The host smartphone device with good WLAN or 3G- Network connectivity will run the virtual machines smoothly.

Table:1 Requirements

S.no	Hardware/ Software	Recruitments
1	Operating System Phone8	Android4+ or Windows
2	Processor	1.2GHZQuadCore
3	GPU	Nvidia Kepler GPU
4	RAM	Minimum1GB RAM (2GB Recommended)
5	Internal Storage	Minimum 4GB Internal Storage (8GB Recommended)
6	Web Browser	All Smart phone browser
7	Connectivity	WLANor3Gor4GLTE

A mobile virtual machine is a software smartphone computer that, like a physical smartphone machine, runs multiple operating systems and various virtual applications. A virtual machine also uses the physical resources in the smartphone of the physical smartphone machine on which it runs, which is also known as host system. Smartphone virtual machines have the virtual devices that provides the same functionality as the physical hardware of the smartphone, but with the other additional benefits such as portability of smartphone machine, manageability and the smartphone virtual machine security. A smartphone virtual machine as

a standalone virtual operating system and the virtual resources that you can manage them in much the same way you manage the physical smartphone machine.

Table :2 Outcomes of different studies and researches

S. no	Name of the Researcher	Product of Research	Display	Charging	Call	Security
1	Chris Harrison, Harvie Benko	Bracelet	Projects image on the palm	Normal C Type charging	It contains normal as well as video call	Palm Detection and finger print Detection
2	A.E Manjunath and Vijay Kumar	Bracelet	Projects image on the fore-hand	C type as well as solar charging	It contains video call	Face recognition
3	Bhagwan Parshuram	glasses	Projects image on the screen	C-type Charging	It contains normal call	Username password
4	Hermann Schweitzer	glasses	Projects image on the glass screen	C-type Charging	It contains normal call	Pin and username password

FINDINGS

In my perspective this type of innovation is like a coin which means it has two sides of it a positive and useful whereas for few people this might won't make much of a difference.

Let's talk about the first positive side as the people who work in IT department or Business management whose work is cluttered and congested for them this type of device is very helpful and user friendly for them.

They can look for any updates and notes which they require on their hand or in front of their eye sand that will help such people to work more efficiently. These devices are light weight and easy to use as the flat screen on the front to the eyes can give you details and notifications while working or travelling. There are still some points which creates it's another phase of this device, there can be lots of people who won't needed much this kind of device yet and thus can be useful in future to same people. So, for my perspective.

RESEARCH GAP

A virtual smartphone refers to a software-based smartphone that runs on a virtual machine or emulator on a computer, allowing users to simulate the functions of a physical smartphone. While there has been some research on virtual smartphones, there are still several gaps in the current literature. Here are some potential research gaps:

User experience: There is a need for research that examines the user experience of virtual smartphones. This could include studies that compare the usability and functionality of virtual smartphones to physical smartphones, as well as research on how virtual smartphones can be optimized to better meet user needs.

Security and privacy: Virtual smartphones may raise concerns about security and privacy, as they may be more vulnerable to hacking and data breaches. Further research is needed to identify potential security risks and develop strategies to mitigate them.

Performance and efficiency: While virtual smartphones can offer some advantages over physical smartphones, such as lower costs and greater flexibility, they may also suffer from performance and efficiency issues. Research is needed to identify the factors that affect the performance and efficiency of virtual smartphones, and to develop strategies for optimizing their performance[10].

Business applications: Virtual smartphones may have potential applications in business settings, such as for remote work and mobile app development. Research is needed to explore the potential benefits and challenges of using virtual smartphones in business contexts.

Integration with emerging technologies: As emerging technologies such as augmented reality and virtual reality become more prevalent, there may be opportunities to integrate virtual smartphones with these technologies. Research is needed to explore the potential applications and benefits of integrating virtual smartphones with emerging technologies.

Architecture of Virtual Smart Phones:

Virtual smartphones are software that mimics the functions of a physical smartphone on a computer or other device. They have multiple uses, such as for testing mobile apps, running mobile games, or accessing mobile websites.

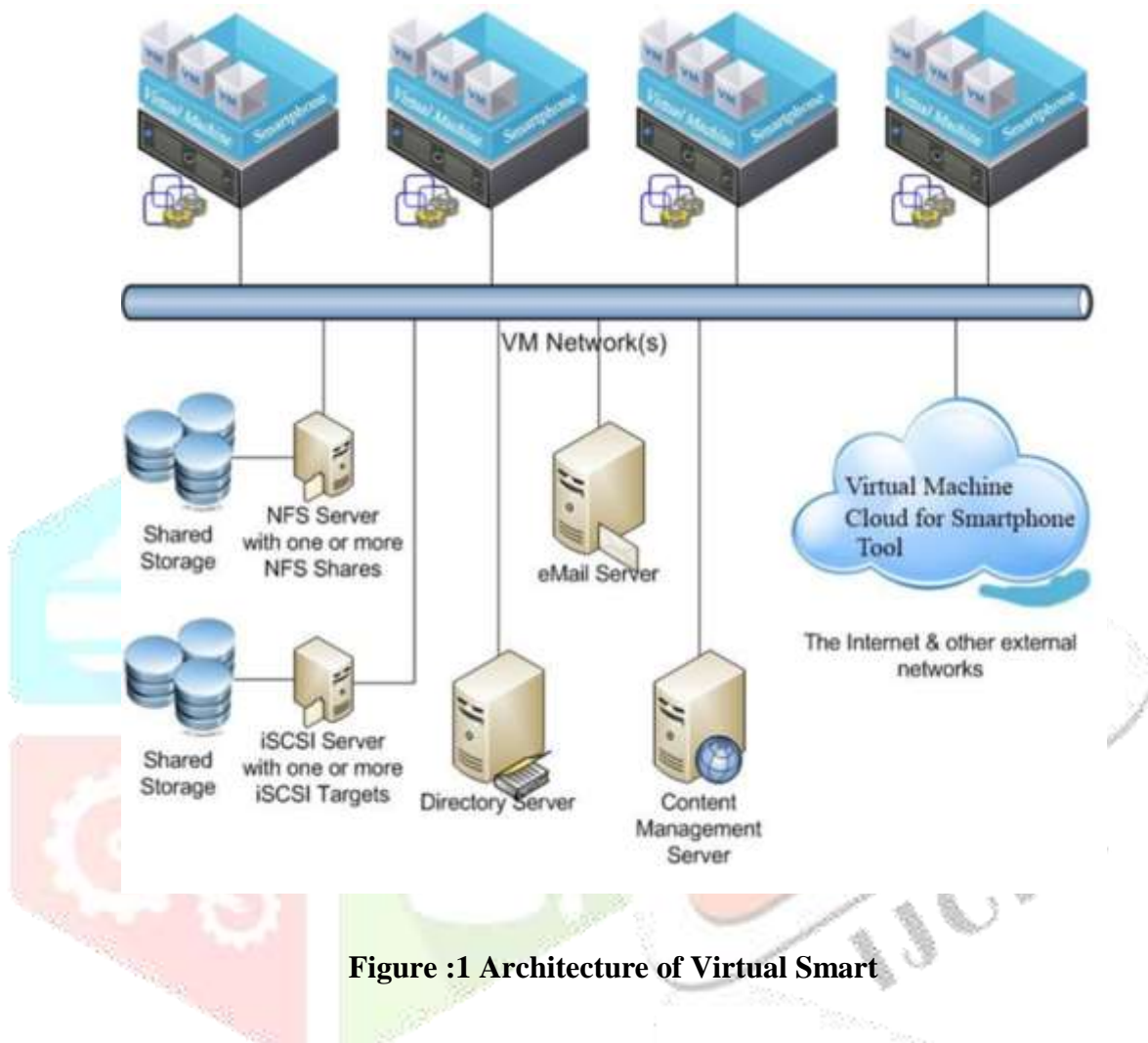


Figure :1 Architecture of Virtual Smart

Virtual smartphones typically have a virtual screen, virtual buttons, and virtual touch controls that allow users to interact with the device in the same way they would with a physical smartphone. Some virtual smartphones also have features like camera simulation, accelerometer emulation, and other hardware emulation to provide a more authentic mobile device experience. One common use of virtual smartphones is for mobile app testing. Developers can test their apps on different operating systems, screen sizes, and hardware configurations without owning a physical device for each one, which can save time and money while also ensuring that the app functions properly on various devices.

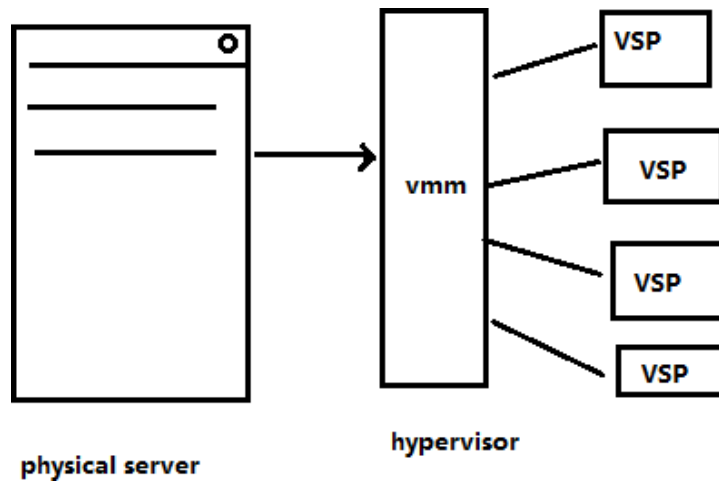


Figure :2 Cloud Support for Virtual smart phone

Virtual smartphones can also be beneficial for users who want to access mobile apps or websites on their computer. By using a virtual device on their desktop or laptop, they can access mobile content without having to switch between devices, which is particularly helpful for those who need to multitask between desktop and mobile workflows.

Overall, virtual smartphones are versatile tools that can help developers and users access mobile content in novel and innovative ways. As technology progresses, we can expect to see further developments in virtual device emulation and other virtualization technologies.

CONCLUSION

Virtual smartphone is a gesture and computer- vision based wearable interface that augments physical world with digital information and provides user the mechanism to interact with information using natural hand gestures. Virtual smartphone is free of physical dependencies and connects physical world to virtual world. Physical world is connected with Virtual world with the advanced augmented reality, gesture recognition and computer-vision based algorithms. So, the user can send data to another digital devices through virtual smart phone by the use of Bluetooth, Wi-Fi and GPS connectivity. There is no need of physical dependencies of mobile phone. In future, this Virtual Smart Phone will be used for education and training system, Health monitoring systems, News and Weather cast updates, and shares data with different digital devices virtually.

FUTURE WORK

Physical world is connected with Virtual world with the advanced augmented reality, gesture recognition and computer-vision based algorithms. So, the user can send data to another digital devices through virtual

smartphone by the use of Bluetooth, WIFI and GPS connectivity. There is no need of physical dependencies of mobile phone. In future, this Virtual Smart Phone will be used for education and training system, Health monitoring systems, News and Weather cast updates, and shares data with different digital devices virtually.

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