Review Of Virtual Smart Phone

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Abstract-

Every people in this world are connected with others through internet with help of many kinds of communication devices, such as, smart mobile phones, tablets, PC and laptop etc. Day by day people like to use weightless and compact devices for communication purpose. In this paper introducing Virtual Smart Phones with tiny projector, speaker, mike, camera and cloud computing technology. The user can communicate through voice calling and transferring data from one device to another device via internet. This Tiny Virtual Smart Phone is operated based on multi touch and gesture-based interactions. The integration of many computer vision methods of Augmented Reality techniques are used to control the digital world with Virtual Smart Phone.

Keywords: VSP, Virtual smart phone, GSM Technology, gesture-based interaction

Introduction

In recent years of sensing and display technologies has the development of so many varieties of multitouch and gesture based interactive system. In these systems users can directly interact with information using touch add natural hand gestures. The most general natural hand gestures & multi touch based interactive system/mobile usually uses projectors, or dedicated surfaces and information still remains on screen.

In this paper we replace the mobile phone device with the virtual multi touch & natural gesture-based interaction on the user's palm through which the other user. We can communicate with another digital device through network. VSP invention is related for establishing communication and to transfer data between one human body to other human body or from one human body to digital devices or vice versa without dependency of any platform.

This is working based on by touch gesture on the human hand or palm. Virtual Smart Phone has two type of data transfer. First, It invoke voice communication using GSM Technology and without carrying mobile phone. Second, with the help of internet/intranet or data service from mobile data, Data can be shared from one

human to another human or digital device. Palm recognition is used for palm lines or fingerprint detection.[5]

Literature Review

According to Chris Harrison, Hrvoje Benko and Andrew D Wilson [1], the omni touch wearable system uses graphical, multitouch interactive input on every surface. The Pico projector is wearable on shoulder and it project on user's hand, arm or leg as a graphical user interface and without any calibration. The projection distance is limited and system is sensitive to approach in angle of fingers. Human hand gestures are not included in this system (Omni touch: Wearable System). And it assumes that, the user uses right hand to operate on projected layer.

According to AE Manjunath and Vijayakumar [2], that various computer vision-based algorithms are used for interaction. By the use of single camera human can interact with the system without any additional hardware device. To simplify the interaction the algorithm should be adaptable to recognize the specific property like colour, pattern, texture or intensity or relationship among the pixels. The various hand gesture and posture recognition algorithms are such as template matching, feature extraction analysis, active shape model, principal

component analysis, Linear finger Models and Casual Analysis. In the template matching technique, the first step is to create template from the collection of data value of various different posture as a set. In the second step matching current recorded sensor posture with the template. The feature extraction analysis is the robust way and produce 97% accuracy. For locating and extracting feature from the still image, contour manipulation is done in Active Shape Model. In Principal Component Analysis eigenvectors and eigenvalues are computed to get transformed original data set. (Scaling, Orientation & Position). The Linear Fingertip model gives 90% of accuracy, by calculating trajectory of fingertip motion. In casual analysis gesture filters are used to improve intraction with human casual knowledge such as wrist acceleration, wrist joint movement. The Augmented reality based mobile application uses Waterfall Model Development method. This is stage by stage of systematic sequence approach. The stages are design, coding, testing / verification and maintenance. By wearing proximity sensors over network uses Hidden Markov Model for identifying body posture. By using Radio Signal Strength effectively can identify different body motions, such as walking, running, sitting & standing postures and compared with naïve threshold-based technique. In this

paper, our proposed system uses particle filtering algorithm to improve human interaction.

According to Bhagwan Parshuram [3] VSP is basically a computer-vision based wearable and gestural information interface that augments the physical world around us with digital information and proposes natural hand gestures as the mechanism to interact with that information. For every leaving specie communication is a way by which they share/pass their thoughts/fillings to one another. We homosepians mainly use verbal communication to communicate with each other. Virtual Smart Phone which is basically a step to connect both the Physical and virtual world, by using a tiny projector, Camera, Speaker, mike & Cloud Computing Technology over the internet in the form of wearable device. In VSP all the required component are fabricated in the wearable device by which use communicate with the help of natural hand gesture, Hand movement and Internet. In VSP user communicate with each other by Virtual mobile phone with the help of touch gesture radio wave and cloud computing technology.

According to Hermann Schweizer [4] Smart glasses are computing devices worn in front of the eyes. Evidently their displays move with the users head, which leads to the users seeing the display independently of his or her position and orientation. Therefore, smart glasses or lenses are the only devices which can alter or enhance the wearer's vision no matter where he/she is physically located and where he/she looks. There are three different paradigms of how to alter the visual information a wearer perceives.

Problem Definition

In our day-to-day life we are surrounded by many different types of devices whose work is to provide us with information as quickly as possible but these devices seem to be kind of heavy and also sometimes inconvenient to travel with and therefore smartphones were invented to access the information wherever you go.

Smartphones requires space and also has a threat of getting stolen easily so there should be something we can keep as a backup for the information on the Smartphone or something which can have less threat of getting stolen.

To modern solution towards the problem is to get some device which act as wearables and also help you with Information from all your

devices so that you can have backup for your information as well as you can easily carry the device with you.

Objective

The main objective of this Review is to analyse the Research paper and review on their ideas and innovation as how much is their efficient and how can the product created by them be developed even more. Also, the perspective of the people as what they want for this product.

The objective of virtual smartphone is to provide access to digital devices virtually with the help of gesture-based interaction on the user palm or hand.

Virtual smartphone provides transfer of data from user to user or from user to digital devices without need of any platform or platform dependency.

The communication between users and digital devices become more tangible and interactive because of virtual smartphone.

Research Methodology

The Research Methodology here is the comparative method as we tend to compare few innovations which had been held by the researchers by their features and limitations that the acquire and uniqueness which make the product different from others.

We have four products from which there are various features that make products different from each other.

Working of virtual smartphone consists of 5 main steps that is enable and authenticate VSP, make call, Receive Call, Capture Image/Video, Copying Data and paste data to other VSP and digital devices. (as shown in table no 1) We have four products from which two are bracelets and other two are glasses the comparison between these products to see which product is better.

Comparison between devices

Srno.	Name of the Researcher	Product of Research	Display	Charging	Call	Security
1.	Chris Harrison, Hrvoje 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.	AE Manjunath and Vijayakumar	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 Schweizer	glasses	Projects image on the glass screen	C type charging	It contains normal call	Pin and username password

Table no1.

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 eyes and 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 of the eyes can give you details and notifications while working or travelling. There are still some points which creates its 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 This device is not so much useful in current state but may be the most useful product in future.

Advantage & Disadvantage:

Advantages: This application provides

users the flexibility to access and use their

personal information on their smartphone from

anywhere from any internet-enabled device and

at any time. The application is highly secure

too- users will have their own account created

with a unique username and password. Also, in case the user losses their smartphone they will not lose all the data available on their mobile device. All those users need to do is to sync-up their device with the server and download all their information into new mobile device. Variety of multi-touch interaction and mobile devices allow user to acquire user interface components using natural hand gestures. The digital aspect of our lives becomes more interactive, intuitive and natural because of virtual smartphone. Virtual smartphone allows users to access and use real-time mobile content from any place from any internet enabled device.

This device can help people to be up to date with their work as all the notification and updates can be gathered easily without using smartphones and other devices.

Chris Harrison, Hrvoje Benko and Andrew D Wilson has a great Idea of bracelet which projects on palm of our hand it makes things more convenient for people to connect to devices which can be easy to handle. Palm recognition system for authentication can make the device Unique as information can be accessed by the authorized person.

Bracelet also suits a fashionable item which young as well as adults can easily adapt to.

Similarly, Hermann Schweizer smart glasses are

also one of the wearables which can be profound to be useful as glasses can be easily accessed by the person with some finger sensors all the information can be equipped within seconds other than using handsets devices.

Disadvantage:

As we speak of advantages of the product there are still some disadvantages which cannot be denied.

These wearables have a major Disadvantage of battery life as until now it cannot sustain its activity for a long period of time it may work for at most 5hrs per day.

Not the bracelet but glasses are always tends to be fragile and can most likely to break if it's not handle with care.

Space is also another aspect of this device as smaller the device the space it can possess.

AE Manjunath and Vijayakumar bracelet contains solar panel for charging other then normal but solar panel bracelet can get heated fast as compared to other devices

and thus can also harm human skin by burning the cells of the skin.

Bhagwan Parshuram glass screen covers the rear of the vision of human sight and hence it also feels heavy to wear something big on the face for so long.

Limitations:

AE Manjunath and Vijayakumar bracelet contains solar panel for charging other then normal but solar panel bracelet can get heated fast as compared to other devices and thus can also harm human skin by burning the cells of the skin.

Bhagwan Parshuram glass screen covers the rear of the vision of human sight and hence it also feels heavy to wear something big on the face for so long.

Chris Harrison, Hrvoje Benko bracelet projects on the palm which is needed to be free like you cannot get hold of things or objects if you want to use the bracelet.

Hermann Schweizer glasses tends to look fragile easily broken if treated harshly also the screen can show currently single colour which is either blue or green there are RGB colours for the screen.

Future Scope:

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, 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.

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. Some applications of virtual smartphone.

- Health Monitoring System

- Finds information about new device.

- Connects user with news and weather update.

- Connects devices virtually.

- Use in education and training system

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