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Study on Virtual Reality-Rethinking Boundaries

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Abstract:

The term 'Virtual Reality' (VR) was initially coined by Jaron Lanier. The last eras have been marked by the development of the computer as a device in almost every domain of human activity. One of the reasons for such a development was the introduction of human-friendly interfaces which have made computers easy to use and to learn. Graphical user interfaces based on the desktop metaphor can be seen as an incomplete form of virtual environment that simplifies human-machine communication by creating a palpable, concrete delusion for users to manipulate real, physical objects positioned on a desk top. In this paper we have discussed the general perspective of submission of Virtual Reality has been discussed when incorporated in other field and also about the future that it holds for the mankind.

Keywords: *Virtual Reality, Graphics, Future perspective, 3D techniques.*

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Introduction

Virtual Reality is the term used for computer generated 3D environment that allows the user to enter and interact with alternate realities. To create virtual environment isn't easy and to create as accurate and perfect as it is in real. This needs to incorporate 3D sound, Artificial smell generation and also sense of touch (Forsberg and LaViola, 2000). The basis for virtualization contains work on scientific visualization, cyberspace design, visual languages, and hypertext browsers. Virtualization is the mapping of an abstract data set to a virtual space. The objective of virtualization is to help people solve data intensive problems that are resistant to reductionist techniques and amenable to data visualization, or in this case virtualization efforts. Operational use of the virtual reality interfaces can be definite operationally in terms of how well the data set exercises the full competences of the technology together in terms of the amount of mechanisms used and in terms of the complete use of the channel.

Figure No.1: VR aiding in Engineering

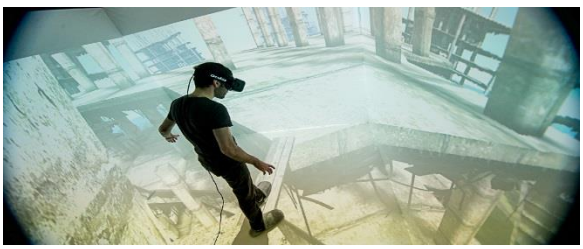

Figure No.2: Aid of VR in treating Acrophobia

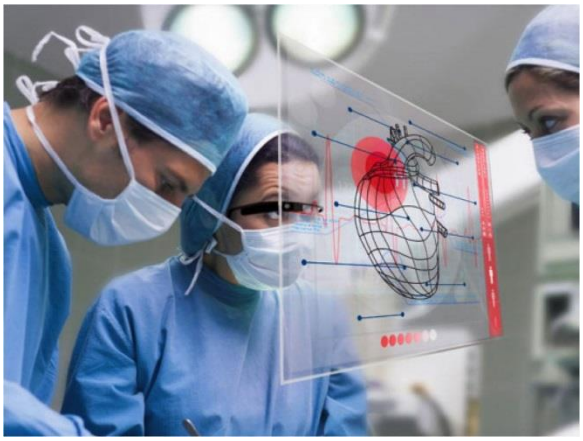

Figure No.3: Aid of VR in Medicine

Figure No.3: Aid of VR in Entertainment and Gaming

Review of Literature

Spring and Jennings (1992), majorly worked on creation of mapping between abstract data and dimension of Virtual Reality. In their paper they have discussed about the Background and Examples of Virtualization, the process of Virtualization that the design of virtual realities based upon a constructed reality base derivative from certain abstract data set. In the end it was concluded that virtualization is to help people solve data intensive problems that are resistant to reductionist techniques and amenable to data visualization, or in this case virtualization efforts and their current work provides a framework within which efforts might be compared and contrasted

Forsberg and LaViola (2000), discussed the aspects and general introduction of Virtual Reality. He explained role of its application into innumerable fields like Stereographic projections tracking devices, Cyber puck, HMD, CAVE, Data glove, Archaeology & Arts, Medicine, Health Sciences, Entertainment, Engineering, Simulation and Training, Rehabilitation

etc. They concluded that their perspective is to expand the application of VR in order to assist other fields as well since it has already been serving well to humankind through other active fields.

Mandal (2013), In her paper she has discussed generalized introduction of Virtual Reality and has also discussed few challenges regarding when it's incorporated to other field. According to her paper Moreover, the world of three-dimensional graphics has neither borders nor constraints and can be created and manipulated by ourselves as we wish – we can enhance it by a fourth dimension: the dimension of our imagination But not enough: people always want more. She has also discussed levels of immersion in vr systems, types of immersion, uses and advantages as well as its future aspects and concluded that his technology give enormous scope to explore the world of 3D and your own imagination.

Zhang et al. (2016), discussed in their paper about recent developments in game-based virtual reality. They have expressed that several disadvantages inherent in VR prevent its broad deployment in educational areas and according to them limitations include non-realistic representation along with physical and psychological discomforts. The concluded their work by mentioning Microsoft Kinetic as it is novel human-computer interface for tracking the users' entire body motion and recognizing their voices. According to the methods described by them the three major aspects of educational VR development can be accomplished with an inexpensive and commercially available Kinect.

Singh and Singh (2017), they studied current research objectives, comparison with other virtualized environments, development trends of VR, & modeling methods. They expressed virtual reality as a notion of immersion which in other terms can be explained as new technological advancement in the field of human-machine interaction. They have covered ideas & concepts behind the architectural representation, supporting software & hardware implementations, various categorized languages & modelling tools etc.

Sherman and Craig (2017), in his book-Understanding Virtual Reality: Interface, Application, and Design, explained that what is virtual reality, how does virtual reality system works, all the possible fields it shares its impact on and what could be the possible future of virtual reality. It was also discussed that how can we tackle the possible disadvantages.

Conclusion

Virtual Reality seems to be potential and powerful tool for the visualization of burgeoning scientific data sets and models (Forsberg and LaViola, 2000). Recent technical developments in computer-aided surgery, the feasibility of computed navigation assistance in neurosurgery as well as in head and neck surgery has been demonstrated for a wide variety of indications that how much VR can play a spectacular part to mankind.

Incorporation of VR with other fields like Stereographic projections tracking devices, Cyber puck, HMD, CAVE, Data glove, Archaeology & Arts, Medicine, Health Sciences, Entertainment, Engineering, Simulation and Training, Rehabilitation is giving out satisfactory output.. It can be shown, that concepts and elaboration of virtual reality must be based on well founded and consistent concepts of the latter, although these concepts are not considered explicitly in most cases. So VR is open up to new aspects of human perception and cognition.

References:

Forsberg, Andrew S., and Joseph J. LaViola. “Immersive VR for Scientific Visualization: A Progress Report.” Semantic Scholar, www.semanticscholar.org

Gobbetti, Enrico, and Riccardo Scateni. “Virtual Reality: Past, Present, and Future - CRS4.” Http://Www.crs4.It, www.crs4.it

Mandal, Sharmistha. “Brief Introduction of Virtual Reality & Its Challenges.” International Journal of Scientific & Engineering Research, vol. 4, no. 4, ser. 2013, 4 Apr. 2013. 2013, www.ijser.org

SHERMAN, WILLIAM R. UNDERSTANDING VIRTUAL REALITY: Interface, Application, and Design. MORGAN KAUFMANN, 2017

Singh, Namrata, and Sarvpal Singh. “Virtual Reality: A Brief Survey.” 2017 International Conference on Information Communication and Embedded Systems (ICICES), 19 Oct. 2017, doi:10.1109/icices.2017.8070720.

Spring , Michael B., and Michael C. Jennings. “Virtual Reality and Abstract Data: Virtualizing Information.” School of Computing and Information, 11 Aug. 1992, www.sis.pitt.edu Spring ,

Zhang, M., et al. “Recent Developments in Game-Based Virtual Reality Educational Laboratories Using the Microsoft Kinect.” Virtual Reality, 2016, personal.stevens.edu