Detail Study of Virtual Reality Environment

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Abstract— Virtual reality (VR) is an interactive computer-generated experience taking place within a simulated environment, that incorporates mainly auditory and visual, but also other types of sensory visual, but also other types of sensory feedback like haptic. Augmented in reality systems may also be considered a form of VR that layers virtual information over a live camera feed into a headset or through a Smartphone or tablet device giving the user the ability to view three dimensional images. Current VR technology most commonly uses virtual reality headsets or multi projected environments, sometimes in combination with physical environments or props, to generate realistic images, sounds and other sensation that simulate a user's physical presence in a virtual or imaginary environment. A person using virtual reality equipment is able to "look around" the artificial world, move around in it, and interact with virtual features or items. The effect is commonly created by VR headsets consisting of a head-mounted display with a small screen is front of the eyes, but can also be created through specially designed rooms with multiple large screens. [2]VR systems that include transmission of vibrations and other sensations to the user through a game controller or other devices are known as haptic systems. This tactile information is generally known as force feedback in medical, video gaming and military training applications.

Key words: Virtual Reality Environment

I. INTRODUCTION

Virtual Reality (Vr) Is quickly becoming a serious tool for psychiatrists and therapists. However, even though research has shown VR to be effective in psychological therapy there is still much uncertainty about the reasons behind all this. For this, we need an understanding of the effect VR has on the human psyche. Current research on this subject is focused primarily on the concept of presence.

On one side, many studies have already confirm the ability of films, TV programs and imagery techniques, as well as still slides of emotional scenes, to elicit emotions. Recently, Mauss et al. confirmed that movies are effective in inducing moderately intense emotional, behavioral, and physiological being viewed, and they provide a good context for assessing those dynamic changes in emotional responses. On the other side, even if some authors suggested possible "recipes," it is less clear how to manipulate the content of interactive media to induce an emotional response. In particular this is true for advanced interactive media, including Virtual Reality (VR).

The main goal of this paper is to investigate the current knowledge on presence to gain an understanding of the psychological mechanism underlying an experience in VR. This understanding for determining those aspects of the VR system and the context in which it is used that contribute to an effective and efficient treatment.

II. EVOLUTION OF VIRTUAL REALITY

The very first idea of it was presented by Ivan Sutherland in 1965:"make that (virtual) world in the window look real, sound real, feel real, and respond realistically to the viewer's actions". It has been a long time since then; a lot of research has been done. Let us discuss important evolutionary.

A. Sensorama

The Sensorma was a machine that is one of the earliest known examples of immersive. Multi-sensory (now knl=own as multimodal) technology. The Sensorma was a machine that is one of the earliest known examples of immersive, multi-sensory (now known as multimodal) technology. [3]The Sensorama was a mechanical device, which includes a stereoscopic color display, fans, odor emitters, stereo sound system. and motional chain. White it still functions today, audiences cannot interact with it.

Fig. 1:

B. The Sword of Damocles

The Sword of Damocles is widely considered to be the first virtual reality (VR) head-mounted display (HMD) system. It was created in 1968 by computer scientist lvan Sutherland with the help of his student Bob sproull. The device was primitive both in terms of user interface and realism. and the graphics comprising the virtual environment were simple wireframe rooms. Sutherland's system displayed output from a computer program in the stereoscopic display The perspective that the software showed the user's gaze-which is why head tracking was necessary. The weight of Sutherland's HMD. and the need to track the head movements necessitated the HMD being attached to a mechanical suspended from the celling of the lab.

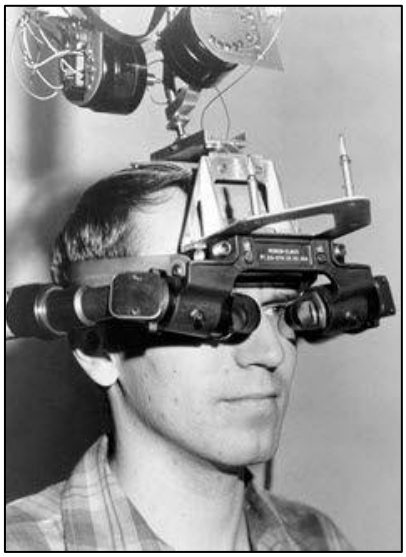

Fig. 2:

III. WHO INVENTED VIRTUAL REALITY?

It is difficult to state with any certainty who the father of virtual reality is as like any new invention, it draws upon many different sources and influences. More than one person has been involved in the development of this technological system but if we are talking about the realm of virtual gap between public expectations and technological limitations.

IV. WHO IS COINED THE "VIRTUAL REALITY"?

The term 'virtual reality' was coined by Jaron Lanier in 1987 during a period of intense research activity into this form of technology, But before then, he had set up VPL Research - a company which pioneered research into virtual reality and 3D graphics which also sold the first virtual reality gear such a virtual reality glasses, data gloves and later, the full data suit. VPL Research patents were later acquired by Dun Microsystems in 1999. Lanier partnered up wit Tom Zimmeman - the inventor of the first data gloves and relatively inexpensive head mounted display (HMD) . Virtual reality became very popular around this time- especially in the 1990's, but this soon dropped off due to a yawning gap between public expectations and technological limitations.

V. HOW IS VIRTUAL REALITY POSSIBLE?

Virtual reality is possible thanks to development in interactive technologies by people such as Jargon Lanier, Douglas Engelbart, Ivan Sutherland and Morton Heiling These people were pushing the boundaries of technological research and experimented with new forms of input devices, user interfaces, multimedia and 360 degrees user experience.

VI. TECHNOLOGICAL ADVANCED

Plus advances in film, television and the media also contributed to these developments. This has continued to this day with the for example the Nintendo will which uses a handheld controller as tracking device. The gamer uses this to interact with objects on the screen in front of them and as a result, changes the interaction.

A. Advances in Computing

It is a combinations of several things such as an increase in processing speed, bigger and better graphics cards, advances in interactive technologies, increased interest in virtual worlds and not forgetting, web 2.0 in which the dominant theme is interactivity.

B. Web 2.0

The internet plays an important part in all of this. There has been a shift from the idea of us as a passive experience to web 2.0 in which we as users play a far greater role. Users generate content which is share with mills of others as can be seen in the rise of social media, e/g. Facebook and Twitter.

VII. VIRTUAL REALITY & ETHICAL ISSUES

[1]There are a few ethical issues in regard to virtual environments which need to be addressed. These are related to human behavior and motivations and are also a concern for the gaming industry.
They include:

1) The problem of 'desensitisation'
2) Virtual criminality

VIII. WHAT WOULD A VR MORAL CODE LOOK LIKE?

Do experiences that remain in the private realm of someone's brain warrant any rules or regulations by society as a whole?? In open, democratic societies, VR regulations should surely be guided by a general principle of liberalism: the individual's autonomy in dealing with their own brain and in choosing their own desired states of mind.

The opportunity for sensory takeover gives developers tremendous scope to alter a user's reality. It's an idea that other will need to grapple with as AR and VR become a liger part our daily lives.

IX. THE DESENSITIZATION OF VIRTUAL REALITY

Concerns have been raised about a possible relationship between virtual reality and desensitisation. This refers to virtual reality games in which there are high levels of violence or training exercises for the military in which soldiers engage in simulated combat scenarios which include killing.

Desensitisation means that the person is no longer affected by extreme acts of behavior such as violence and fails to how empathy or compassion a result. In some situations they actively seek out this type of scenario for the adrenaline rush and sense of power.

This has been noticed with gamers, especially those who play first person shooters or role playing games which involve a high degree of immersion. Another issue related to this is 'cyber-addiction'. There are people who become addicted to virtual reality games and as a consequence, start to blur the boundary between real and virtual life. They spend increasing amounts of time in the virtual environment which has a detrimental effect on their real would life.

X. FUTURE SCOPE

Virtual, augmented and mixed reality technologies are drawing millions of dollars in investments, and are on pace to

be a $160 billion market by 2020. Moreover, these immersive technologies are poised to transform entertainment and to dramatically influence industries as diverse as healthcare., tourism, sports, education, and manufacturing. actually NASA is using the technologies to train astronauts and to share a walk on mars.

XI. CONCLUSION

Virtual reality will be integrated into daily life and activity and will be used in various human ways. It as long been feared that virtual reality will be the last invention of humans, as once simulations becomes cheaper and more widespread, no one will ever want to leave their "perfect" fantasies.

Virtual reality has so many different operations that are used in all kinds of areas like the medical field, airlines and in the military.

Now we use mail or conference for communication while the persons is not sitting with you but due to technology distance is not matter. This technology give enormous scope to explore the world of 3D and your own imagination.

REFERENCES

[1] Virtual Reality and Ethical Issues, www.vrs.org.uk/virtual-reality/ethical-issues.html
[2] K.. P. Beier, Virtual Reality: A Short Introduction.
[3] Martijn J. Schuemie, Peter Van Der Straaten, Merel Krijn, Charles A.P.G. Van Der Mast, Research On Presence In Virtual Reality: A Survey, Cyberpsychology & Behavior Volume 4, Number 2, 2001 Mary Ann Liebert, Inc.
[4] Sharmistha Mandal, Brief Introduction Of Virtual Reality & Its Challenges, International Journal Of Scientific & Engineering Research, Volume 4, Issue 4, April-2013
[5] Giuseppe Riva, Fabrizia Mantovani, Claret Samantha, Francesca Morganti, Daniela Villani, Andrea Gaggioli, Cristina Botella And Mariano Alcaniz, Affective Interactions Using Virtual Reality : The Link Between Presence And Emotions, Cyberpsychology & Behavior Volume 10, Number 1,2007
[6] Maureen K. Holden, Virtual Environments For Motor Rehabilitation : Review, Cyberpsychology & Behavior, Volume 8, Number 3, 2005.

