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# A Review of Virtual Reality in Multimedia

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***Abstract: This paper is designed to provide the information about virtual reality contain wealth of information which is designed to newcomer and experienced technologist alike. Discuss all the aspect of virtual reality which include concept of virtual reality technologies used applications and ethical user. This is a complex and at times, esoteric subject which continues to fascinate a great many people. Yet there is a certain amount of cynicism towards virtual reality or 'VR' for short which in the early days, promised so much but did not always deliver. It provides augmented reality: this is a similar form of technology in which the lines are blurred between the real world and computer generated imagery, e.g. video. Sound, video or images are overlaid onto a real world environment in order to enhance the user experience.***

***Keywords: Applications of VR, Depth of Information, Breadth of Information***

## I. INTRODUCTION

Virtual reality is the term used to describe **a three-dimensional, computer generated environment** which can be explored and interacted with by a person. That person becomes part of this virtual world or is immersed within this environment and whilst there, is able to manipulate objects or perform a series of actions. The person wears a **head-mounted display (HMD) or glasses** which displays three-dimensional images as part of their experience. Some systems enable the person to experience additional sensory input, e.g. sound or video which contributes to their overall experience. There are many different types of virtual reality systems but they **all share the same characteristics** such as the ability to allow the person to **view three-dimensional images**. These images appear life-sized to the person.

They change as the person moves around their environment which corresponds with the change in their field of vision. The aim is for a seamless join between the person's head and eye movements and the appropriate response, e.g. change in perception. This ensures that the virtual environment is both realistic and enjoyable. A virtual environment **should provide the appropriate responses** – in real time- as the person explores their surroundings. The problems arise when there is a delay between the person's actions and system response or latency which then disrupts their experience. The person becomes aware that they are in an artificial environment and adjusts their behavior accordingly which results in a stilted, mechanical form of interaction.

## II. METHODLOGY

It is basically a feeling of involvement of the user in the virtual world intelligently designed by experts. They have the power to interact with this world. This unique combinations where the user can immerse as well interact with the simulations is known as Telepresence. This is devise by the famous computer scientist Jonathan Steuer. Thus the user forgets about his real world scenario, forgets his present identity, situation and life and immerses him in a world of imagination, adventure and exploration. He gets more focused about his newly created identity inside the Virtual Reality world. Immersion is made up of two main components as stated by Jonathan Steuer. They are:-

- Depth of Information
- Breadth of Information

While a user is using simulations and interaction between the user and the virtual environment takes place then some amount of quality of data are received in the signals. This information is termed as Depth of Information. Depth of information can necessarily include anything and everything starting from the resolution of the display unit, the graphics quality, the effectiveness of the audio and video etc. Jonathan Steuer also defines breadth of information as a number of sensory dimensions presented simultaneously. Any virtual environment can be designated as having a wider breadth of information whenever it stimulates all the human senses. The user should get fully focused onto the new identity and world he explores. The audio and visual effects are the mostly researched area in creating a good virtual environment. These are considered as the main factors that can stimulate user's all sensory organs. The sense of touch is been given more and more priority as it has become the dominating factor to stimulate a human.

Those systems that allow the users to interact through touch are known as Baptic Systems. Whenever the virtual environment depicts a scene where there is no movement at all then definitely the user must not feel a wind as speedy as a hungry gale. He must feel exactly what he experience sin this real world. In the same way, If the user is stuck in the

 

middle of a hurricane storm we cannot expect him to feel a gentle breeze. There is then the concept of Latency involvement. Latency is the time difference between how the user makes some actions and the virtual environment reflects as a reaction to that action

## III. RELATED WORK

We are collecting the various media used to define the virtual reality system. It is hard to imagine but what happens if someone commits a criminal act but within a virtual environment? A potential situation is one in which several people are immersed within a virtual environment but one of these participants becomes injured or traumatized due to the actions of another person in that situation. The distribution of the virtual system is used to describe the area and uses the newer system of advance multimedia application

**Application of virtual reality**

Here is a list of the many **applications of virtual reality**:

- Virtual Reality in the Military
- Virtual Reality in Education
- Virtual Reality in Healthcare
- Virtual Reality in Entertainment
- Virtual Reality in Fashion
- Virtual Reality and Heritage
- Virtual Reality in Business
- Virtual Reality in Engineering
- Virtual Reality in Sport
- Virtual Reality in Media
- Virtual Reality and Scientific Visualizations
- Virtual Reality in Telecommunications
- Virtual Reality in Construction
- Virtual Reality in Film
- Virtual Reality Programming Languages

Some of these will be more familiar than others but visit any of these to find out more about a particular use of virtual reality. There are many more uses of VR than first realized which range from academic research through to engineering, design, business, the arts and entertainment. But irrespective of the use, virtual reality produces a set of data which is then used to develop new models, training methods, communication and interaction. In many ways the possibilities are endless. The only stumbling blocks are time, costs and technological limitations. Virtual reality systems such as aCAVE system are expensive and time consuming to develop. Plus there are issues of ergonomics, specifically the need to design systems which are 'user friendly' and not likely to cause problems such as motion sickness.

## IV. CONCLUSION

There are many different types of virtual reality systems but they all share the same characteristics such as the ability to allow the person to view three-dimensional images. These images appear life-sized to the person. Plus they change as the person moves around their environment which corresponds with the change in their field of vision. The aim is for a seamless join between the person's head and eye movements and the appropriate response, e.g. change in perception. This ensures that the virtual environment is both realistic and enjoyable.

A virtual environment should provide the appropriate responses – in real time- as the person explores their surroundings. The problems arise when there is a delay between the person's actions and system response or latency which then disrupts their experience. The person becomes aware that they are in an artificial environment and adjusts their behavior accordingly which results in a stilted, mechanical form of interaction. NASA, the Department of Defense and the National Science Foundation funded much of the research and development for virtual reality projects. $80,000 was contributed by the CIA for research purpose to Sutherland. The VR technology as a path to advance human-computer interface (HCI) designs. HCI still is a domination factor in VR research. It further led to the media picking up on the idea of VR within a couple of years.

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