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A Review Paper on Virtual Reality

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***Abstract:** This paper provides us a short survey on the topic virtual reality. Virtual reality some time also called virtual environments has drawn much attention in the last few years. Extensive media coverage causes this interest to grow rapidly. High lighting application domains, technological requirements, and currently available solutions. Section1 contain introduction, in section 2, we will discuss VR devices, section 3 contain VR application, conclusion in section 4 and 5 contain reference.*

***Keywords:** virtual reality, virtual reality device virtual reality scope.*

I. INTRODUCTION

The real implementation of virtual reality was done in 1989.but it was introduce Sutherland in 1965.there are four technology;

- the visual (and aural and haptic) displays that immerse the user in the virtual world and that block out contradictory sensory impressions from the real world;
- the graphics rendering system that generates, at 20 to 30 frames per second, the ever-changing images;
- the tracking system that continually reports the position and orientation of the user's head and limbs; and
- the database construction and maintenance system for building and maintaining detailed and realistic models of the virtual world .

Sutherland's 1965 Vision :

Display as a window into a virtual a real. Computer maintains world model in real time. User directly manipulates virtual objects Manipulated objects move realistically Immersion in virtual world via head-mounted display Virtual world also sounds real, feels real. Vehicle simulators were developed much earlier and independently of the VR vision. Although they today provide the best VR experiences available, that excellence did not arise from the development of VR technologies nor does it represent the state of VR in general, because of specialized properties of the application. Entertainment I exclude for two other reasons. First, in entertainment the VR experience itself is the result sought rather than the insight or fruit resulting from the experience. Second, because entertainment exploits Coleridge's "willing suspension of disbelief,"3 the fidelity demands are much lower than in other VR applications

2.VR devices:

- HMD
- Tracing devices
- VR glasses
- Data glove
- Cyber puck

Here we discuss these VR devices one by one

HMD:

The most noticeable advances in HMDs have occurred in resolution, although color saturation, brightness, and ergonomics have also improved considerably. In 1994, one had a choice of costly and cumbersome CRT HMDs, which had excellent resolution and color, or economical LCDs, which had coarse resolution and poor saturation. Today economical LCDs have acceptable resolution (640 × 480 tricolor pixels) and good color saturation. HMDs use separate displays mounted in a helmet for each eye. New versions of HMDs, still under development, are based on the creation of the image directly on

the retina, using a beam of light. With shutter glasses the user wear a pair of glasses where each lens is substituted with an electronic shutter (a monochrome LCD). Looking at a CRT showing left and right images synchronized with them, the shutters are alternatively opaque or transparent.

HMD

Tracing device:

Tracing device work with our position or we can say that if we change our position the the output will change. In 1994, tracking the viewer's head motion was a major problem. Tracker ranges tethered the viewer to an effective radius of about four feet. Tracker accuracy suffered from severe field distortion caused by metal objects and magnetic fields. Tracing device also used in HMD as we change the position of our head the output will change. Unlike display technology and image-generation technology. Tracking technology has not had a substantial non-VR market to pull it along. The most important collateral market has been motion capture for entertainment applications, and that market has not pressed the technology on accuracy. So progress in tracking has not matched that of displays and image generation.

Tracing Device

VR Glasses:

Virtual reality glasses are the device called stereographic. When the user feel the VR world perception of depth and sense of space are enhanced. When we watch a 3d movie then we wear a glasses called VR glasses.

VR Glasses

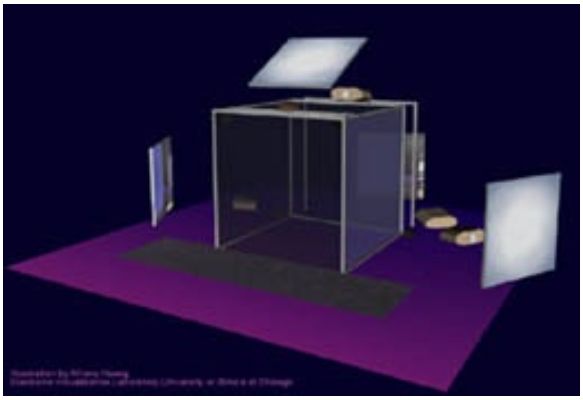
Data glove:

To feel or to touch feel we use data gloves also called VR gloves. Data glove are hand measurement device with sensor for orientation of both figure and wrist.

Data Glove

Cave:

Cave are also called VR system. Many major VR installations now use the surround-projection technology first introduced in the University of Illinois-Chicago Circle CAVE. From three to six faces of a rectangular solid are fitted with rear-projection screens, each driven by one of a set of coordinated image-generation systems



A cave image

III. APPLICATION OF VR

- In entertainment
- In medicine(like surgery)
- In arts
- In labs (VR labs)
- In aircraft training

IV. CONCLUSION

Virtual environment technology has been developing over a long period, and offering presence simulation to users as an interface metaphor to a synthesized world has become the research agenda for a growing community of researchers and industries. Considerable achievements have been obtained in the last few years, and we can finally say that virtual reality is here, and is here to stay. As the technology of VR will increases the application of VR become unlimited. From the hardware point of view, while full fidelity of sensory cues is still not achievable even with the most advanced and expensive devices, there exists now a variety of research and commercial solutions successfully useable for practical applications.

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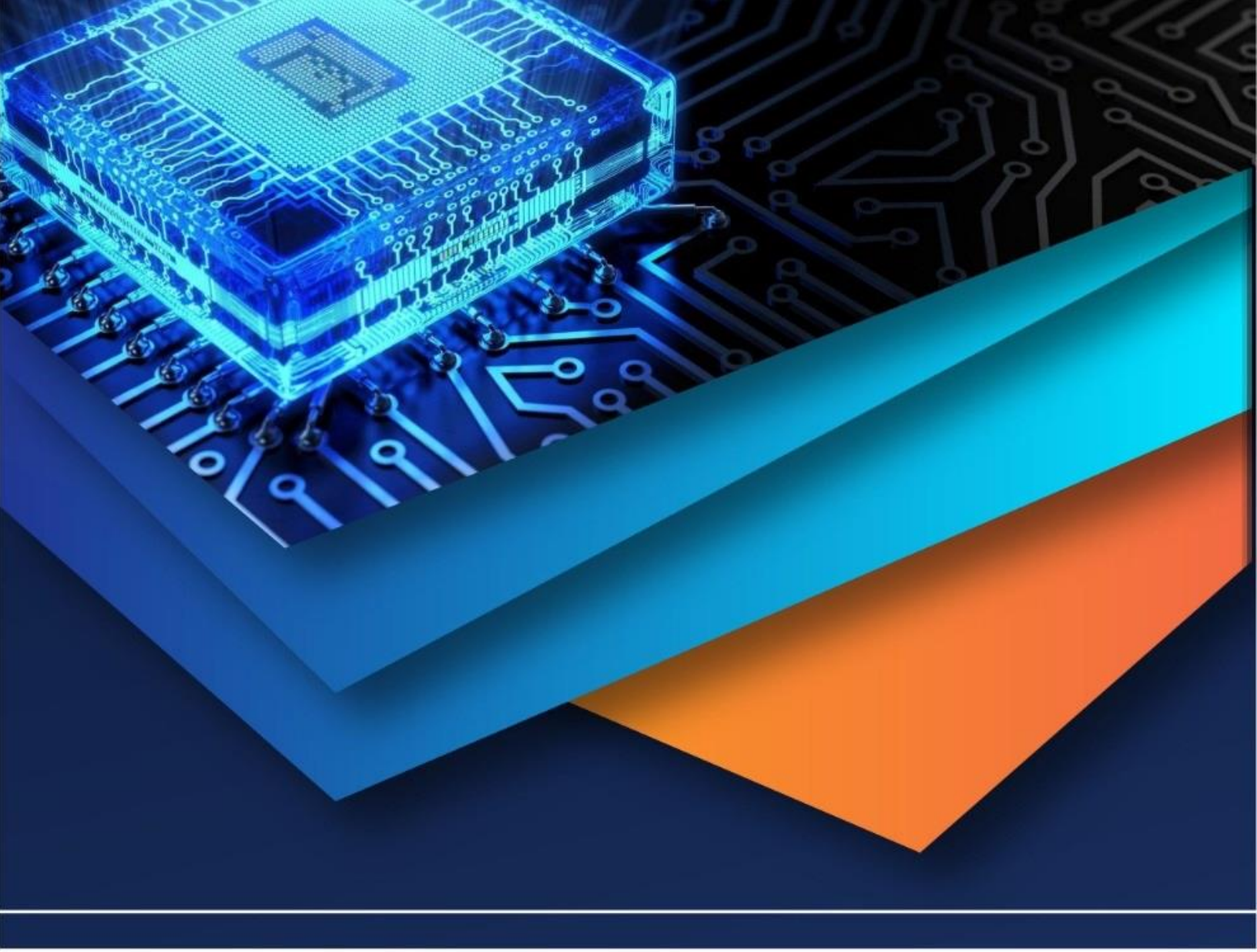

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