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Current Trends in Virtual Reality

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Abstract:- Day to day world becomes a more digital. Virtual reality is superimposed over real world. The virtual means "being something in effects, though not in actually or in fact". The term "virtual" has been used in the computer sense of "not physically existing but made to appear by software" since 1959. In virtual reality software generated realistic images with the virtual scenes make a feel of real word and user are totally involved in this world is called "immersion" and user start "interaction" with virtual world. "Immersion" and "Interaction" are the important parts of virtual reality.

Keywords:- *Virtual Reality (VR), Immersion, Head Mounted Display (HMD),FPS(frame per Seconds), 3 Dimensional (3D).*

I. INTRODUCTION

In 1962, Morton Heilig was created virtual reality headset Sensorama known as example of immersive technology. It was revolutionary motion picture display with 3D sense, wide vision, stereo-sounds, wind and vibrations which take into another world. In 1968, Ivan Sutherland who was MIT Computer Scientist and his student Bob Sproull were created the in first VR Headset. These device was incorporated in both term i.e. user interface and realism.

SENSORAMA HMD

Fig 1

II. LITERATURE REVIEW

➢ *Immersion*

Immersion into virtual reality is a physical involvement in a non-physical world. The perception is created by surrounding the user of the VR system in images, sound, sense or other stimuli. Immersion is an experience of and interaction of artificial computer generated world where user uses special equipment's to immerse them in VR and completely block out real world.

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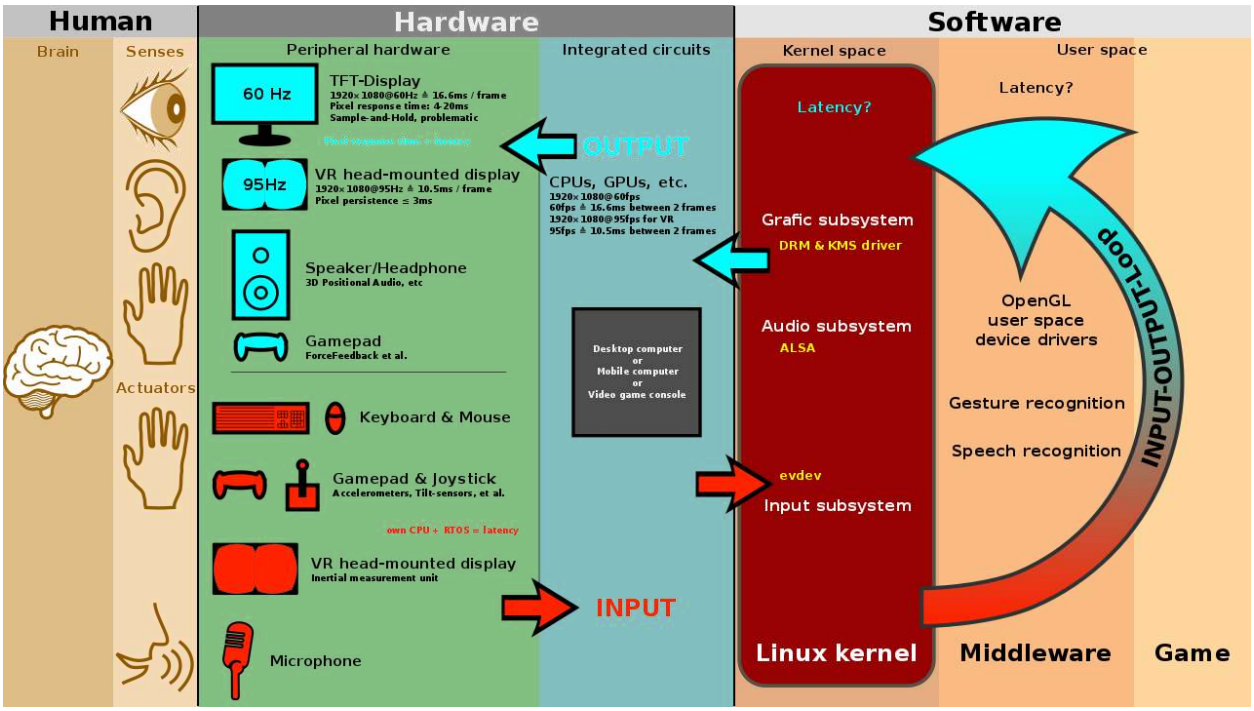

Fig 2

III. TECHNOLOGY

➢ *Head Mounted Display (HMD)*

Frame rate is important factor of VR. VR is delivering content at a high enough frame rate to accurately "trick" the user into believing he or she is experiencing the external world and its around 90 fps.

➢ *Virtual Reality Tracking Systems*

Tracking devices are inbuilt part of VR system. These tracking device track the orientation of a user's point of view and communicate it with system processing unit. VR system that allows user movements within a physical space to make action or activity in VR environment, trackers automatically detect user movement in terms of location, direction and speed.

Tracking system detects object position in x(front-to-back axis), y(side-to-side axis) and z (vertical) coordinates of a space and it's orientation that measure in six degrees of freedom (6-DOF). Object orientation includes an object's yaw(rotation around vertical axis), pitch(rotation around side-to-side axis) and roll(rotation around front to back axis).When you wear an HMD, the view shifts when user make head movement up, down, left and right and also changes if user tilt his/her head at an angle or move your head forward or backward. The trackers automatically track and communicate to processor where you are looking, and the processor sends the right virtual images to your HMD's screens to maintain consistency of view. Every tracking system has device to generate a signal and one or more sensor which is part of VR System that detects the signal. A control unit processes that signal and generate information and sends this information to the Processor. Some systems require you to attach the external sensor component to the user (or the user's equipment) to measure signal.

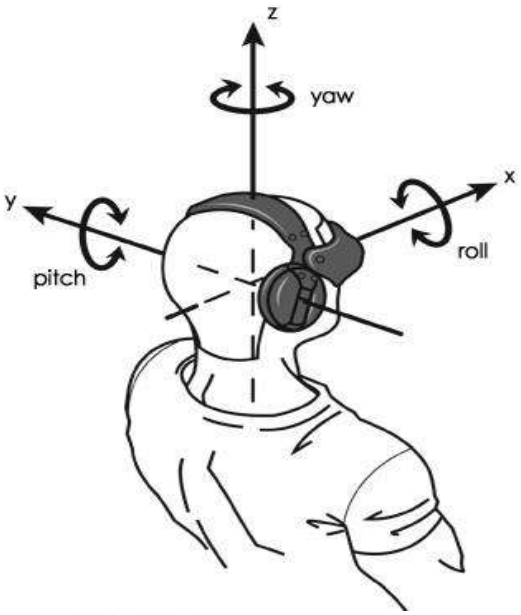

Fig 3

In that kind of system, you place the signal emitters at fixed points in the environment. Some systems are the other way around, with the user wearing the emitters while surrounded by sensors attached to the environment.

IV. FUTURE IN VIRTUAL REALITY

Now a day VR is used in 3D movies and Game zone to make real feel of this virtual entertainments. The VR industries are currently developing VR environment for medical, flight simulation, automobile industry design and military training purposes from 1970 to 1990. In simulated VR surgical environments can provide effective and repeatable training of surgery at low cost, allowing trainees to recognize and correct errors as they occur under the supervision of expertize.

VR play important role in providing the virtual workspace in education and training purpose where safety and health are major concern. It provides learners and trainees with a virtual environment where they can develop their skills without the real-world consequences of failing. Following are the list of some fields where VR is beneficial to reduce training cost overhead.

- primary education
- military,
- astronaut training
- flight simulators
- miner training
- driver training
- Bridge inspection.

V. CONCLUSION

Virtual reality is new technology emerge in digital world. It is helpful from learning point of view in critical field where training cost is higher and involve human health and safety. It is also helpful for to research with human behavior and find solution on psychological issue.

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