



UNIT – 04: INTRODUCTION TO VIRTUAL REALITY

- Basic Concepts of virtual reality.

Questions to be discussed:

1. What is virtual reality? Write the application of virtual reality.
2. Explain different types of virtual reality.
3. Why we need a virtual reality?

What is virtual reality?

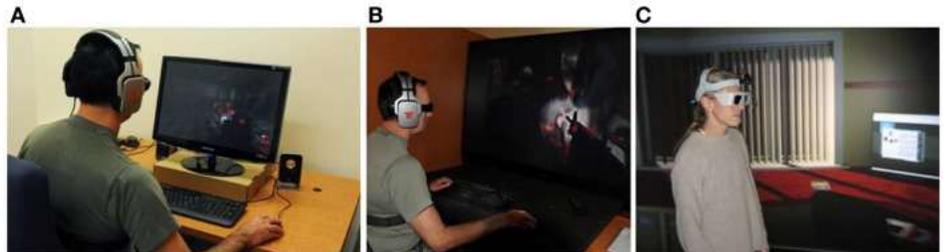
- The virtual reality derived from for two terms 'virtual' and 'reality'.
- The meaning of 'virtual' is near and reality is what we experience as human beings.
- So the term 'virtual reality' basically means 'near-reality'.
- VR is a computer-generated environment with scenes and objects that appear to be real.
- The environment is created with computer hardware and software.
- The users might also need to wear devices such as helmets or goggles to interact with the environment.



Types of virtual reality?

There are three types of VR:

1. Non-immersive VR
2. Semi-immersive VR
3. Full immersive VR



Non-immersive VR:

- It is a computer-based virtual environment where users can interact with a few characters or actions.
- It offers a less intense experience as compared to fully immersive is more affordable and widely used.
- The environment might also generate sound, depending on the program.
- The user has some control over the virtual environment using a keyboard, mouse or other device.
- Non-immersive virtual reality is commonly used in training programs
- A video game is a good example of non-immersive VR.



Fully immersive VR:

- Fully immersive virtual reality, also known as immersive VR.
- It is a technology that guarantees that the user's experience in the virtual world is real.
- It creates a complete sensory immersion that makes the user feel as though they are physically present in the virtual environment.
- This type of VR delivers the greatest level of virtual reality.
- Users wear special equipment such as helmets or goggles and able to interact with environment.
- There are two types of immersive experiences:
 1. One being when you are actually in a physical environment.
 2. The other type of experience is where you are shown around a real or imagined environment via desktop, tablet, mobile or via VR (Virtual Reality) headset.



Semi-immersive VR:

- It is a hybrid of non-immersive and fully immersive virtual reality.
- It makes a 3D virtual world that users can move around in.
- This type of VR offers a partial virtual experience that's accessed through a computer screen or some type of glasses or headset.
- It focuses on the visual 3D aspect of virtual reality and does not incorporate physical movement.
- A common example of semi-immersive VR is the flight simulator, which is used by airlines and militaries to train their pilots.



Need for Virtual Reality?

- It allows users to create simulated, interactive, and specifically designed environments for specific use.
- It is designed for human interaction or for a specific reason to create experiences.
- Unlike other reality technologies like AR and MR, VR enhances the user experience to the next level with its fully immersive and interactive technology.

Applications of Virtual Reality:

1. In Education



2. Training.



3. Medical terms' analysis and research are easier via VR.



4. In entertainment.



5. Prototyping helps the automotive industry avoid multiple designs and reduce resources by creating virtual designs using VR.



6. In terms of Defense, VR helps our brave men experience the battlefield environments in real-time to avoid unconditional situations in Reality.

