Virtual Reality

Webster

- Virtual
- Reality

Virtual Reality

Definition:

Virtual reality is a way for human to visualize, manipulate and interact with computers and extremely complex data.

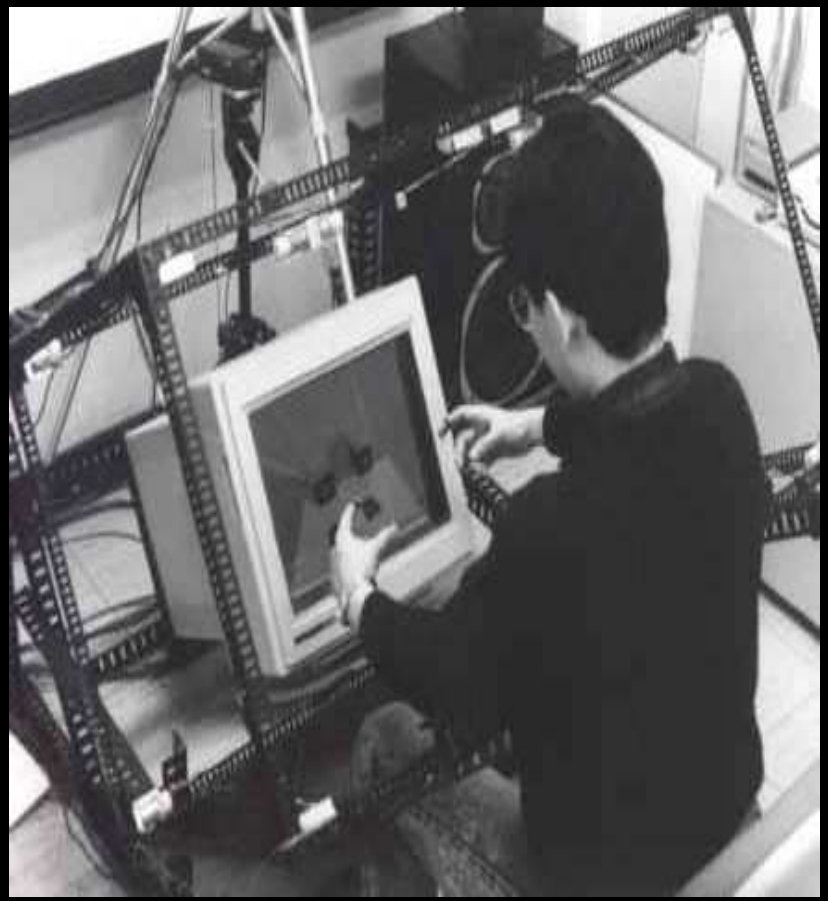
Types of VR systems

- Windows on world system
- Video mapping
- Immersive system
- Telepresence
- Mixed reality

Windows on world system

- It is also known as Desktop VR
- One must look at display screen
- as a window through which on
- beholds a virtual world.

Video mapping



The user watches the monitor that shows his body's interaction with the objects.

Immersive systems

Equipped with head mounted display

Uses multiple large projection display to create a cave or room like effect

Telepresence

- It links remote sensors in the real world

  with the senses of human operator

Mixed reality

- Merging telepresence and VR systems gives **Mixed Reality** or seamless simulation system.

Levels of VR

- Entry level VR (EVR)

  personal computer or work station.

  Implements WOW system.

  2D input devices like mouse.

- Basic VR (BVR)

  Basic interaction & display enhancements.

  Mattel power glove ,3D mouse.

- Advance VR (AVR)

  Frame buffer or input handling.

  Sound card to produce mono stereo

  output.

  voice recognition
- Immersion VR (IVR)

  Immersive displays.

Virtual reality Tools

- **Head mounted display**

  Two display screens.

  A motion tracker

BOOM

- Binocular omni oriented monitor .
- Head coupled stereoscopic display device.
- Screen and optical system are housed in a box that is attached to a multi link arm.

CAVE

- Cave automatic virtual environment .
- Gives the illusion o a room sized cube.
- Many people can enter and walk freely.
- A head tracking system adjust the position.


Wizard

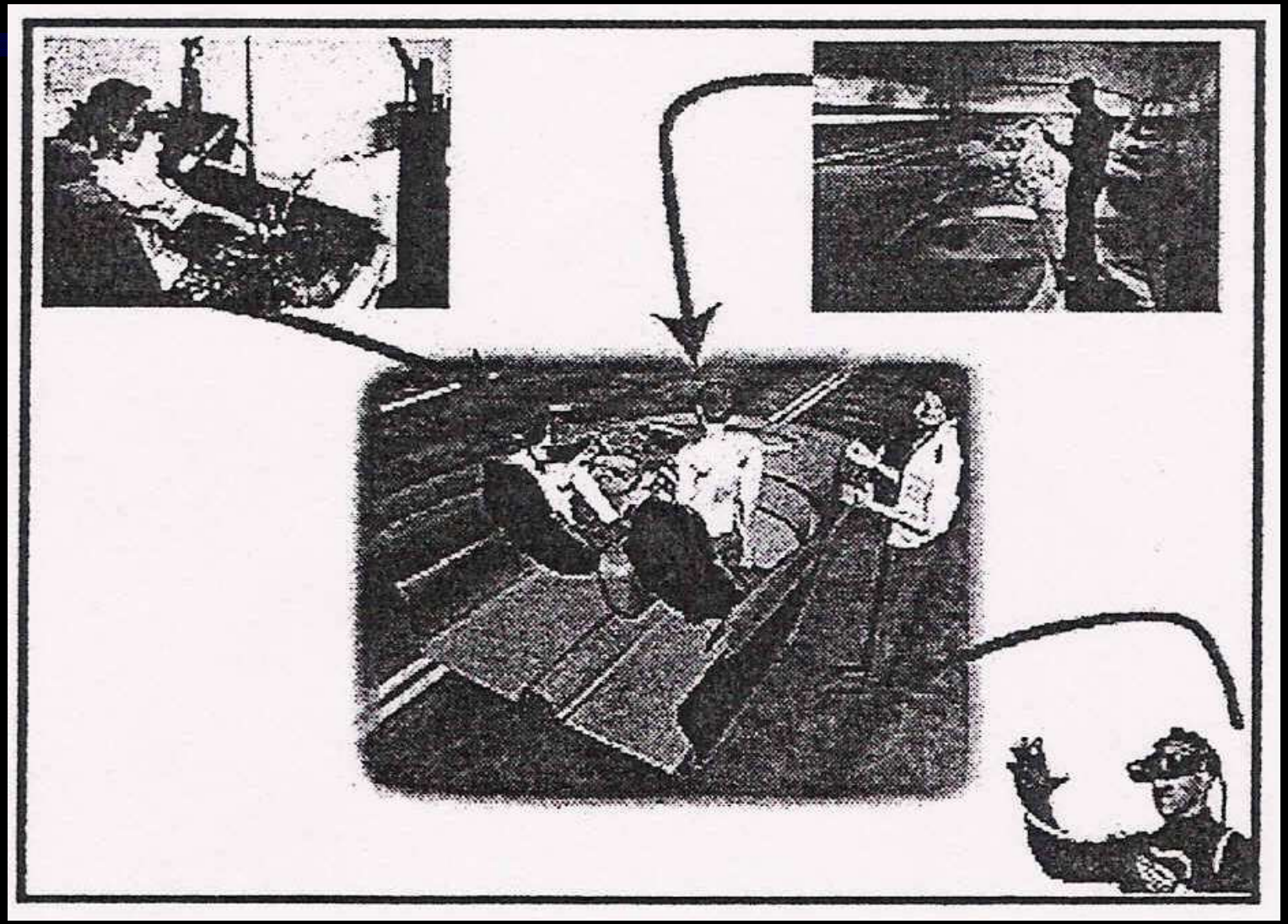
VR Glove

- Useful to interact with object in the real world.
- Interact using direct manipulation behaviors.
- Tracker and sensors.

VRML

- Virtual reality modeling language.
- Provides 3_dimensional worlds with an integrated hyperlink on the web.
- Home pages have become home spaces.

Example



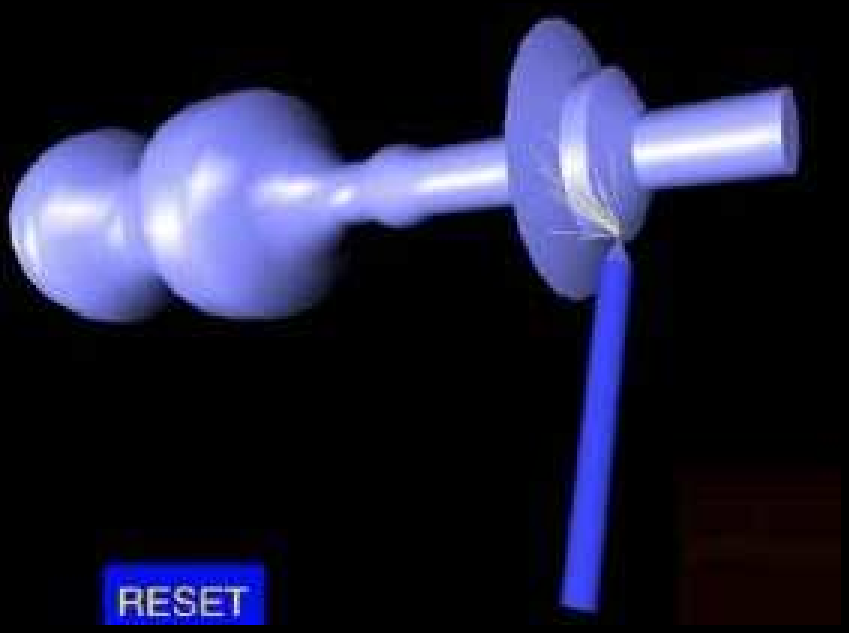
What use is VR?

Air craft navigators

The Military uses it.

Mainly for the target practice.

Training……



This lathe is used to train apprentices.

Unlimited free material and no clean up!

And many more.

How about… learning to hang-glide?

That is how it goes

Is it as easy as it looks?

More ...

Learning to drive a car.

In medical science

Virtual patient…

And a Virtual hospital too.

Drawbacks

- Extremely expensive .
- User needs to wear equipments.
- Problem of latency. A gap between kinetic motion signals that brain receives from inner ear and from eye.
- Health problems.

The End of the Beginning

VR is in its early stages, but is used commercially, globally. There are 61,400 international commercial companies producing VR.

While VR is progressing, it is used throughout the world.
There are approximately 3,600 institutions which use VR.

THANKS