

BSc Computer Science

CS1541 Computer Graphics

MODULE I

ADVANCED DISPLAY TECHNOLOGY

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SAC

Virtual Reality(VR)

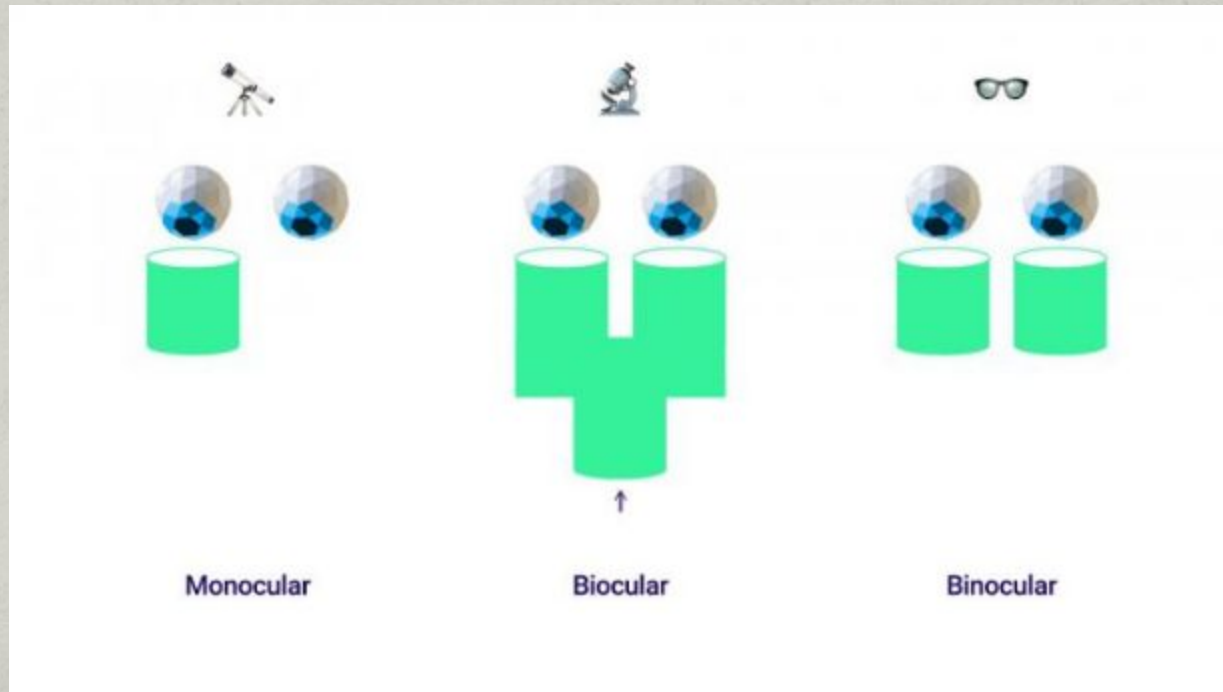
- Computer-generated environments or realities that are designed to simulate a person's physical presence in a specific environment that is designed to feel real.
- To allow a person to experience and manipulate the environment as if it were the real world.
- Personally becoming part of the virtual world.
- Flight Deck Training
- Cabin Crew Training

Augmented Reality(AR)

- Augmented reality(AR) - integration of digital information with the user's environment in real time.
- Unlike virtual reality, which creates a totally artificial environment, augmented reality uses the existing environment and overlays new information on top of it.
- AR applications for smart phones typically include global positioning system (GPS) to pinpoint the user's location and its compass to detect device orientation.
- Sophisticated AR programs used by the military for training may include machine vision, object recognition and gesture recognition technologies.
- Air Craft Maintenance

Optical see through

- An important display technology seeks to encourage the users to directly view the optical elements through different waveforms. Most optical see-through devices come to be known as smart glasses. They augment the way the user views the different elements.



Video see through

- One of the most popular and widely used display technology when it comes to virtual reality.
- It generally takes video images from one or two cameras and superimposes it with digitally generated imagery.
- The combined image then becomes the display that the user views.

Head-mounted display

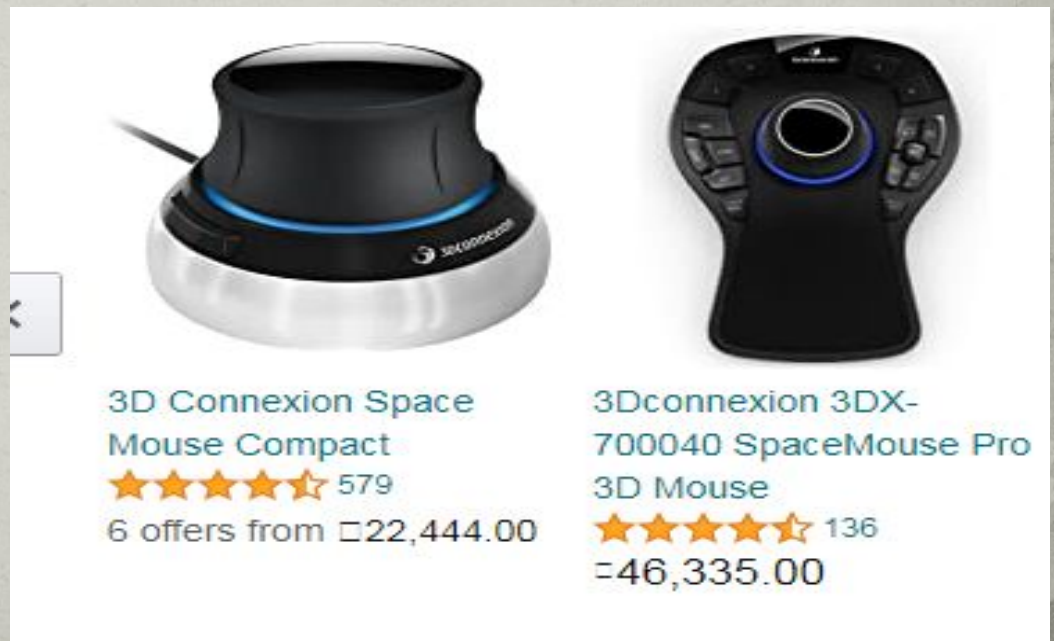
- A display device, worn on the head or as part of a helmet that has a small display optic in front of one (monocular HMD) or each eye (binocular HMD). An HMD has many uses including gaming, aviation, engineering, and medicine . Virtual reality headsets are HMDs combined with IMUs.
- **Inertial measurement unit (IMU)** is an electronic device that measures and reports a body's specific force, angular rate, and sometimes the orientation of the body, using a combination of accelerometers, gyroscopes, and sometimes magnetometers.
- There is also an optical head-mounted display (OHMD), which is a wearable display that can reflect projected images and allows a user to see through it



British Army Reserve soldier demonstrates a virtual reality headset

3D Mouse

- The space mouse compact was developed to deliver an intuitive, effortless and precise 3D navigation in CAD applications that cannot be experienced by using a standard mouse and keyboard
- Six-degrees-of-freedom (6Dof) sensor - intuitively and precisely navigate digital models or views
- Each of the space mouse compact's two buttons opens its own 3Dconnexion radial menu. They provide direct access to up to 8 of your favorite application commands
- With its iconic, pure design, the space mouse compact is small enough to fit on every desk while the brushed steel base ensures the device stability for precise 3D navigation



Data Gloves and 3D Controllers



Thank You