

COMPUTER ENGINEERING DEPARTMENT

ASSIGNMENT NO. 3

Subject: Human-Machine Interaction

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Roll No.: 50

Name: Amey Thakur

Class: BE-Comps B

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HMI Assignment - 3

Sr. No.	Questions
1	Explain Virtual Reality. Explain various input and output devices used in virtual reality. Describe one case study in detail.

Student Signature:

Amey

Q1 Explain Virtual Reality.

Explain various input and output devices used in virtual reality.

Describe one case study in detail.

Ans:

Virtual Reality

- Virtual Reality (VR) is the use of computer technology to create a simulated environment. Unlike traditional user interfaces, VR places the user inside an experience. Instead of viewing a screen in front of them, users are immersed and able to interact with 3D worlds. By simulating as many senses as possible, such as vision, hearing, touch, even smell, the computer is transformed into a gatekeeper to this artificial world.
- A person experiences VR in the same way they experience actual reality to the extent that they are fully surrounded by the virtual environment and can interact with that environment in ways that mimic real-world experiences.

Input and Output devices used in Virtual Reality

① Input Devices

- Input devices helps users navigate and interact with VR environments.
- Example includes motion trackers, joysticks, track pads, sensing gloves, device control buttons, haptic feedback systems, treadmills and even full body suits.
- These devices collect data about a user's movement and position - from the turn of a head, to the wave of a hand, to the slightest movement of a user's eyes.
- All of the information collected by these devices becomes the input data for the computer system.

② Output Devices

- Typically, a head-mounted display or headset is used to display VR content, with a complete 360 - surround effect that supports a three-dimensional experience.
- Example includes Oculus, HTC Vive, Sony Playstation VR, OIVO VR headset for Nintendo Switch as well as simple devices such as Google Cardboard.

Case study

"Bellevue College And WorldViz Join Forces To Host a Faculty + student "PlanJam" For Rapid VR Content Creation."

client - Bellevue College

Use Case - VR Creation + Collaboration

Equipment Used - Visible

- WorldViz and Bellevue college teamed up on March 3, 2017 to conduct a "PlanJam" with a group of teachers and students to see if, in the span of a few hours, the group could learn how to use the visible presentation Designer and then create some collaborative VR experiences. The experience was orchestrated to test following hypothesis:

- ① Teachers and students from a variety of disciplines can learn how to use the visible presentation Designer relatively quickly.
- ② After that, in the span of a few hours participants will be able to actually create compelling VR experiences using the Visible Presentation Designer.

Hypothesis was tested and it turned out true.