



SNS COLLEGE OF TECHNOLOGY



AN AUTONOMOUS INSTITUTION

**Approved by AICTE New Delhi & Affiliated to Anna University Chennai
Accredited by NBA & Accredited by NAAC with “A+” Grade, Recognized by UGC**

COIMBATORE

DEPARTMENT OF CIVIL ENGINEERING

19CET308 – AR VR IN CIVIL ENGINEERING

III YEAR / VI SEMESTER

Unit 1 : Introduction to VR

Topic 4 : Primary Features of VR



VR Features

- There is a spectrum of VR technology from low-end to high-end technology.
- Low-end VR technology uses smartphones to experience interactive VR and 360° using smartphone headsets or cardboard goggles and it is able to scale; high-end VR technology uses a powerful laptop that connects with a built-in VR headset and sensors that install into a room.
- The spectrum to provide educators and students to create, build, share and scale VR curriculum-aligned projects in the classroom easily.



VR Features

- To make it simpler, we will categorize the features of VR into **3I**:
 - ❑ Immersion,
 - ❑ Interaction,
 - ❑ Imagination.



Immersion

- Immersion is also known as presence, refers to the degree of reality that the viewer exists in the virtual environment as the protagonist.
- Viewers can put themselves in a virtual environment and become a part of the virtual environment by wearing interactive devices such as helmet-mounted displays and data gloves.
- The interaction between the viewer and various objects in the virtual environment makes the viewer feel like they are just like in the real world.
- The viewers' brain tricks themselves with what they are seeing and hearing from the VR head-mounted displays or a VR headset giving them an immersion feeling and thinking that what they are experiencing feels real.



Interaction

- The human-computer interaction in VR technology is natural-like interaction. There are two types of interactions which are
 - Three-degree-freedom (3DoF) interaction and
 - Six-degree-freedom (6DoF) interaction.
- Normally, **3DoF** is where a viewer can view a 360° image or video using a VR headset and move their head side to side to explore around; whilst the **6DoF** requires a powerful gaming laptop or computer to process information to play and interact with using extra accessories such as sensors, data gloves and other sensing devices.



Interaction

- The device adjusts the image and audio presented by the system according to the movement of the viewer's head, hands, eyes, language and body.
- Viewers can inspect or manipulate objects in the virtual environment through natural skills such as their own language, body movements or actions.



Imagination

- Since the VR system is equipped with sensing and responsive devices for sight, hearing, touch, viewers can obtain various perceptions such as vision, hearing, touch, and kinaesthesia through human-computer interaction in the virtual environment to achieve an immersive experience.
- VR technology is a perfect combination of humans and technology that is a product of computer graphics and human-computer interaction technology.
- Humans occupy a very important position in the entire system.
- Ultimately achieve a more essential reflection of the essence of the objective world.



Thank You!!