SNS COLLEGE OF TECHNOLOGY

Coimbatore-35.
An Autonomous Institution

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Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai

INTRODUCTION TO ARVR
I YEAR/ II SEMESTER

UNIT – II

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COMPONENTS OF VR

Virtual Reality (VR) is a technology that immerses users in a simulated environment. The key components of VR include:

1. **Hardware Components**
   - **Head-Mounted Display (HMD)**: A headset or goggles that provide the visual and auditory experience. Examples include Oculus Rift, HTC Vive, and PlayStation VR.
   - **Sensors & Tracking Systems**: These track user movements, such as head position, hand gestures, and body movements (e.g., inside-out tracking, external sensors, or cameras).
   - **Controllers & Input Devices**: Devices like VR controllers, gloves, or motion sensors that allow interaction with the virtual environment.
   - **Computing Unit**: A powerful computer, gaming console, or standalone VR device that processes and renders the VR experience.
   - **Haptic Feedback Devices**: Wearable devices or controllers that provide touch sensations to enhance immersion.
2. **Software Components**
   - **VR Content & Applications**: Virtual environments, games, simulations, and training programs.
   - **VR Development Platforms**: Tools like Unity, Unreal Engine, and WebVR that help create VR experiences.
   - **Artificial Intelligence (AI)**: Used to enhance interactions, animations, and responses in VR applications.

- **Networking & Cloud Services**: Enables multiplayer experiences, data storage, and real-time processing for VR applications.

3. **User Interface & Interaction**
   - **Gesture & Motion Tracking**: Recognizing hand and body movements for interaction.
   - **Voice Recognition**: Allows verbal commands for controlling the VR environment.
   - **Eye & Facial Tracking**: Tracks gaze direction and facial expressions for enhanced realism.