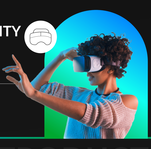
MIXED REALITY CONCEPT

Presentation



INTRODUCTION

Mixed reality is a blend of physical and digital worlds, unlocking natural and intuitive 3D human, computer, and environmental interactions.

Unlike augmented reality, a semi-digital experience, or virtual reality, a fully digital experience, mixed reality gives users the best of both worlds.

WHY MIXED REALITY?

Mixed reality (MR) can be used as a fun and interactive tool that gives students a unique educational experience.

It can help them develop a deep and better understanding of concepts.

PROJECT SCOPE

The scope of this project is

- To create a mixed reality application that enables in-depth concept exploration for users.
- To make a realistic and dynamic 3D representation of the subject for better comprehension.

GOAL & OBJECTIVES

Goal:

To design an interactive and user friendly application/platform for MR to enhance the learning experience of our target audience.

Objectives:

- To understand why immersive learning is useful.
- To comprehend the role of MR in education.
- To use mixed reality to provide the participants a more thorough and accurate visualization.

IMPORTANCE OF MIXED REALITY IN EDUCATION

Mixed reality gives educators innovative possibilities to explore with learners thanks to its immersive features.

- Engaging
- Universal
- Teach all topics
- Bringing the far world together

TECHNOLOGY

Head-mounted displays:
Standalone HMDs allow students to see and interact with virtual objects and environments onto their physical surroundings.

Augmented reality and Virtual reality:
Both AR and VR technologies can be used in mixed reality lies learning to visualize and interact with virtual anatomical structures, cellular processes, or scientific simulations.

3D Modeling and Visualization Software:
These software tools enable educators and developers to generate realistic 3D models that can be visualized and explored in the mixed reality environment.

Gesture and Motion Tracking:
It enables students to interact with virtual objects and manipulate 3D models using natural hand movements and gestures. This provides a more intuitive and immersive learning experience.

Haptic Feedback Devices:
Haptic feedback devices, such as gloves or controllers enhance the realism of the experience by simulating the sense of touch, allowing students to feel the shape, texture, and resistance of virtual anatomical structures.

Real-Time Simulation and Rendering:
Students can observe and manipulate the behavior of cells, organs, or physiological processes in real-time, enabling a deeper understanding of complex biological phenomena.

Networking and Collaboration Tools:
It enables students to connect with peers and instructors in mixed reality environments. This facilitates collaborative learning, discussions, and remote participation, enhancing the interactive and social aspects of lies learning in mixed reality.

How visual images result in better learning?

1. Visualization and Conceptual Understanding: Visual images, such as diagrams, charts, graphs, and infographics, can simplify complex concepts and facilitate understanding.
2. Visual Memory and Recall: Visual images can enhance memory retention and recall as it can trigger memory recall and help students retrieve information during exams or discussions.
3. Engagement and Interest: They break the monotony of text-based learning, stimulate curiosity, and appeal to visual learners who prefer visual stimuli to absorb information effectively.
4. Multimodal Learning: Multimodal learning approaches, where students receive information through multiple sensory channels (text, images, audio, etc.), can cater to different learning styles and preferences.

Why Mixed Reality?

Mixed reality (MR) can be utilized as an engaging and interactive tool for education as it provides students with a unique learning experience.

1. Interactive 3D Objects
2. Contextual Quiz Questions
3. Gamified Elements
4. Real-Time Feedback
5. Collaborative Quizzes
6. Adaptive Quizzing
7. Data Analytics

TARGET AUDIENCE

User base	User Segment
Students	Age 9-25 y/o

IDEATION BRIEF

Based on our research, we are developing an application for mixed reality which will help our users to enhance their knowledge with immersive and interactive way through a 'Quiz'.

It will include:

1. Real time insights
2. Gamification
3. Realistic simulations
4. Multi-Sensory Learning
5. Enhanced Engagement and Focus
6. Personalized and Adaptive Learning

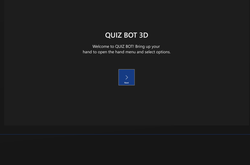
HEADSET WE HAVE CHOSEN

Microsoft HoloLens

HoloLens is a self-contained MR headset developed by Microsoft.
It provides a high-quality mixed reality experience with spatial mapping, gesture recognition, and voice commands.[1]

HoloLens offers various educational applications, allowing students to interact with 3D objects, explore virtual environments, and engage in immersive learning experiences.

IDEATION FOR 'QUILL BOT 3D'



THANK YOU FOR WATCHING!

EFFORTS BY- MADHUR