

SERENITYSCAPE

AR-VR LANDSCAPES

Internal Guide:

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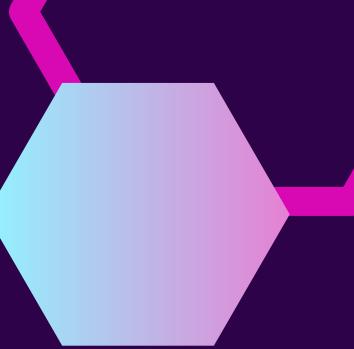
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INTRODUCTION

The AR-VR Immersive Landscapes project combines AR, VR, and AI technologies to provide personalized stress management solutions. Targeting individuals aged 16 to 50, it features two key components—the AI-driven Virtual Harmony Room and Immersive Relaxation Landscapes—that dynamically adapt to emotional stress. By creating soothing, responsive virtual environments, this system promotes relaxation, focus, and well-being, revolutionizing mental health practices.



LITERATURE SURVEY

S.No	Research Papers	Journal	Algorithms	Advantages	Limitations
1.	Toward Emotionally Adaptive Virtual Reality for Mental Health Applications <u>Sergi Bermúdez i Badia; Luis Velez Quintero; Pietro Cipresso-2019</u>	IEEE	Procedural Content Generation(PCG),Affective Computing Techniques,Feedback Loop Mechanism	-Emotional Regulation -Multimodal Experience	-Complexity of Affective States -Potential for Overstimulation
2.	Augmented Reality Narratives for Post-Traumatic Stress Disorder Treatment <u>Liu Chang; Alvaro Cassinelli; Christian Sandor</u> 2020	IEEE	AR and VR Narratives,Patient-Authored AR System	psychotherapy and AR applications	Complexity in designing
3.	AffectivelyVR: Towards VR Personalized Emotion Recognition Kunal Gupta, Jovana Lazarevic, Yun Suen Pai, Mark Billinghurst-2020	ACM	Electroencephalogram (EEG) and Galvanic Skin Response (GSR)	achieved an emotion recognition	Early-stage, variable effectiveness, and tech-dependent accessibility
4.	Integrating Cognitive Behavioral Therapy and Heart Rate Variability Biofeedback in Mixed Reality as a Mental Health Intervention <u>Nishu Nath; Jace Zavarelli; Laura Stanley; Apostolos Kalatzis-2024</u>	IEEE	AR and VR Narratives,Patient-Authored AR System	psychotherapy and AR applications	Complexity in designing

EXISTING SYSTEMS



CALM APP

Provides guided meditation, sleep stories, breathing exercises, and soothing music.



MUSE

Provides real-time biofeedback on brain activity and guides users through meditation exercises.



OCULUS TRANQUIL

Offers VR-based environments like serene beaches, calm forests, and peaceful waterfalls.

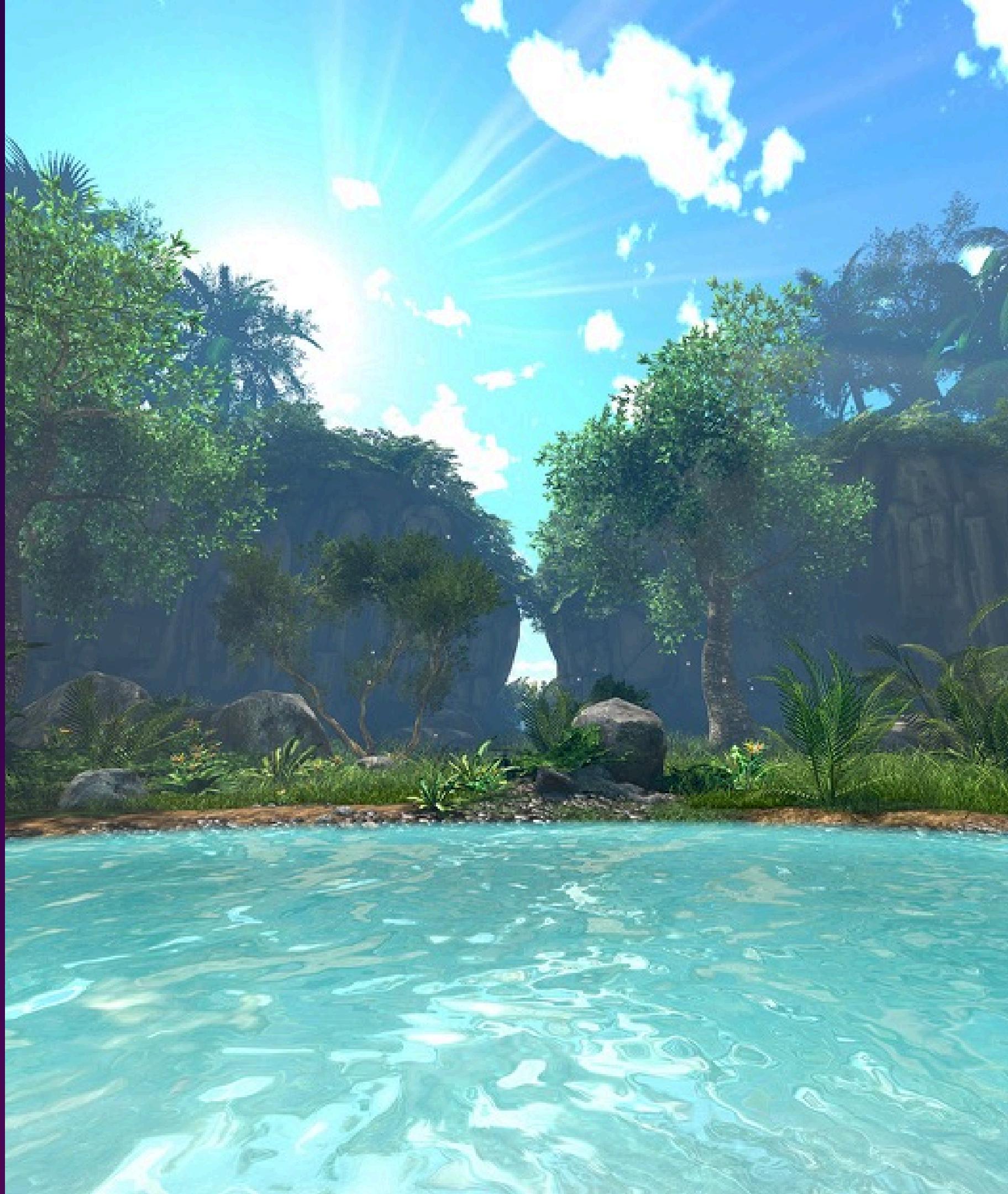
DRAWBACKS OF EXISTING SYSTEMS

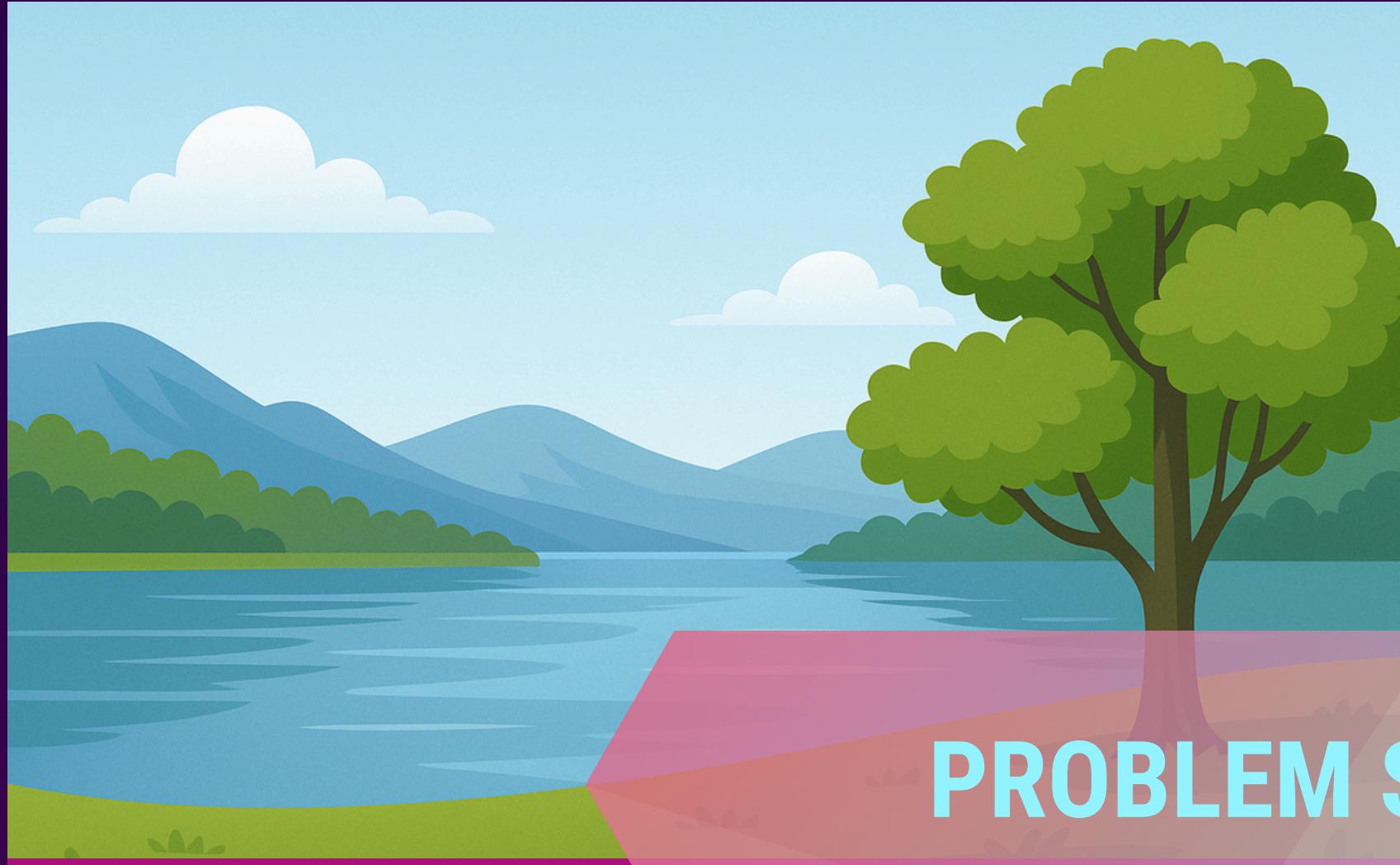
Current stress management solutions like Calm App, Oculus Tranquil, and Muse offer benefits but lack key features. These systems often lack AI-powered personalization, immersive AR/VR, accessibility, and long-term engagement.



PROPOSED SYSTEM

- AR-VR Immersive Landscapes integrates AR/VR and AI to reduce mental stress for individuals aged 16 to 50.
- It features an AI-driven Virtual Harmony Room and Immersive Relaxation Landscapes that adapt to the user's emotional state.
- Using Unity/Unreal Engine, cloud storage, VR headsets, and high-performance GPUs, it enhances relaxation, focus, and productivity.





PROBLEM STATEMENT

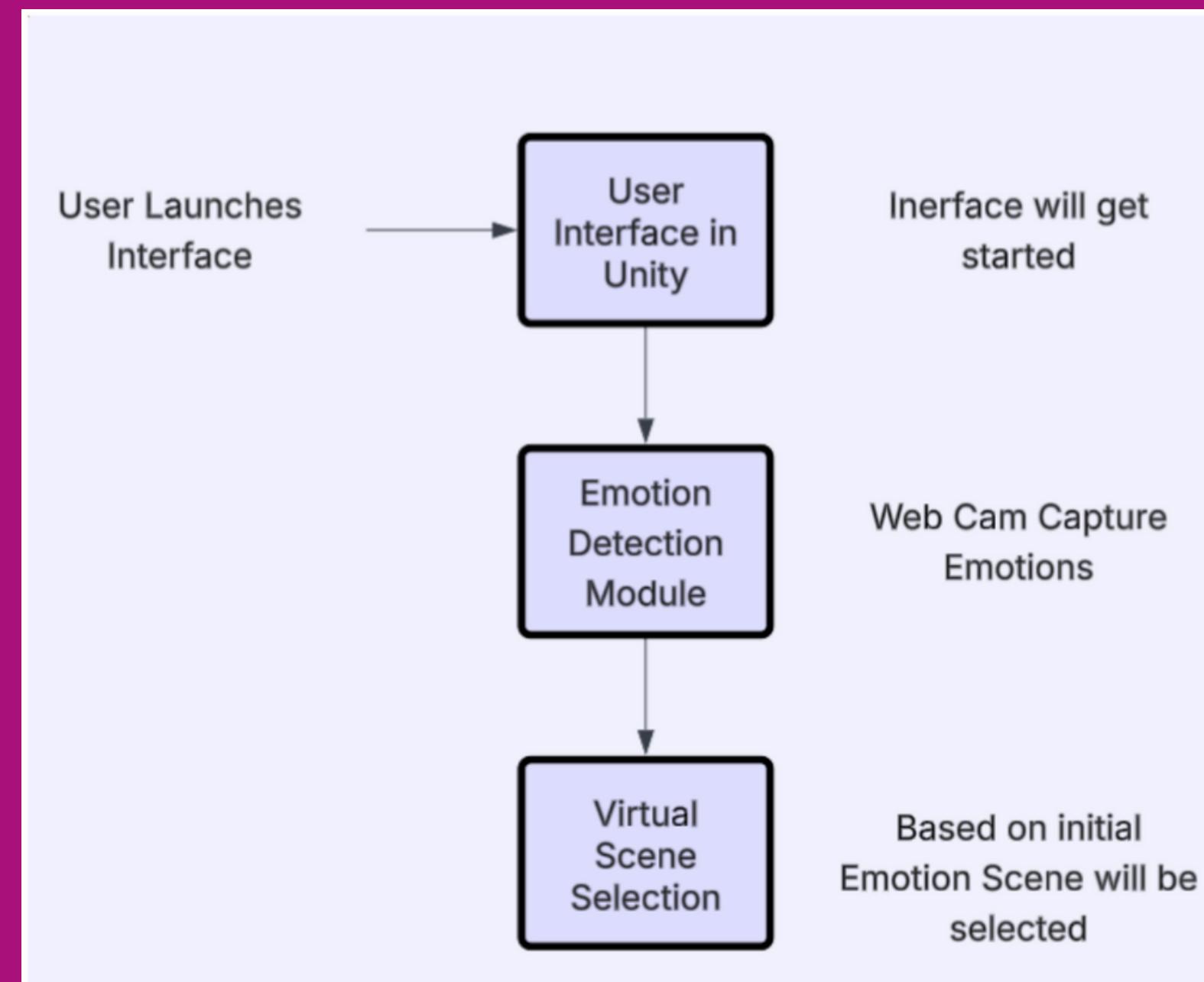
Mental stress affects focus, productivity, and well-being, while traditional methods fail to meet dynamic needs. AI and AR-VR solutions offer personalized, engaging stress management for better emotional health.



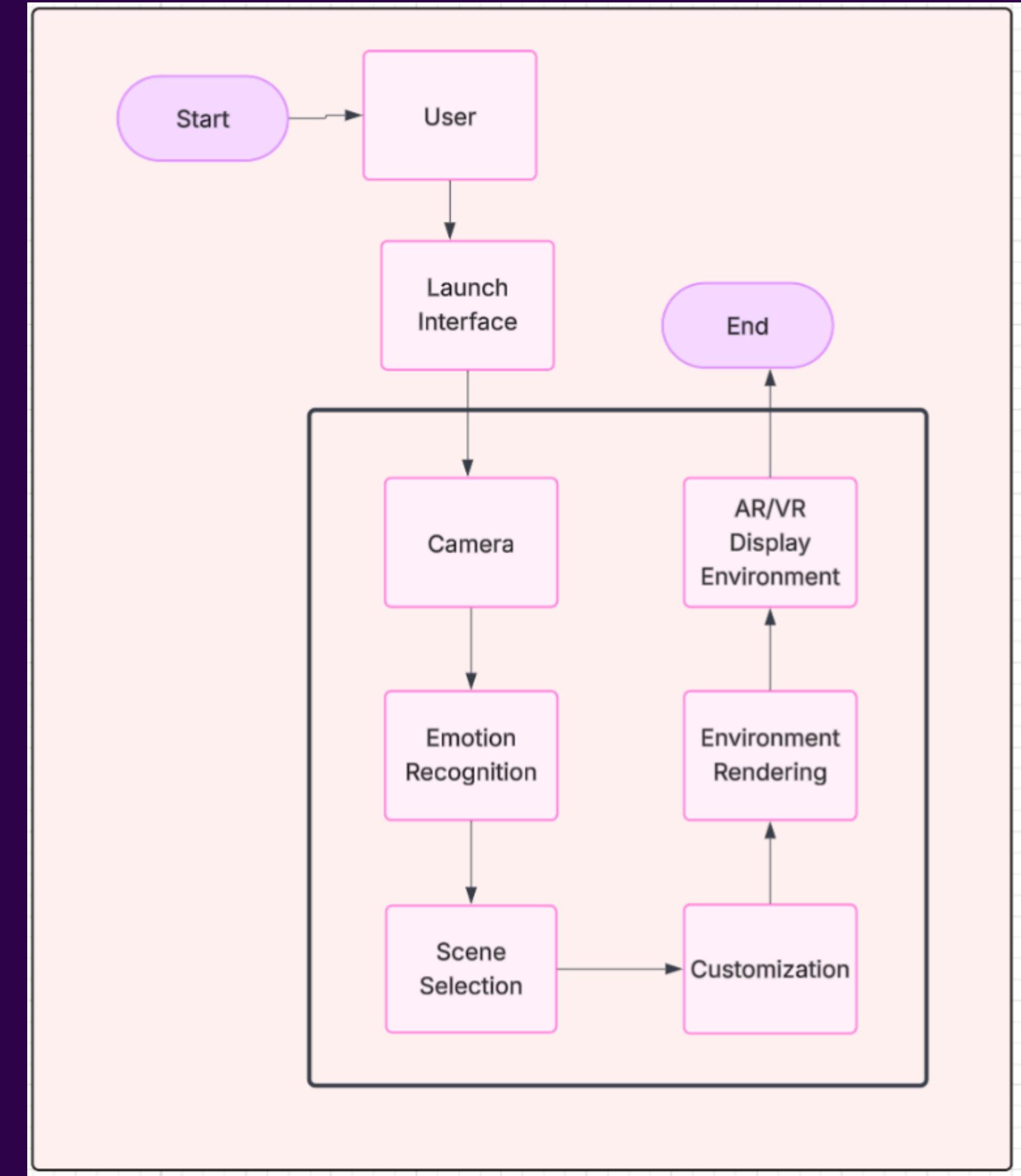
OBJECTIVES

- **Create Adaptive Environments:** Develop AR-VR spaces that adjust to users' emotional states for personalized relaxation.
- **Enhance Stress Relief:** Use AI-driven techniques to improve mental well-being through immersive experiences.
- **Innovative Mental Health Support:** Leverage technology for engaging and effective stress management solutions.

METHODOLOGY



ARCHITECTURE

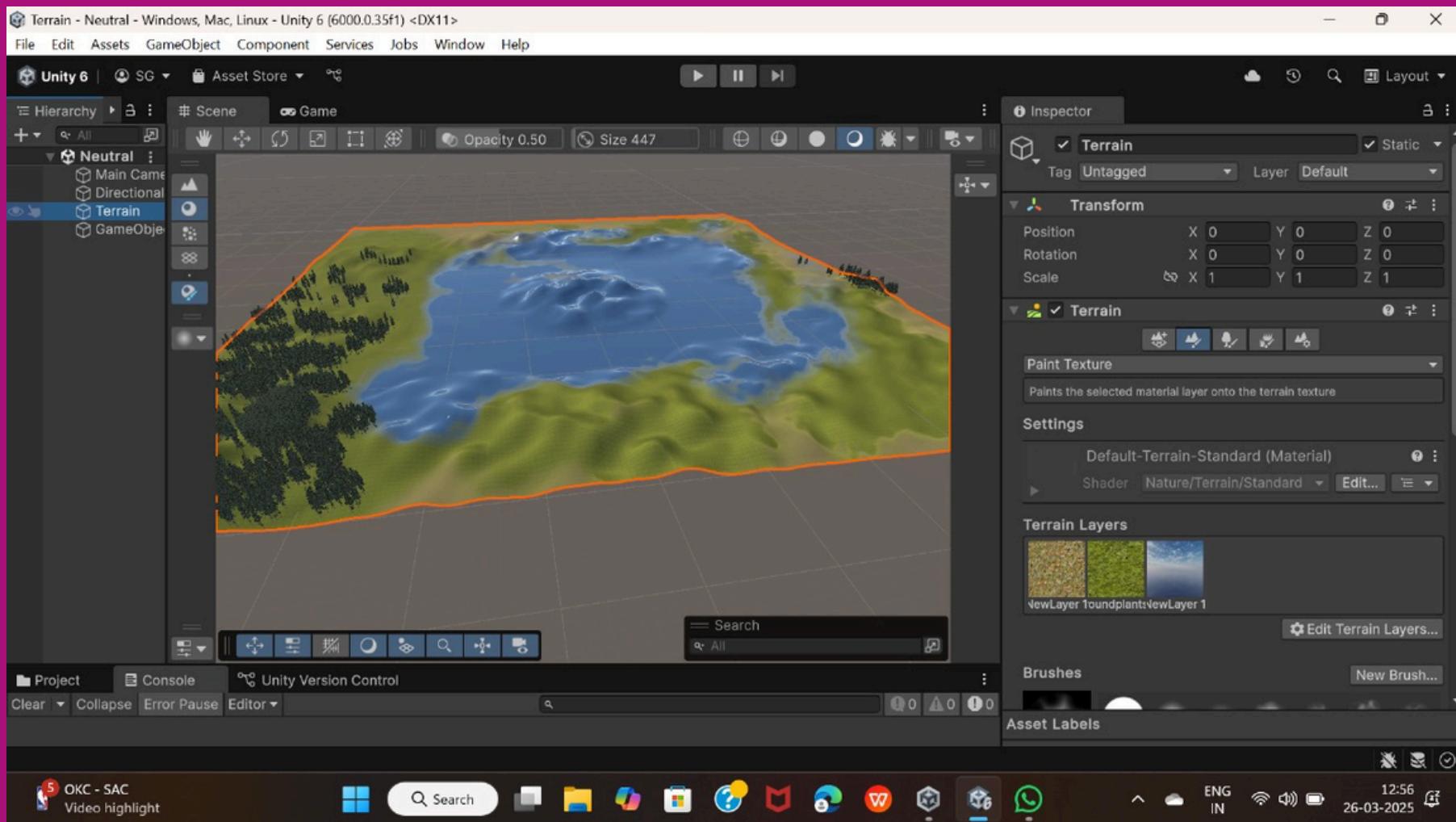


ALGORITHMS

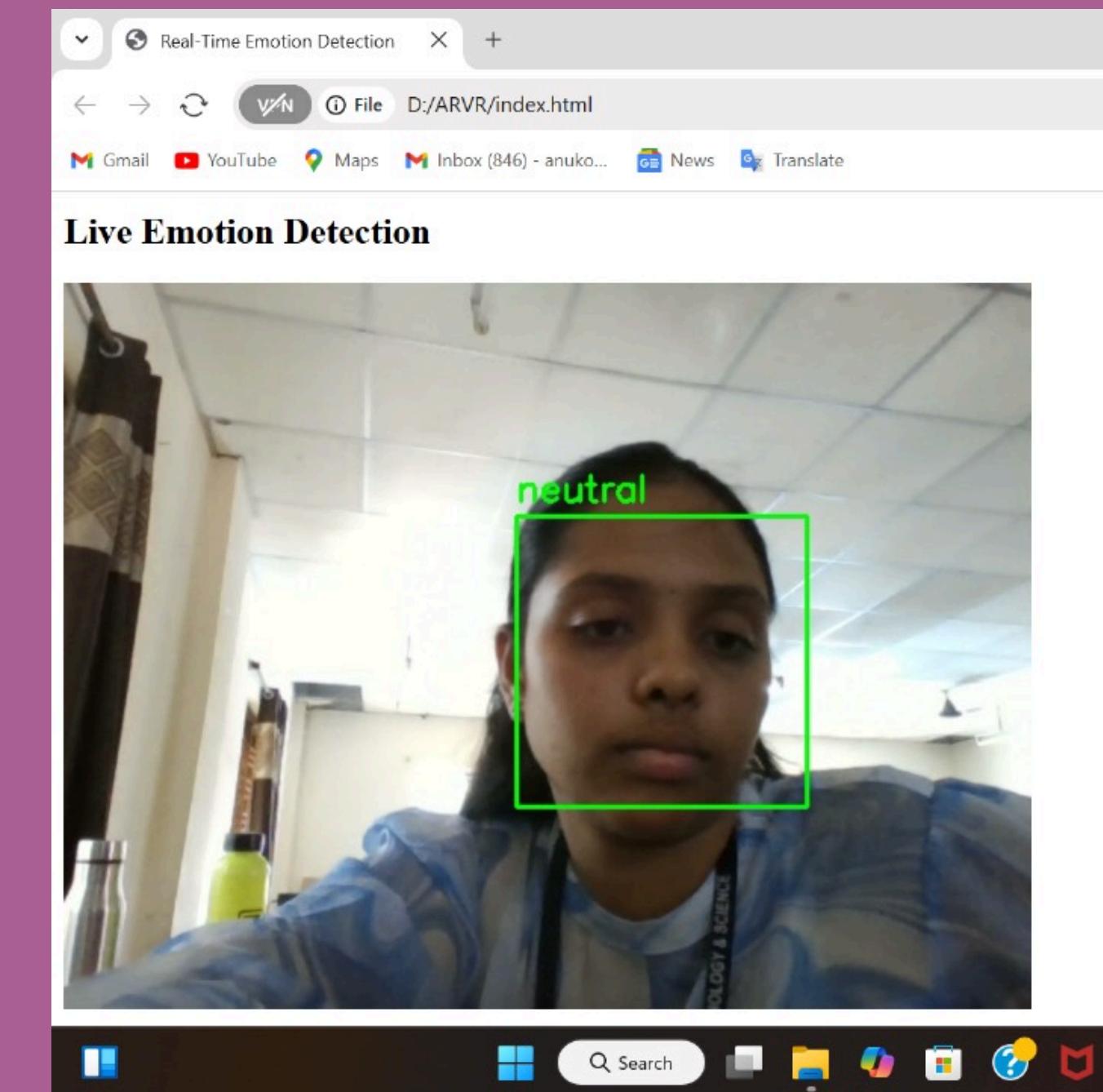
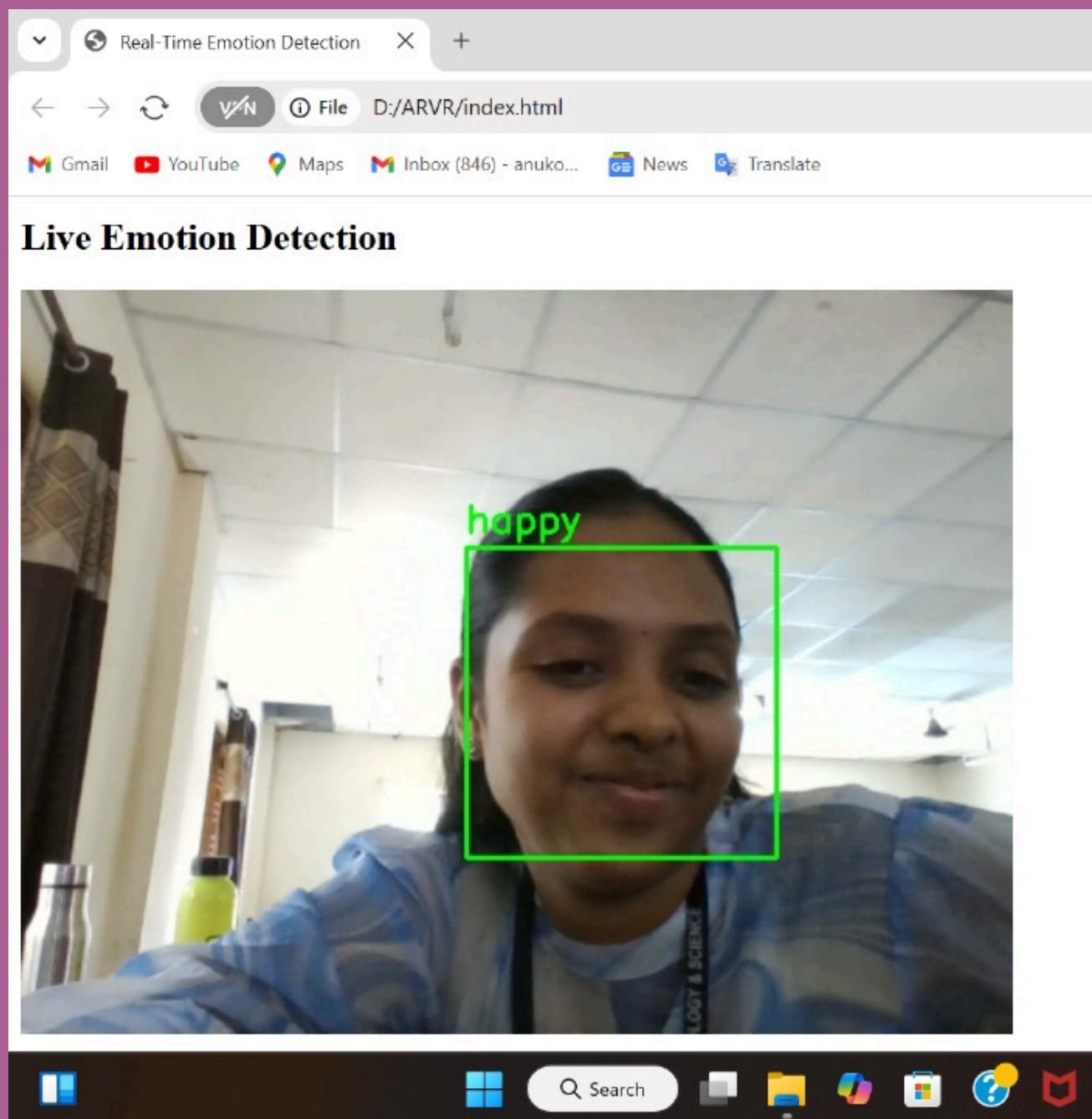
- Facial Emotion Detection
- Decision-Making
- AR/VR Rendering
- Soundscapes
- Feedback Analysis

IMPLEMENTATION

- Emotion-aware AI detects user stress levels and dynamically adapts immersive AR/VR environments to promote relaxation.
- Lighting, sound, and ambiance shift in real time, creating a personalized and calming virtual self-care experience.

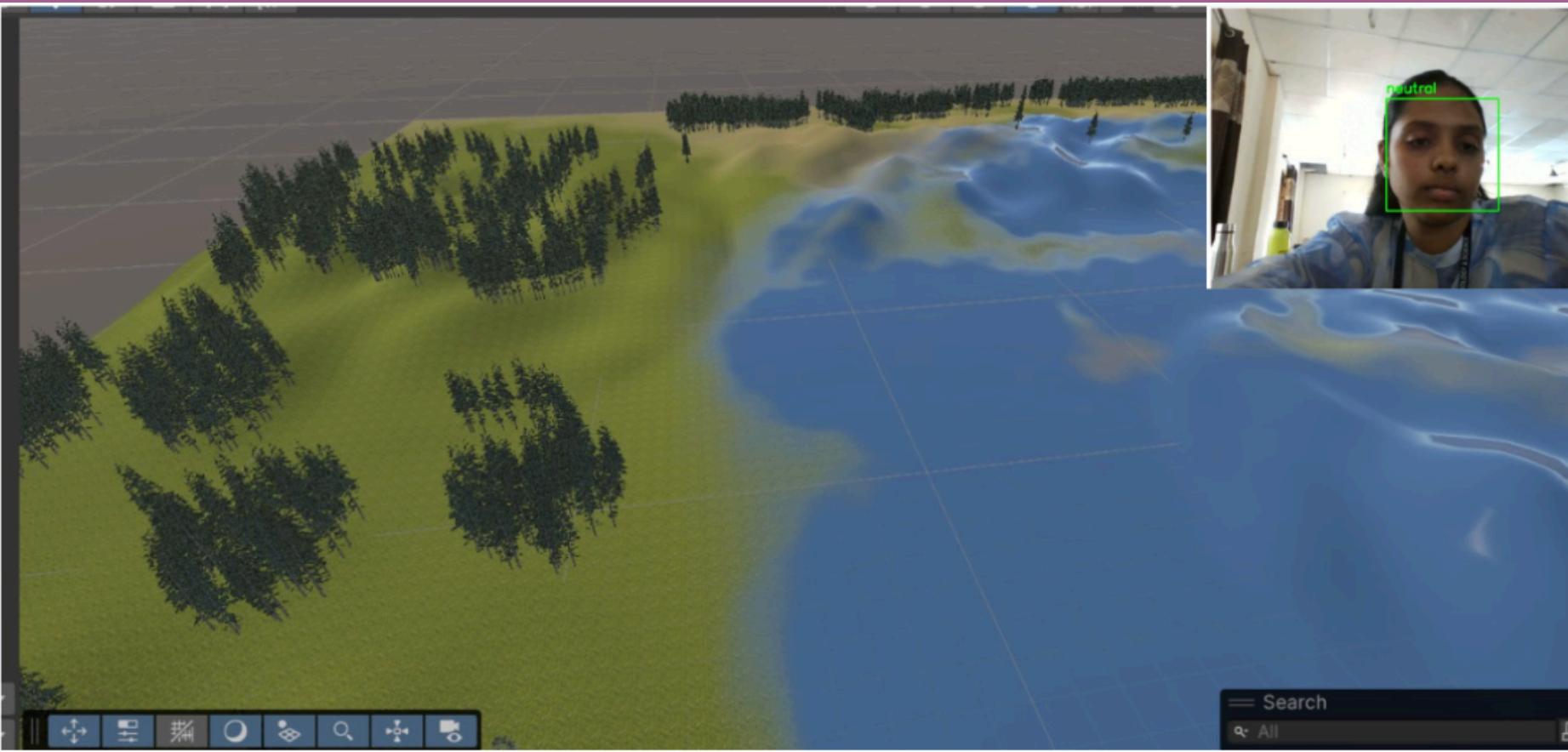


IMPLEMENTATION

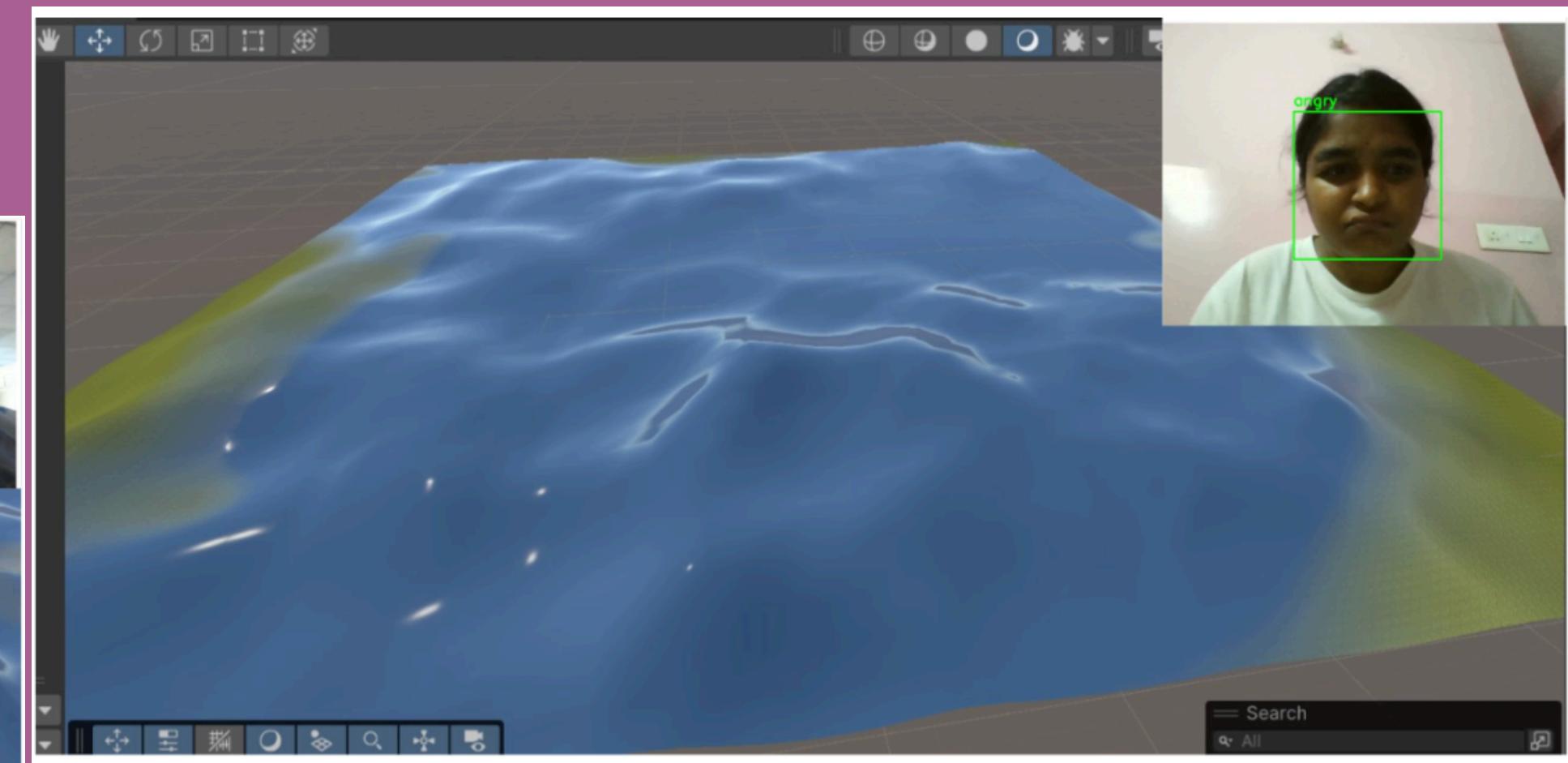


Emotion Recognition

IMPLEMENTATION

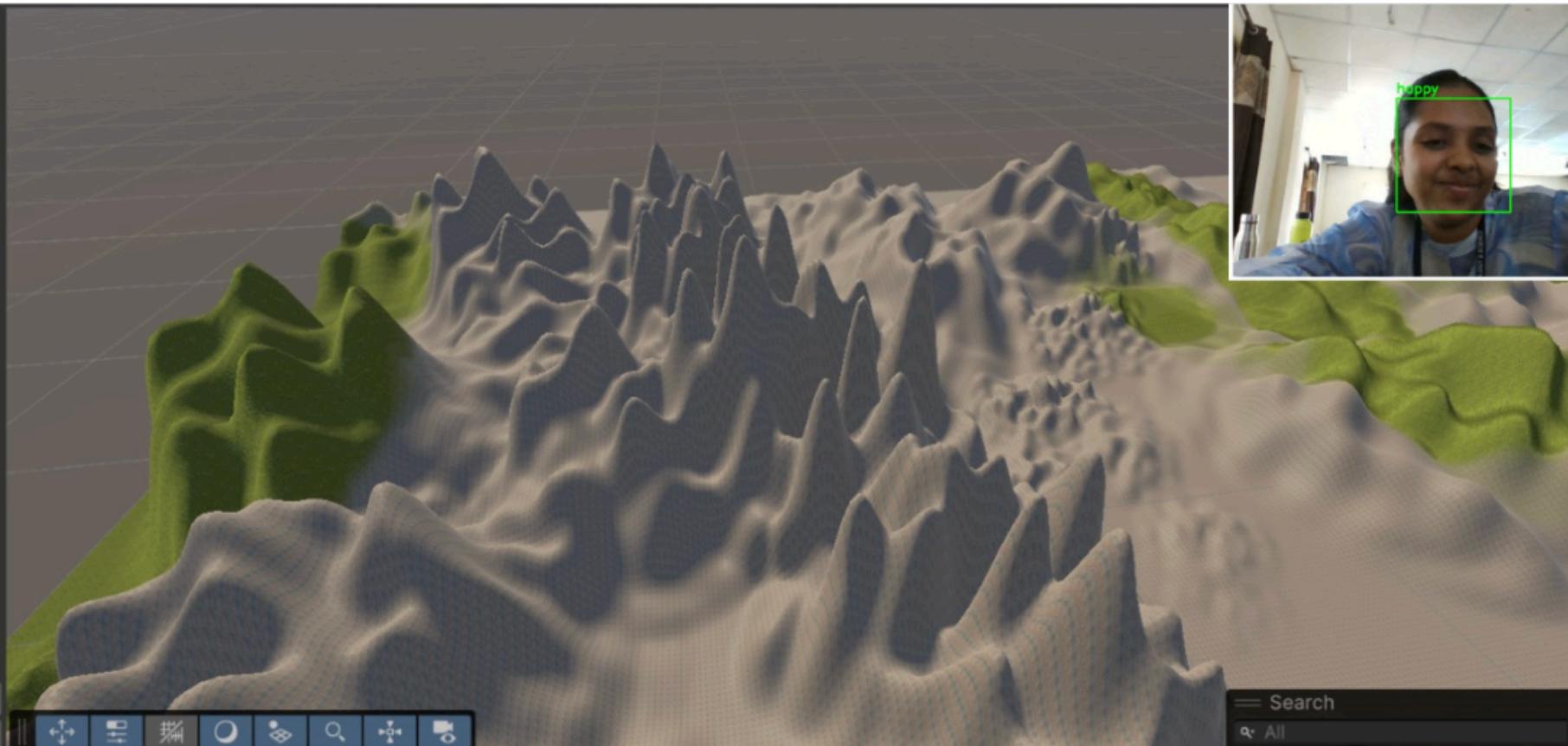


Landscape for Neutral Emotion

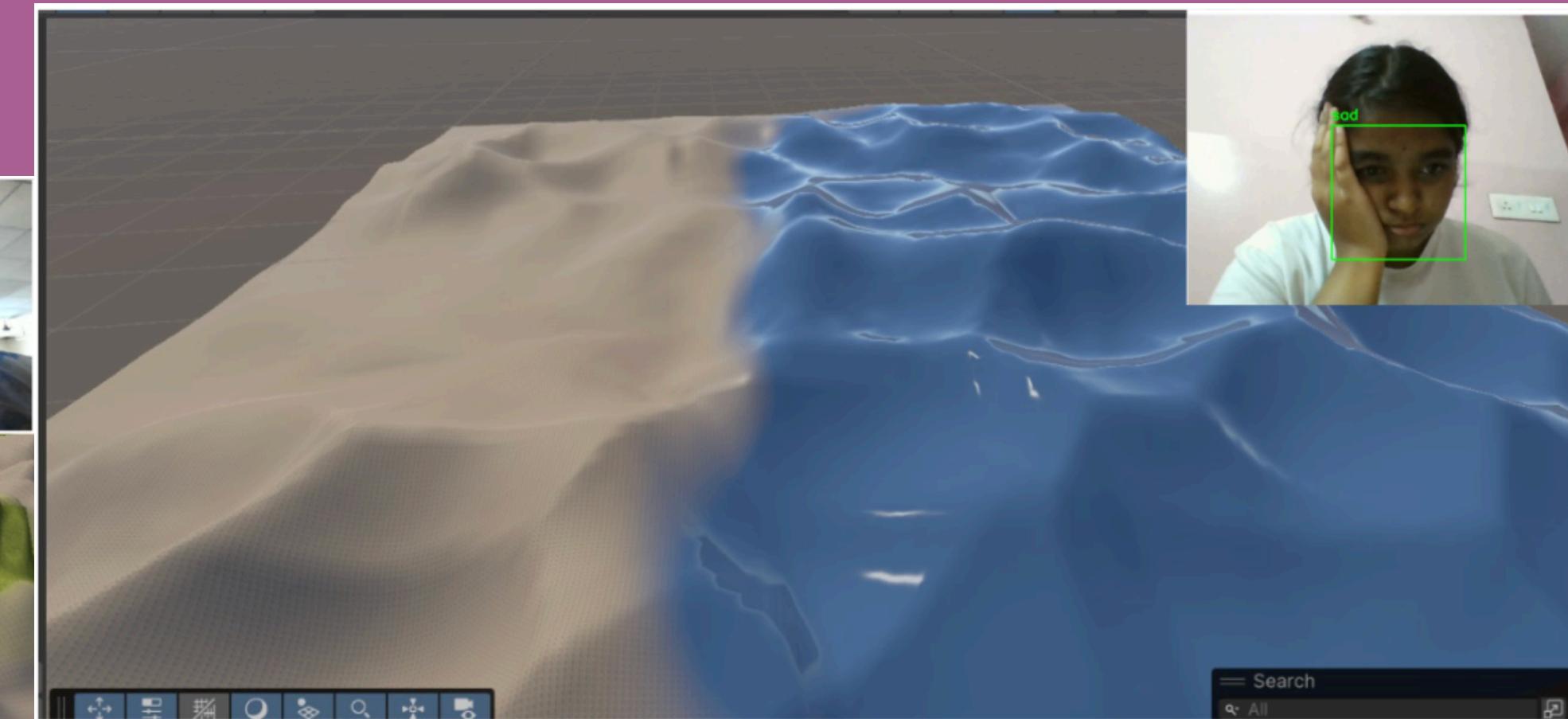


Landscape for Angry Emotion

IMPLEMENTATION

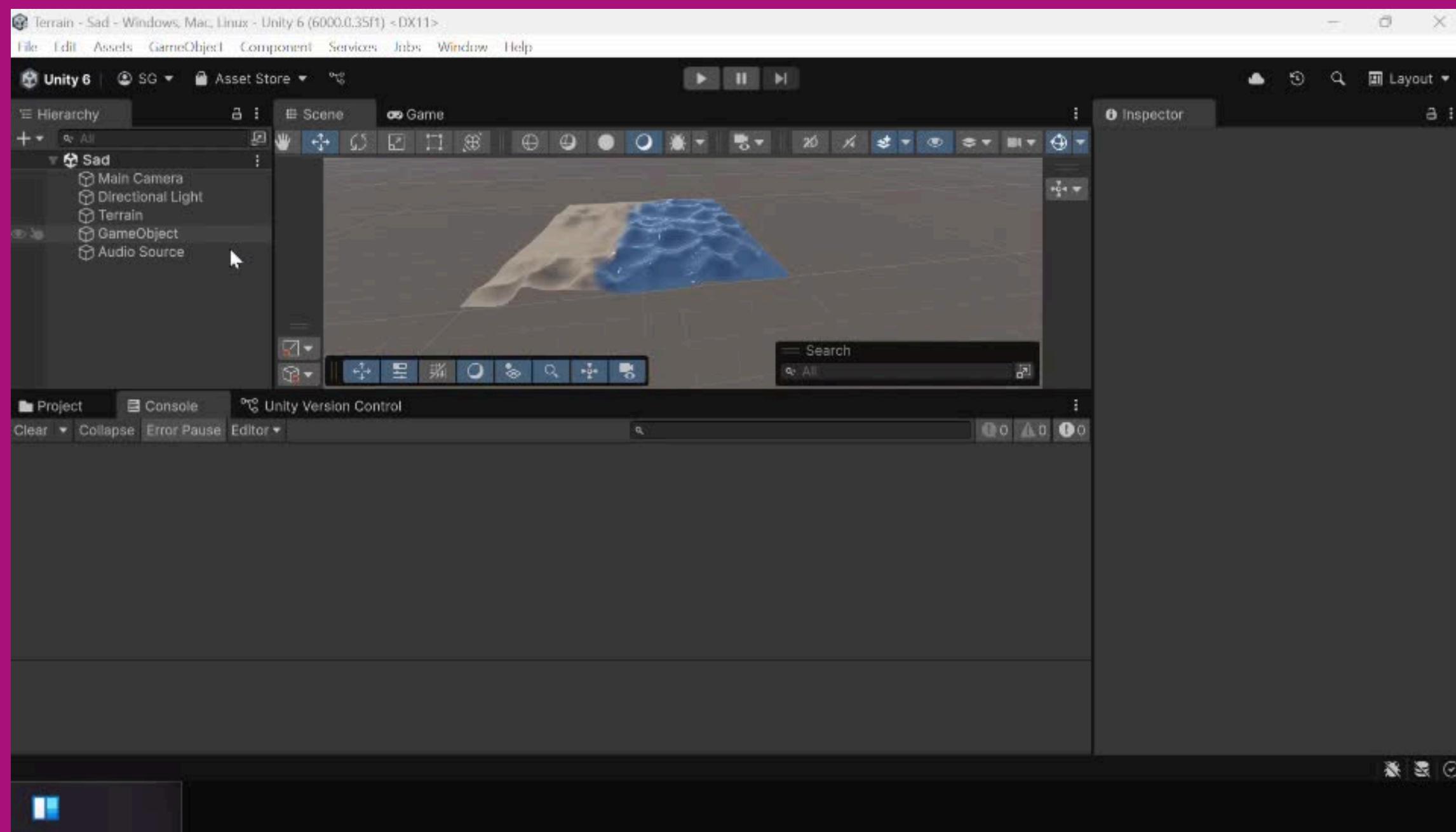


Landscape for Happy Emotion

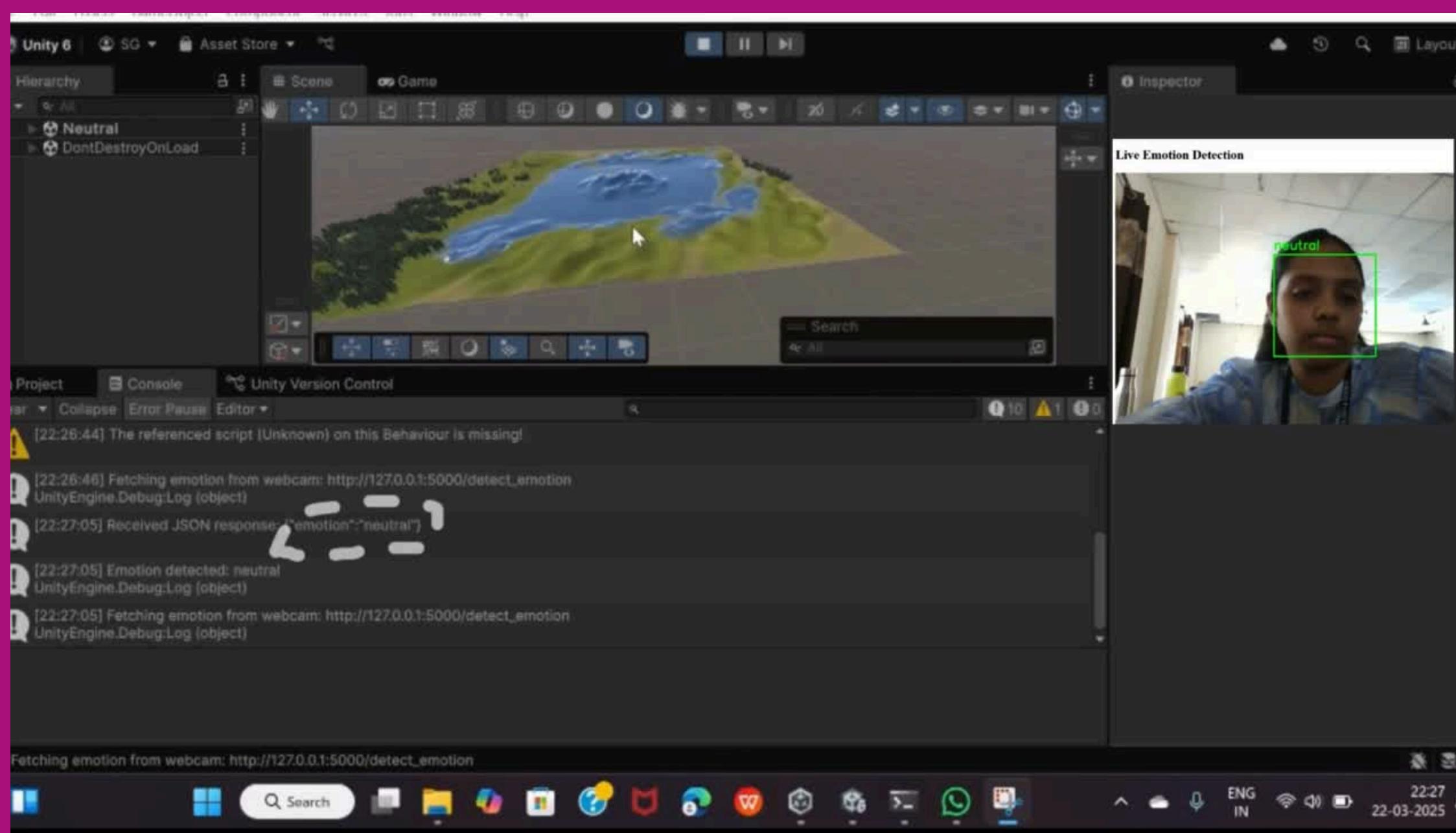


Landscape for Sad Emotion

IMPLEMENTATION



IMPLEMENTATION



CONCLUSION

Integrating AI with AR/VR has enabled the creation of adaptive environments that respond to users' emotional states, offering a deeply personalized and immersive form of relaxation. This approach enhances stress relief through emotion-aware experiences and presents a modern, engaging solution for improving mental well-being in high-pressure lifestyles.





A large, semi-transparent white parallelogram is positioned in the center of the image. Inside this parallelogram, the words "THANK YOU" are written in a bold, black, sans-serif font. The parallelogram is set against a dark navy blue background. In the corners of the parallelogram, there are two large, stylized hexagonal shapes. These hexagons have a thick, magenta outline and a dark navy blue fill. The overall composition is clean and modern, with a focus on the central text message.

THANK YOU