

# VR Meditation App

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Figure 1: Meditation in virtual environment

## ABSTRACT

This paper takes a close look at how virtual reality (VR) can be used to make meditation even more helpful for our mental well-being. We'll explore how VR meditation apps are made and what they're meant to do for us. We'll also talk about why meditation is good for us and how VR can make it even better.

We'll look at how VR meditation can help us relax, control our emotions, and feel happier. But we'll also talk about the challenges of using VR for meditation, like if it could make us feel sick or if the technology isn't quite there yet.

By putting together what we know from different studies, this paper hopes to give us a better idea of how VR meditation can be a cool new way to take care of our minds and bodies.

Consequently, this paper critically examines the use of a Virtual Environment to meditate and aims to build an application in Virtual Reality to promote tranquility and boost the psychological health of people during challenging times when mental health support might not be as easily accessible. To build the application in the

Virtual Reality platform, we used the game engine Unity. To diversify the user's experience various natural scenes have been created and also equipped with guided meditation over voice .Results indicate that meditating in a virtual environment can benefit people's mental health and is an accessible method to meditate. .

## 1 INTRODUCTION

The central theme of this project is to create a VR application that can be used to meditate and help relieve stress. This theme will examine the usefulness of a virtual environment in meditation. This will be implemented using a well-established game engine Unity and its XR plugin and extensive testing will be enforced. The effectiveness, usability, and content quality will be thoroughly analyzed leading to the provision of an optimal user experience.

Meditation practices are becoming more widespread around all over the world because of their positive impact on the brain and mind. Meditation has been found to have therapeutic benefits for a variety of mental and physical conditions, such as anxiety, depression, stress, insomnia, and post-traumatic stress disorder.

Meditation as a relaxation technique is potentially more vital today because of the increased interest in supporting students' emotional needs because of various reasons. There has been a lot of increase in the use of mobile after COVID-19, serving as a primary means of communication, entertainment, and learning. However, amidst the digital noise and constant connectivity, the need for moments of introspection and mental rejuvenation has become more pronounced.

Our VR meditation application seeks to address this need by providing users with a virtual sanctuary where they can disconnect

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from the chaos of the outside world and embark on a journey of self-discovery and inner peace. By immersing users in serene landscapes, soothing soundscapes, and guided meditation sessions, we aim to create an oasis of calmness accessible at the tap of a button.

Furthermore, the adoption of VR technology in meditation holds promise not only for individual well-being but also for broader societal implications. As educational institutions increasingly recognize the importance of nurturing students' emotional intelligence alongside academic achievement, our application can serve as a valuable tool for promoting mindfulness and stress management among students of all ages.

Moreover, the scalability and accessibility of VR technology make it an ideal medium for reaching diverse populations, including those who may face barriers to traditional forms of meditation. By leveraging the ubiquity of mobile devices and the immersive potential of VR headsets, we aspire to democratize access to mental health resources and empower individuals worldwide to prioritize their emotional well-being.

In summary, our VR meditation application represents a convergence of ancient wisdom and modern technology, harnessing the therapeutic benefits of meditation within an immersive virtual environment. Through rigorous testing and refinement, we aim to not only enhance the user experience but also contribute to the ongoing dialogue surrounding mental health and technology in the digital age.



Figure 2: Starting screen of the app

## 2 PROJECT PURPOSE

- Learn Unity by creating a meditating application.
- Make the app playable on a VR headset by employing XR Interaction
- Use a natural environment from unity asset store.
- package will be installed to convert the project from 3D to VR
- Implementing guided meditation sessions requires scripting audio playback and synchronizing visual cues with spoken instructions.

## 3 MOTIVATION

The main motivation for the choice of this project is the invaluable knowledge that will be acquired during the development of this project

Meditation was chosen as the topic since stress and anxiety are emotional states that most people go through at some point in their

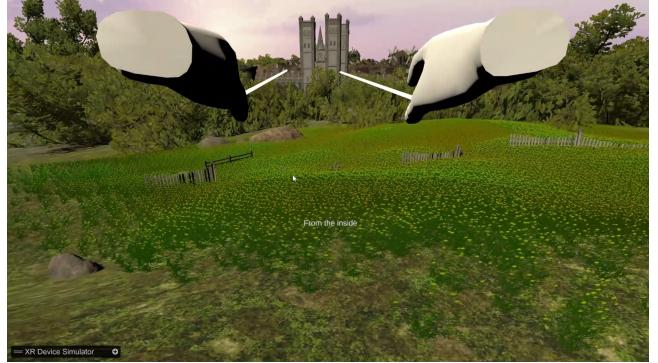


Figure 3: Meditation on Hill

lives, and it is vital to be able to combat them thus making this practice useful.

Meditation apps are developed with the goal of making mindfulness practices more accessible to a broader audience. These applications offer guided meditation sessions and resources in a digital format, allowing individuals to engage in meditation at their convenience, without requiring specialized training or equipment.

The convenience factor is significant in today's fast-paced society, where people often struggle to find time for self-care practices. Meditation apps enable users to incorporate meditation into their daily routines, whether it's during a commute, a break, or before bedtime.

One of the key features of meditation apps is customization. They typically provide a variety of meditation sessions tailored to different preferences, skill levels, and goals. Users can choose from a range of guided meditations, mindfulness exercises, and relaxation techniques that suit their individual needs.

Moreover, these apps often include social features such as discussion forums, group challenges, and progress tracking, fostering a sense of community and support among users. This social aspect can enhance motivation and accountability, encouraging users to maintain a regular meditation practice.

Research has shown that meditation offers various mental and physical health benefits, including stress reduction, improved focus, better sleep, and increased emotional resilience. By promoting regular meditation practice, meditation apps aim to help users improve their overall well-being and quality of life.

Additionally, these apps leverage technology to deliver engaging and immersive meditation experiences. Features like audio-guided meditations, progress tracking, and mindfulness reminders enhance the user experience and support long-term engagement.

Overall, meditation apps serve as tools for personal growth and development, empowering individuals to cultivate qualities such as mindfulness, compassion, and inner peace, leading to greater self-awareness and fulfillment.

## 4 IMPLEMENTATION

This section describes how the system's features implementation was conducted. The development and implementation phase will be split into three iterations. Each implemented functionality will be presented in detail, with pictures of the outcome to illustrate it. In addition, the challenges discovered during implementation will be explored, as well as how they were addressed. This process encompasses developing the application while adhering to the specification as closely as possible. What the end-user will see, and experience is dictated by this phase therefore ensuring that this stage complies with the criteria is essential. This iteration focused on developing the Minimum Viable Product. This entails creating



Figure 4: VR scene of Riverside

a natural virtual environment and developing an interactive meditation guide. This stage was only meant to address one functional requirement; it focused on demonstrating the interaction between the user and the meditation guide in a natural setting, essentially providing guided meditation. In addition, an effort was made to make the scene as photorealistic as possible to induce the illusion of telepresence.

#### 4.1 Creation of the environment

Because this scenery must be a natural landscape with slopes, hills, flowers, grass, mountains, and trees were constructed. It was created with a variety of textures, including grassy textures to emphasize the grass in the landscape, a mix of rocky and sandy textures to depict a path, and floral textures. Furthermore, 5,000 of two types of trees were planted throughout the terrain; these two tree assets are well optimized and have a relatively low number of triangles and vertices, meaning improved graphics performance. Furthermore, a platform asset was added and positioned in front of the user, with the meditation guide on top, to signal that the user should approach it. In addition, a wind zone was introduced to simulate wind, which is accomplished when all trees, grass, and leaf particles within a set radius sway in the direction of the wind. Finally, a particle system with a leaf texture was created to make the leaves travel around the landscape when they are influenced by the wind.

#### 4.2 Guided Meditation

The cornerstone of our VR meditation application lies in its guided meditation feature. Drawing upon the expertise of meditation practitioners and audio engineers, we meticulously crafted immersive meditation sessions designed to promote relaxation and mindfulness. Each guided meditation session is meticulously curated to cater to different user preferences and meditation goals. Whether seeking stress relief, emotional balance, or mental clarity, users are presented with a variety of meditation themes and techniques to explore. The guided meditation sessions are complemented by immersive audiovisual elements, including ambient soundscapes and visual cues, designed to deepen the meditative experience. Through the strategic use of binaural beats, nature sounds, and calming visuals, users are transported to a state of deep relaxation and inner calm. Furthermore, our guided meditation feature incorporates interactive elements to engage users and enhance their focus and presence. Through gentle prompts and guided imagery, users are encouraged to cultivate mindfulness and deepen their connection to the present moment. The effectiveness of our guided meditation sessions is further enhanced by the use of Play.ht for converting text to speech, ensuring clear and soothing narration throughout the meditation experience. By combining cutting-edge technology with ancient mindfulness practices, we aim to provide users with a transformative journey towards inner peace and well-being.

#### 4.3 Menus and Environment Selection:

The user interface (UI) design was crucial in ensuring a seamless and intuitive user experience. The application begins with a captivating menu scene, serving as the gateway to the immersive meditation experience. Within this menu scene, users are greeted with visually appealing graphics and interactive elements that beckon them to explore further. The menu options are strategically positioned, providing easy access to the various functionalities of the application. Upon launching the application, users are presented with an introductory menu scene. This scene serves as a welcoming portal, offering brief glimpses of the serene environments awaiting exploration. Through visually stimulating cues and subtle animations, users are enticed to embark on their meditation journey. The core functionality of the menu scene lies in its environment selection feature. Users are presented with a curated selection of virtual worlds, each offering a unique ambiance and meditation experience. Leveraging Unity's XR plugin and extensive asset library, our team meticulously crafted diverse environments ranging from tranquil gardens to majestic castles. To facilitate seamless navigation, users are provided with intuitive controls to navigate through the menu options. Whether using traditional input devices or embracing the immersive capabilities of VR controllers, users can effortlessly browse through the available environments and select their preferred meditation setting. Furthermore, the menu scene incorporates additional functionalities to enhance user customization and convenience. The inclusion of a settings menu empowers users to tailor their meditation experience according to their preferences. From adjusting audio levels to fine-tuning meditation durations, users have the flexibility to personalize their journey towards tranquility. In addition to environment selection and settings customization, the menu scene also offers practical utilities such as a quit option. This feature allows users to gracefully exit the application when their meditation session concludes, ensuring a seamless transition back to reality.



Figure 5: Scene of a virtual beach

### 5 ENHANCED FEATURES

Our VR meditation application offers several advantages over existing meditation technologies, providing users with a more immersive, customizable, and engaging experience.

#### 5.1 Open-World Exploration

Unlike traditional meditation apps that often feature static environments, our VR application offers users the freedom to explore open-world environments. From serene forests to tranquil beaches, users can choose from a variety of natural landscapes to enhance their meditation experience. This open-world approach fosters a sense of immersion and presence, allowing users to connect more deeply with their surroundings and cultivate a greater sense of tranquility.

## 5.2 Freedom of Choice

Our VR meditation application empowers users with the freedom to tailor their meditation experience according to their preferences and goals. With a range of guided meditation sessions and customizable settings, users can choose the duration, theme, and intensity of their meditation practice. Whether seeking stress relief, emotional balance, or mental clarity, users have the flexibility to personalize their meditation journey to suit their individual needs.

## 5.3 Immersive Audiovisual Experience

Through the use of immersive audiovisual elements, including ambient soundscapes, visual cues, and guided imagery, our VR application creates a multisensory experience that deepens the meditation experience. By leveraging spatial audio and 3D visuals, users are transported to a state of deep relaxation and inner calm, enhancing the effectiveness of their meditation practice.

## 5.4 Interactive Engagement

Our VR meditation application incorporates interactive elements to engage users and enhance their focus and presence. Through gentle prompts, guided visualization, and interactive feedback, users are encouraged to actively participate in their meditation practice, fostering a deeper connection to the present moment and promoting mindfulness.

## 6 BENCHMARK

With respect to other meditation VR apps present in the VR atmosphere there are mostly closed-room or closed-world meditation apps with no such open-world beautiful scenic views for a user to feel calm and really relieve their stress or explore themselves from within, with this app we change that, we bring an open-world guided meditation environment with an option to choose from a 5min short session or a 12min longer session for the user in 3 different landscapes of their choice whereas the other apps just offer 1 or 2 , so this app will definitely be an asset in the coming future for all the meditation enthusiasts who can't find somewhere quiet to meditate or those who would like to explore something new.

## 7 CONCLUSION

In conclusion, the development and implementation of our VR meditation application represent a significant step towards harnessing technology for the betterment of mental health and well-being. By blending ancient mindfulness practices with cutting-edge virtual reality technology, we have created a platform that offers users a transformative journey towards inner peace and tranquility.

Through meticulous design and development, we have crafted immersive environments and guided meditation sessions that cater to a diverse range of user preferences and meditation goals. By leveraging Unity's XR plugin and a variety of assets sourced from the Unity Asset Store and other sources, we have created visually stunning landscapes that serve as the backdrop for our meditation experiences.

The inclusion of intuitive menus and environment selection features ensures that users can easily navigate the application and customize their meditation experience according to their preferences. Whether seeking a brief moment of relaxation or a deep dive into guided meditation, our application provides users with the tools they need to cultivate mindfulness and emotional well-being.

Furthermore, the integration of guided meditation sessions, enhanced by Play.ht for clear and soothing narration, adds depth and immersion to the user experience. By incorporating interactive elements and immersive audiovisual cues, we aim to deepen the user's connection to the present moment and facilitate a state of deep relaxation and inner calm.

While our VR meditation application represents a significant advancement in the field of digital mental health, it is important to acknowledge the ongoing challenges and opportunities for improvement. Continued research and development are needed to refine and optimize the user experience, address potential issues such as motion sickness, and further explore the therapeutic potential of virtual reality meditation.

Overall, our VR meditation application represents a promising avenue for promoting mental health and well-being in an increasingly digital world. By harnessing the power of technology to support mindfulness and emotional resilience, we aim to empower individuals worldwide to prioritize their mental well-being and lead healthier, more fulfilling lives.

## ACKNOWLEDGMENTS

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