

**Project-Based Learning Report**  
on  
**Create a calm VR environment with soothing visuals and  
sounds, providing users with a relaxing and stress-relief  
experience**

Submitted in the partial fulfillment of the requirements.  
For the Project-based learning in **Augmented Reality & Virtual Reality**  
in  
Electronics & Communication Engineering

By

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**CERTIFICATE**

This is to be Certified that the Project-Based Learning report entitled, “**Create a calm VR environment with soothing visuals and sounds, providing users with a relaxing and stress-relief experience**” Work is done by

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In partial fulfillment of the requirements for the award of credits for Project Based Learning (PBL) in **Augmented Reality & Virtual Reality** Bachelor of Technology Semester VII, Electronics and Communication Engineering.

**Date:27-10-2023**

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## Problem Statement & Solution

### **Problem Statement:**

Create a calm VR environment with soothing visuals and sounds, providing users with a relaxing and stress-relief experience.

### **Solution:**

The project aims to create a serene and immersive virtual reality (VR) environment using the Unity software. This VR experience is designed to offer users a calming and stress-relief experience through soothing visuals and sounds. The project's main objectives are to provide an escape from the demands of the real world, promoting relaxation and tranquility.

Key Features and Components:

1. **Virtual Environment:** The core of the project will be a 3D virtual environment that users can explore in VR. This environment should be carefully designed to evoke a sense of calm and tranquility. This may include serene natural landscapes, tranquil underwater scenes, or abstract, peaceful settings.
2. **Soothing Visuals:** The visuals will be a critical element of the project. It includes high-quality 3D models, textures, and lighting to create an environment that is aesthetically pleasing and visually calming. Elements like gentle water ripples, softly swaying trees, and tranquil wildlife can be incorporated to enhance the experience.
3. **Immersive Audio:** A crucial aspect of creating a calming environment is the inclusion of soothing sounds. Audio elements like birdsong, flowing water, gentle wind, and soft ambient music can be added to enhance the sense of serenity. The audio should be spatially optimized for a realistic VR experience.
4. **Interactivity:** Users should have a degree of interactivity within the VR environment. This could include simple interactions like picking up objects, triggering sounds, or activating animations. These interactions should be designed to enhance the feeling of relaxation.

**5. User Experience:** The user interface and experience should be intuitive and user-friendly. Users should be able to navigate the VR environment effortlessly, select different scenes, and customize the experience to suit their preferences.

**6. Performance Optimization:** Ensuring smooth performance on a range of VR hardware is essential. This includes optimizing graphics, audio, and interactions for various VR platforms and devices.

**7. User Feedback:** To continually improve the experience, it's important to gather user feedback and make adjustments as necessary. This can be achieved through user testing and surveys.

**8. Accessibility:** Consideration should be given to making the VR environment accessible to a broad audience. This may involve options for different languages, settings for individuals with disabilities, and support for various VR hardware setups.

**9. Documentation:** Detailed documentation should be provided for the project, including a user guide and technical documentation for developers who may want to extend or modify the environment.

**10. Testing and Quality Assurance:** Rigorous testing should be conducted to ensure the VR environment is stable and free from issues that could disrupt the calming experience.

**11. Release and Distribution:** The project should be made available to users, either through platforms like Steam VR or Oculus Store, or as a standalone application for various VR platforms.

Overall, the project aims to leverage Unity's capabilities to create an immersive and tranquil VR experience that promotes relaxation and stress relief. It should be a valuable tool for users seeking an escape from the stresses of everyday life and provide a sense of peace and tranquility within the virtual world..

## About Virtual Environment

In an increasingly fast-paced and stress-filled world, the demand for innovative solutions to combat the pressures of everyday life has never been greater. Virtual reality (VR) technology has emerged as a powerful tool in this quest, offering a unique platform for creating immersive and therapeutic experiences. This project seeks to harness the potential of VR by crafting a serene and soothing environment in Unity, the leading game development engine.

Our primary objective is to transport users to a virtual oasis, a place where the worries and anxieties of the real world fade away. Through the careful integration of calming visuals and soothing sounds, this project endeavors to provide an escape, a respite, and a haven of tranquility.

The core of this project lies in the creation of a three-dimensional virtual space where users can immerse themselves. This virtual environment will be meticulously designed to elicit a profound sense of calm. Whether it's the gentle rustle of leaves in a peaceful forest, the tranquil ambiance of a serene underwater world, or abstract, harmonious settings, we aim to craft a digital sanctuary that promotes relaxation and stress relief.

The power of this project extends beyond visuals. It encompasses the symphony of sounds, carefully curated to transport users to a place of peace and serenity. The soft rustling of leaves, the melodious chirping of birds, the gentle lapping of water, and the soothing hum of ambient music will be thoughtfully integrated to complete the experience.

Our commitment extends to ensuring that this tranquil VR environment is accessible and user-friendly. Users will be able to navigate the virtual world with ease, select different scenes, and even personalize their experience to suit their unique preferences.

As we embark on this journey to create a calming VR environment in Unity, our focus remains on optimizing performance, embracing user feedback, and delivering an experience that resonates with a wide audience. Through meticulous design, attention to detail, and a commitment to the principles of relaxation and stress relief, we aim to provide a valuable tool for those seeking solace in the digital realm. This project is more than just a VR experience; it's a gateway to peace and tranquility in an ever-challenging world.

## **Steps to Create Virtual Laboratory**

- Created a plane for the floor and ceiling and developed the basic premise of the Environment .
- Using 3D materials in the Unity package, like Cube, Sphere and others, create walls and other objects.
- Either 3D model the various objects, like trees, grass, ocean waves and other materials using Blender and then import them as an asset in Unity.
- Imported the sound effect of forest and integrated it with the environment using c#.
- Placed them in the unity module and made the 3D package.
- Tested and rendered the VR environment.

## Software Used

### UNITY INTRODUCTION

**Unity** is a cross-platform game engine developed by Unity Technologies, first announced and released in June 2005 at Apple Worldwide Developers Conference as a Mac OS X game engine. The engine has since been gradually extended to support a variety of desktop, mobile, console and virtual reality platforms. It is particularly popular for iOS and Android mobile game development, is considered easy to use for beginner developers, and is popular for indie game development.<sup>[6]</sup>

The engine can be used to create three-dimensional (3D) and two-dimensional (2D) games, as well as interactive simulations and other experiences.<sup>[7][8]</sup> The engine has been adopted by industries outside video gaming, such as film, automotive, architecture, engineering, construction, and the United States Armed Forces.<sup>[9]</sup>



In the 2010s, Unity Technologies used its game engine to transition into other industries using the real-time 3D platform, including film and automotive.<sup>[121][122]</sup> Unity first experimented in filmmaking with *Adam*, a short film about a robot escaping from prison. Later, Unity partnered with filmmaker Neill Blomkamp, whose Oats Studios used the engine's tools, including real-time rendering and Cinemachine, to create two computer-generated short films, *Adam: The Mirror* and *Adam: The Prophet*.<sup>[121]</sup> At the 2017 Unite Europe conference in Amsterdam, Unity focused on filmmaking with Unity 2017.1's new Cinemachine tool.<sup>[58]</sup> In 2018, Disney Television Animation launched three shorts, called Baymax Dreams, that were created using the Unity engine.<sup>[123]</sup> The Unity engine was also used by Disney to create backgrounds for the 2019 film *The Lion King*.<sup>[124]</sup>

Automakers use Unity's technology to create full-scale models of new vehicles in virtual reality, build virtual assembly lines, and train workers.<sup>[122]</sup> Unity's engine is used by DeepMind, an Alphabet Inc. company, to train artificial intelligence.<sup>[125]</sup> Other uses being pursued by Unity Technologies include architecture, engineering, and construction.<sup>[126]</sup>



## **Code for Sound Effect**

```
using UnityEngine;

public class SoundPlayer : MonoBehaviour

{

    public AudioSource audioSource; // Assign your Audio Source component to this field in the
Inspector.

    void Start()

    {

        // Check if an AudioSource component is assigned.

        if (audioSource != null)

        {

            // Play the audio.

            audioSource.Play();

        }

        else

        {

            Debug.LogWarning("Audio Source is not assigned!");

        }

    }

}
```

## Result & Analysis



Fig 1: Angle 1 of VR environment containing visuals of jungle on two walls set up as planes.

The Ground has been

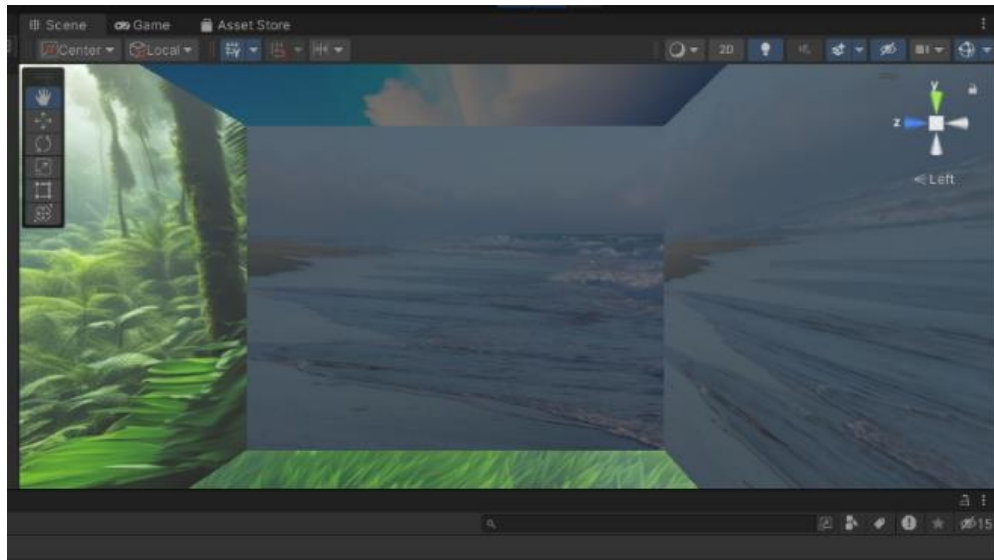


Fig 2: Angle 2 of VR environment containing soothing sea effects on other two walls.

Sound effects have been added with code of C# playing simultaneously.

### **Project Outcome**

CO6: Apply the acquired knowledge for analysis Virtual/Augmented Reality Applications.

Through this project the Course Outcome 6 (CO6) is satisfied.

### **Project Conclusion**

This project delivers a serene VR environment in Unity, offering a digital retreat. With tranquil visuals, soothing sounds, user-friendly design, and performance optimization, it promotes relaxation and stress relief. Its accessibility extends its reach, providing moments of peace in a fast-paced world, showcasing the potential of technology for well-being.

## **References**

About Unity: Wikipedia ([https://en.wikipedia.org/wiki/Unity\\_\(game\\_engine\)](https://en.wikipedia.org/wiki/Unity_(game_engine)))

Unity Software: Unity (<https://unity.com/download>)

Unity Modelling; Unity (<https://unity.com/features/probuilder>)