الجامعة الأمريكية في رأس الخيمة
AMERICAN UNIVERSITY OF RAS AL KHAIMAH

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Water Cycle VR

Abstract

Virtual Reality (VR) is emerging as one of the key technologies that will disrupt the industry in the near future.

The main goal of Virtual Reality in education is to make the studying process exciting and more effective. VR simulations provide an in-depth understanding of the material by the learner with its further application in real life.

Earth has been recycling water for over 4 billion years! We call this "Water Cycle." It consists of various processes. The project aims to provide an immersive experience for the users to understand what "Water Cycle" is, and its processes.

Objectives

Opportunity:
The emerging use of VR technology provides a perfect opportunity to create an educational platform that helps students learn interactively.

Mobility:
The project is build for mobile VR devices using GoogleVR SDK. This approach provides ease of use mobility for the students as it does not require expensive and wired VR headsets.

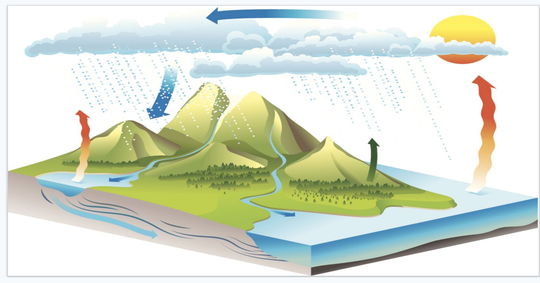
Scalability:
The project mainly consists of two modules:

Virtual tour provides an immersive experience for the students to learn by visualizing the educational content.

An interactive game that provides an opportunity for the students to simulate the environment and learn by doing.

This approach provides the possibility to recreate the modules for various educational content.

Innovation:
The project took various innovative approaches and attention to details such as realistic weather simulation and control provides a flawless immersive experience for the students.



Procedure

Since the project is VR based, Unity Engine was used to develop the application. Unity Engine uses C# for programming scripts and its custom editor to develop the rest of the application.

For Mobile VR development, GoogleVR SDK was used to develop mobile-friendly VR experience. The terrain and weather effects were either created from scratch or downloaded and customized for the application.

Results and Discussion

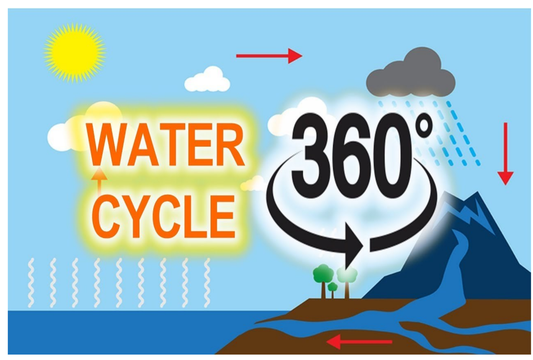
Virtual Tour

The application starts with the welcome screen on an island where the user can notice the natural and realistic island view along with weather and water effects.

The tour then starts with a robot welcoming the user and explains what water cycle is. The user then experiences each process of water cycle with realistic weather and water simulation along with a robot assistant explaining the processes.

Game

The game lets the users to test their understanding of the water cycle and its processes by asking them to choose simulate the weather appropriately along with extra knowledge testing questions.



Conclusion

The primary purpose of the application is to create an immersive experience using virtual reality for the students to understand educational content effectively.

The topic of "Water Cycle" was taken to demonstrate the potential of VR. The aim is to further develop and scale the application for various other educational content.

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