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Mobile application to travel the world using virtual reality and machine learning

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MOBILE APPLICATION TO TRAVEL THE WORLD USING VIRTUAL REALITY AND MACHINE LEARNING

This research intends to make travel and culture an accessible possibility for all. With a phone and a VR-Headset, people will have the opportunity to see some of the most amazing scenes in the world and learn about the history and culture of famous landmarks without leaving the comfort of their own homes.

INTRODUCTION

The current situation with Covid-19 has affected the entire world and has put individuals in a situation where travelling is no longer safe, and many people have decided to stay at home. Even after the worst of the pandemic, the consequences will remain in our daily lives.

The purpose of this project is to develop an application that will allow users to travel to a desired destination using VR technology, a VR headset, and a mobile device. The user will have the possibility to explore locations based on their personal taste with the help of machine learning.

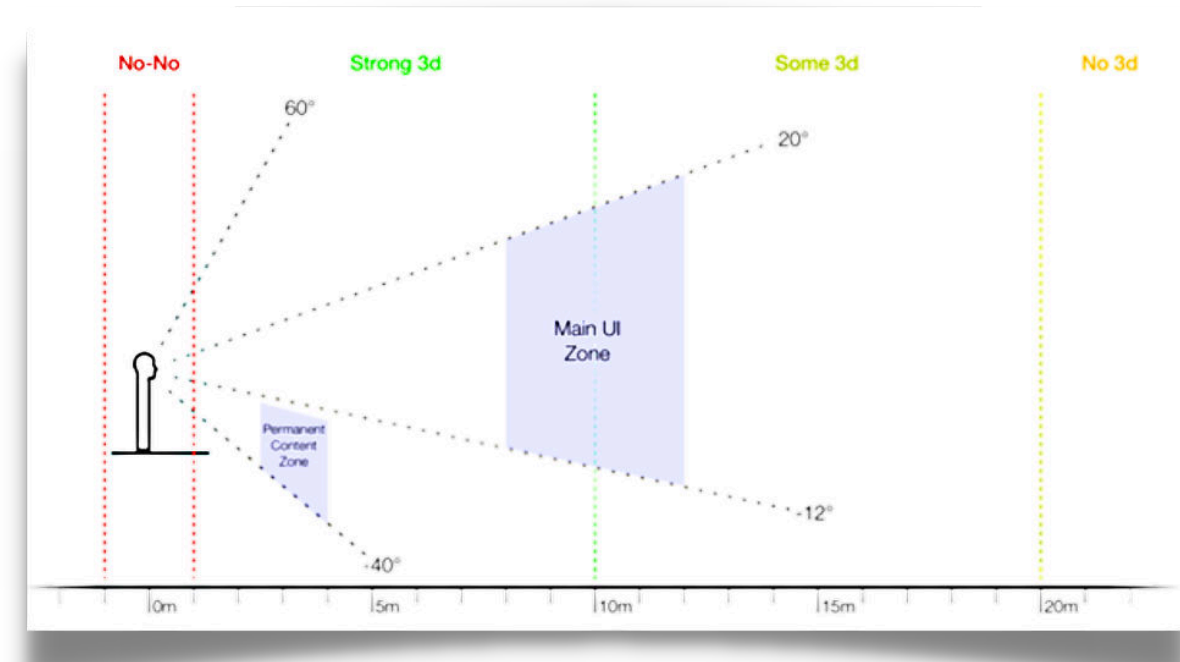
The aim of the project is to allow the user to move around and take 'real steps' in the virtual world to experience the culture, architecture and history of a chosen place without leaving the comfort of their home. While experiencing the tour, the user will be prompted with interactive questions about relevant attractions or their nearby surroundings. The mobile application will use Machine Learning to predict which attraction to visit next based on the previous decisions made on the tour (interactive questions).

THEORETICAL BACKGROUND

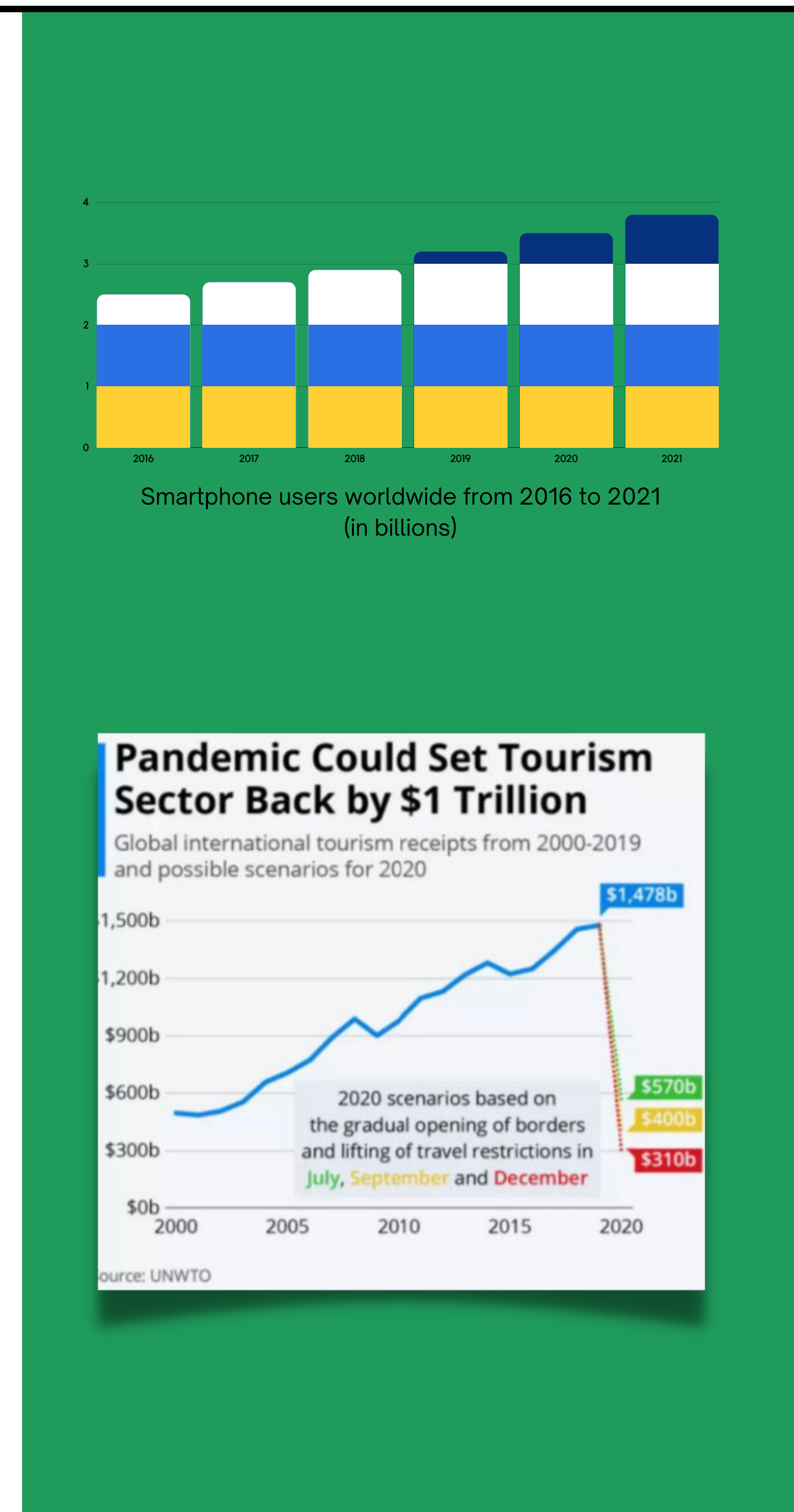
REQUIREMENTS

- R1 - Design an app that works on Android and iOS.
- R2 - Develop and deploy a system in a Virtual Reality environment.
- R3 - Display media content (audio and video).
- R4 - Provide tours including different options and places.
- R5 - Store user information and profile.
- R6 - Store user decisions for Machine Learning purposes.
- R7 - Provide customized tour options using Machine Learning.
- R8 - Take selfie of user (optional feature).
- R9 - Design and deploy a virtual store in the virtual reality environment.

USER INTERFACE / USER EXPERIENCE



Zones of content placement



METHODOLOGY

- Comprehensive understanding of the research conducted by extensive literature study.
- Analysing technologies and different approaches for the design of a prototype.
- System development and implementation.
- Testing and evaluation of efficacy of the system and prototype.



RESULTS AND FINDINGS

The application will be developed in a non-virtual and virtual environment, where the user will need a VR headset, adapted for mobile phones, to have access to the full virtual experience. The app will prompt the user with different questions and tour options and they will be able to choose the option of their liking. At the end of each scene, a new scene will be displayed considering the users taste using Machine Learning

Technologies used

- Unity
- AVPro Video Media Player
- Firebase
- Vimeo HTTP Streaming

BUSINESS CASE FOR THE APPLICATION

The development of this application complements and enhances the holiday-making process.

- Live the VR experience of a location upon booking with a travel agency.
- Live the VR experience of a location upon booking with a hotel, hostel or any other type of accommodation.
- Discover in depth the chosen touristic destination.
- View of the past: reconstruction of historical scenarios.
- Provide tourists with their specific geolocation for their convenience.

The use of this application is a leading alternative in the use of technologies in the tourism industry. Implementing VR tours on a train or a plane invites users to live a different experience. Keeping the main focus of this enterprise as an alternative or complement to travelling to a destination, users can finally carry out the activities that seem allusive at that present moment.

CONCLUSION

At the end of the process, the team feel positive with the outcomes obtained during the research. The main objective of visiting cultural, historical, and interesting places from the comfort of the home has been achieved. With a mobile phone and a VR headset, virtual environments can be enjoyed and explored, promoting a safer version of tourism. After a year in development, the global situation is nearly the same, as COVID-19 is still affecting the way we live our lives. VR offers a great way to escape restrictions and lockdowns and, if we add the commercial value described in the business case, VR Tripn can conclude with a positive balance. Subsequent stages: Collect UX feedback on Beta prototype, Launch Premium version, Loyalty program, FAQ section.

Application wireframe, VR environment

Application wireframe, VR environment

REFERENCES

Oberlo, 2021. How many people have smartphones in 2020?. [Online] Available at: <https://cutt.ly/NERXPvC>. [Accessed 14 December 2020].
Yatuk, L., 2017. VR alarmism. [Online] Available at: <https://medium.com/@lidiayattuk/vr-alarmism-f2cb41b7ef5a> [Accessed 14 May 2021].
Travel Mail, 2016. YouGov travel trends report released. [Online] Available at: <https://cutt.ly/GERXGPR> [Accessed 14 May 2021].

Albers, M. C., 2018. Simple Low-Fidelity VR Prototyping: Practical How-To Advice. [Online] Available at: <https://cutt.ly/4ERZ7xn> [Accessed 10 April 2021].
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