

CREATOR

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THE ROLE OF VIRTUAL REALITY IN MODERN 3D DESIGN AND PRINTING - BEATROOT

The world of technology has been advancing at increased rates, and one of the unique electronics developed in the last century is the concept of virtual reality (VR). Through this newfound medium, artists, designers, and architects can immerse themselves in a 3D virtual space that will optimize their creative process and expand the tools and resources accessible to them.

AFFILIATIONS

University of Toronto Scarborough
UTSC Library Makerspace
New Culturx Studio



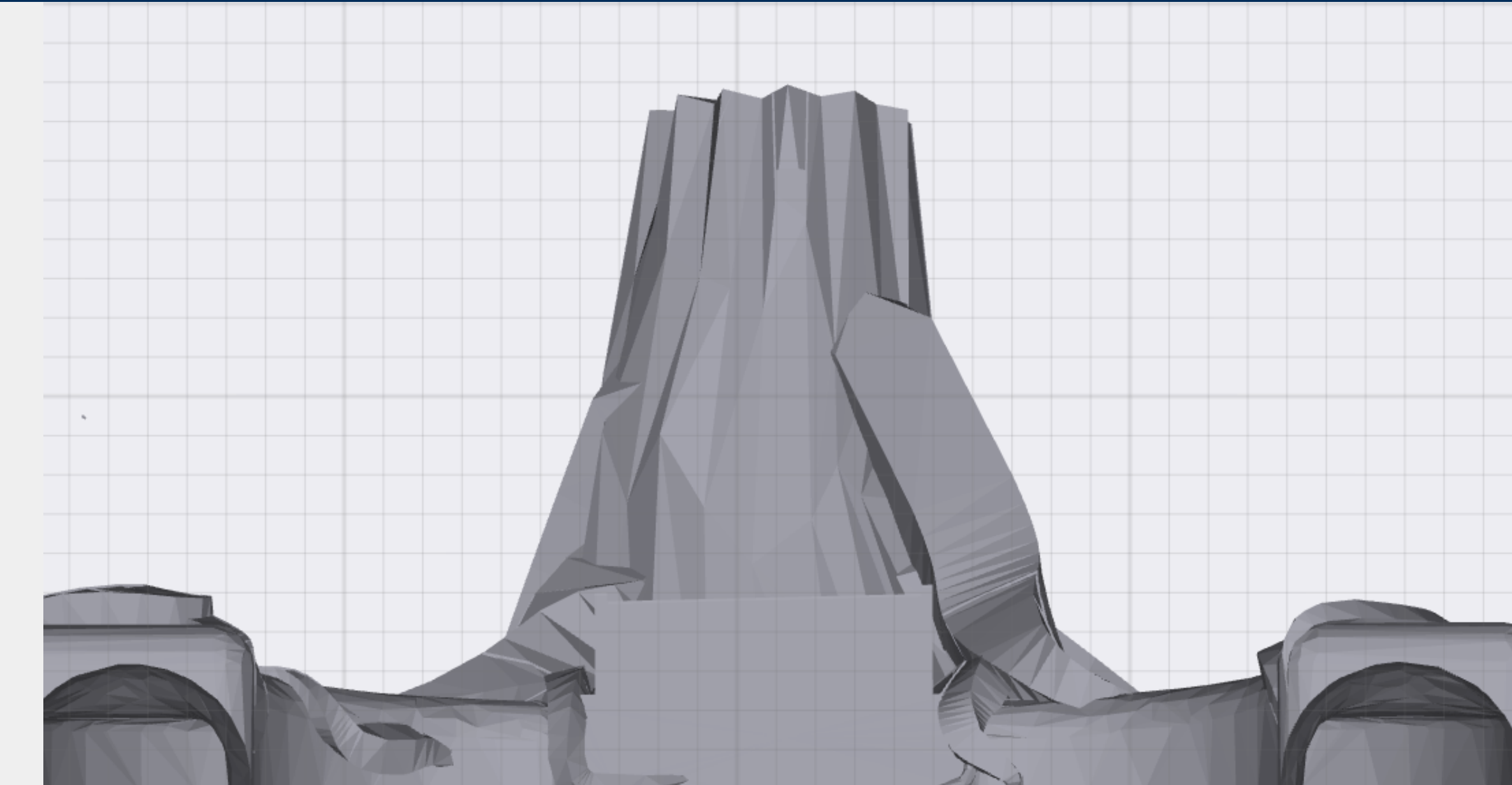
UNIVERSITY OF
TORONTO
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INTRODUCTION

Significant knowledge gaps between the general population and virtual reality (VR) still exist, despite the growing popularity of VR technology in leisure and professional settings. To help close these gaps, my project tackles the creation of new products inclusively within a virtual environment that benefits the general technology-growing community alongside 3D design software. My goal was to design a product in VR space and print it using a 3D resin and filament printer .

OBJECTIVE

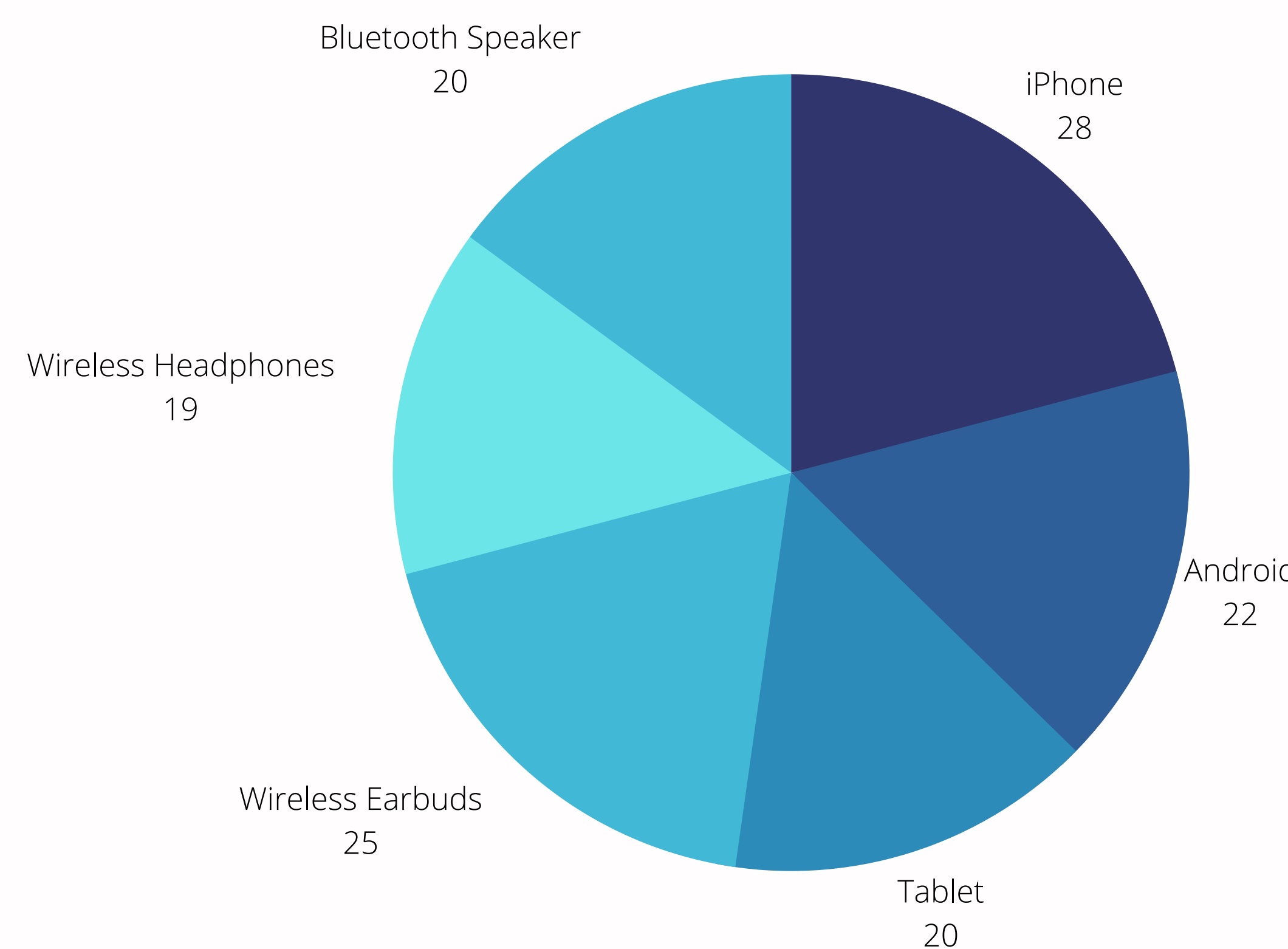
I wanted to introduce the 3D designing concept to a virtual environment from design to 3d printing in a simple procedure.



METHODOLOGY

The final product was designed to be used in everyday life for university or college students. With the evolution of technological advances, a study was conducted on Instagram, Discord, and Facebook to understand what electronic devices were being used most frequently. 50 out of 51 participants stated they used either an Apple or Android phone, leading to the conclusion that a phone holder could be beneficial.

The base design was crafted through Shapr3D, and then exported as an obj file onto Landing Pad, where the VR headset Oculus Quest 2 had access to modify it. Through the Oculus Quest 2, I manipulated simple objects and shapes to create an organic tree surrounding the phone stand.



RESULTS

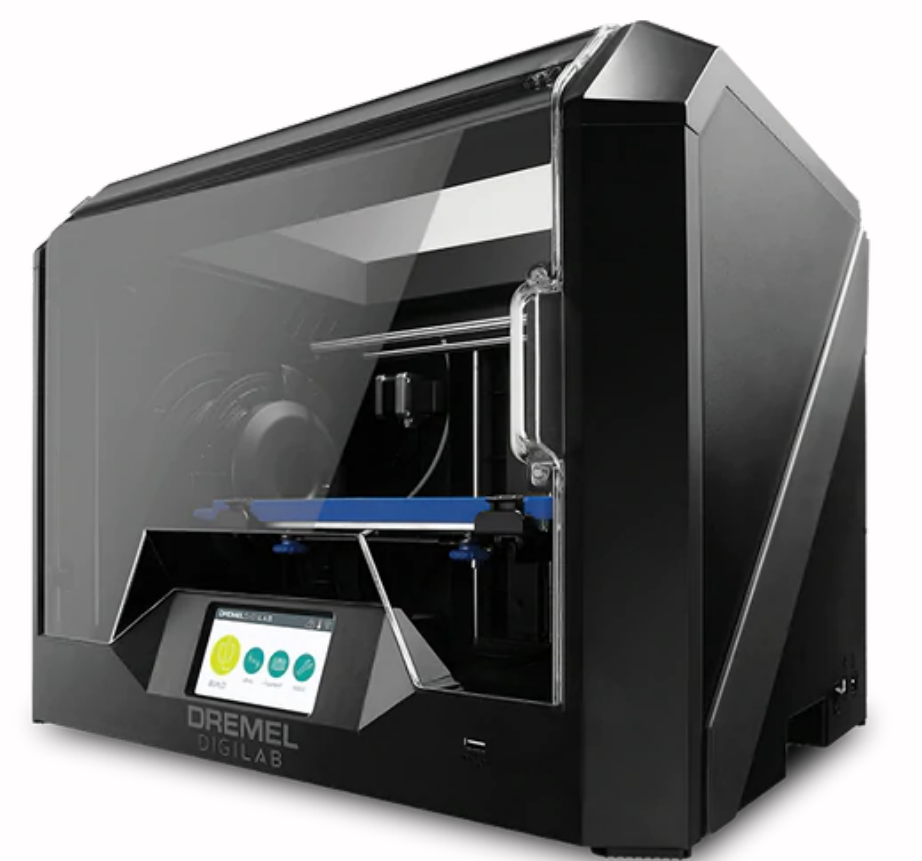
After several weeks of designing and testing, the phone holder was completed and could hold a Samsung A52 Android phone, one of the larger phones to improve universality. I enhanced my graphic design knowledge, as well as 3D experience with the Oculus Quest 2, and I plan on continuing to advance my knowledge of designing and implementing 3D designs using VR.

IMPORTANT!
This product was only the first of prototypes for Beatroot, and I will continue to modify and enhance its structure.

FEATURES

The most unique aspect of this project is its usage of the virtual space for professional 3D design. Although it has proven its usefulness, 3D design using a VR headset has not been introduced as an accessible medium to the general public. With beginner VR tutorials on the rise, Beatroot intends to display the capabilities of VR, and the boundless resources it provides.

Using the VR to develop Beatroot is an unusual medium in itself, however, furthering the production process, I printed Beatroot using two different types of 3D printers to gauge their performance.



PRODUCTION AND SOFTWARE

After completion, the Beatroot was sent to two different types of 3D printers: a Photon Mono X resin printer and a Dremel 3D45 filament printer. These two methods of printing were chosen to compare and contrast their differences in quality, efficiency, and cost.

The following software was used through VR, iPad, and Desktop development:

- Gravity Sketch
- Shapr3D
- TinkerCAD
- Canva



CONCLUSION

With this technology booming era, computers have already proven to be interwoven into daily life, especially with the prevalent Covid-19 pandemic. Now, softwares are built to construct and aid creates in their architectural designs, and it is my mission to convert the supposedly complex virtual reality into a simple idea that anyone can use.

