# REINCARNATION OF DWARAKA

CS1220 – Augmented and Virtual Reality

**REPORT**


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# CERTIFICATE

This is to certify that the project work entitled "Reincarnation Of Dwaraka" submitted by **Bandaru Eshwar (2020BTechCSE018), Koppunoor Bhanu Prakash Reddy (2020BTechCSE041), Bhupathi Sanjay Kumar (2020BTechCSE096),** towards the partial fulfilment of the requirements for the degree of **Bachelor of Technology in Computer Science Engineering** of JK Lakshmipat University Jaipur is the record of work carried out by them under my supervision and guidance. In my opinion, the submitted work has reached a level required for being accepted.

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# ACKNOWLEDGEMENTS

We would like to express our heartfelt gratitude to Dr. Amit Sinhal, Professor, Institute of Engineering & Technology and Mr. Devendra Bhavsar, Assosiate Professor, Institute of Engineering & Technology for their valuable time and guidance that made the project work a success.

Sincerely yours,

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## ABSTRACT

This project is intended for those who work under stressful circumstances and deal with mental stress on a daily basis. For them, we considered developing a virtual world that would lessen their tension, offer a pleasant experience online, and promote user well-being.

In order to give users a fantastical experience and a historical perspective, we decided to build the project "The Reincarnation of DWARAKA," which is a place associated with Lord Krishna that was submerged for many years ago. All the solid objects generated with the aid of Blender and the environment is created in Unreal in this Virtual Reality project, which is composed of Blender and Unreal engine 5.0.

## INTRODUCTION

The finding of the fabled city of Dwarka, which Sri Krishna is claimed to have founded, is a significant step in confirming the historical applicability of the Mahabharata. It has dispelled the historians' concerns about the historical accuracy of the Mahabharata and the existence of Dwarka city. By demonstrating the continuity of Indian culture from the Vedic period to the present, it has significantly reduced the gap in Indian history. The find has also provided important new information about the so-called "Dark Age's" second urbanisation, the revival of dharma, the restart of maritime trade, and the use of Sanskrit and a modified version of the Indus script.

In addition, scientific information from underwater exploration has been useful for a study of sea level changes and the effects of the marine environment on metals and wood over long stretches of time. All of this was made possible by the courageous and devoted work of the marine archaeologists, researchers, and technicians of the Marine Archaeology Centre of the National Institute of Oceanography. The thorough investigation and excavation of this submerged city began in 1988 with the following objectives and outcomes in mind:

1. In order to determine the size of the port city and the function of the enormous stone walls constructed on the banks of the former Gomati River, the explorations were extended up to the Temple of Samudranarayan (Sea God).
2. Whether the building's design elements matched those mentioned in the Mahabharat.
3. To gather additional supporting evidence for the reclaiming mentioned in the epic.
4. It was necessary to identify the nick point where the Gomati River entered the ocean.
5. What caused the submersion

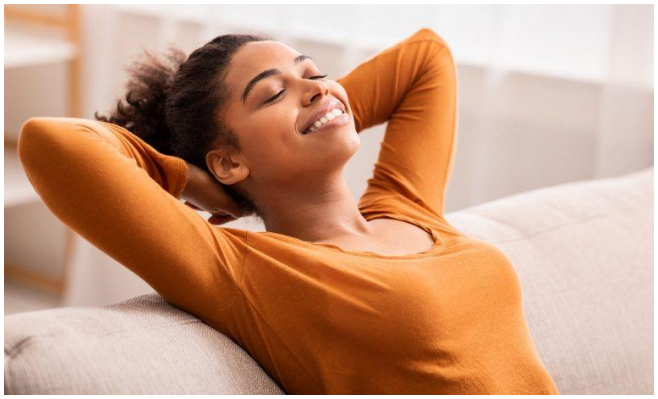
Six blocks, two on the right bank and four on the left, were intended to be used for the construction of Dwarka. Protective walls constructed of dressed sandstone stones surround each of the six sectors. Everything discovered so far is in large part consistent with how Dwarka is described in the Mahabharat. The enclosures, for instance, might match the texts' Antahpurs (harems).

**Problem:**

Most of the people have The majority of people in today's society working over the hours allotted to them and under stressful circumstances, which contributes to mental depression. Therefore, this may have negative effects such as family issues, increased mental tensions, and an inability to finish their task on time.

**SOLUTION:**

Therefore, we came up with a solution: we'd construct a virtual reality environment that relieves workers' tension, gets them moving in their life, connects them to the spiritual world, and gives them mental tranquilly.



## METHODOLOGY

By getting help from some archaeological research papers, we have created the Lost City of Dwarka as a VR environment as per our imagination.

As we know when we want to create something we need to have design knowledge so e also applied design thinking process in our project.
This design thinking process consists of 5 stages:

1. Empathize: research your users' needs.
2. Define: state your users' needs and problems.
3. Ideate: challenge assumptions and create ideas.
4. Prototype: start to create solutions.
5. Test: try your solutions out.

1) **Empathize:** The primary goal of the Empathize stage is to generate the best understanding of your users, their wants, and the issues that are at the root of the creation of the product or service you want to offer.

   After addressing the issue, we conducted study on user requirements and how it will help to lessen their issue. We concluded that in order for them to relieve mental tension and connect spiritually, they need to view various landscapes, monumental and archaeological from their homes.

2) **Define:** You will arrange the data you gathered during the Empathize stage in the Define stage. To define the main issues that you and your team have so far identified, you will analyse your observations. It is necessary to define the issue and problem statement from a human-centered perspective.

   Now a days, all were busy in their professional life. Many are falling into the stress and not able to give their best in their professional life.As all we know India has a great history in archaeological things. It our responsibility to save and secure the greatness of India and spread to the future generations. In the era of computers and virtual reality. It not only helps in education and medical streams. It also helps in securing the ethics of country. These kind of project helps for this society

3) **Ideate:** Designers are prepared to come up with ideas during the third stage of the design thinking process. In the Empathize stage, you developed an understanding of your users and their needs. Then, in the Define stage, you examined your observations to produce a user-centric problem statement. With this strong foundation, you and your team can begin to consider the issue from various angles and come up with creative solutions to your problem statement.

   In order to come up with ideas for solutions, we had to overcome a variety of obstacles. At first, we considered creating a real-time environment that reflected the state of the real world. However, after some deliberations with the team, we decided to design a fantastical environment that reflects our views on architecture and monuments, as well as some spiritual connectivity and stress relief for the populace.

4) **Prototype:** In this experimental stage, which follows the first three, the goal is to find the best solution for each of the issues that were discovered. The solutions are incorporated into

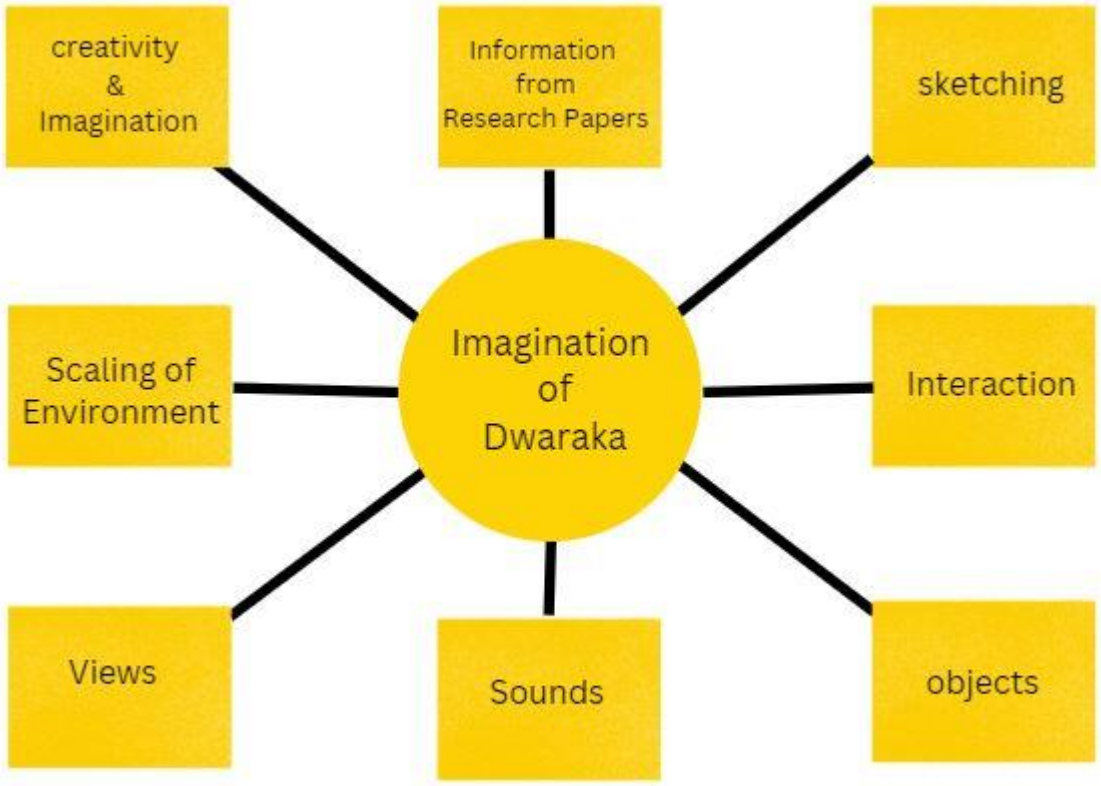
the prototypes, each of which is examined before being approved, modified, or rejected in light of user feedback. The design team will have a better understanding of the product's limitations and issues by the time the prototype stage is complete.

From the research of Indian mythological holy books and research papers on it. the Dwarka is an island was built in western coast of India. It was built by Vishwakarma in Dvapara yuga, in sake of protecting yadavas. At the early stage of Kaliyuga the Dwarka was submerged.

To enrich the ethics and spirituality in people. We tried to reincarnate the Dwarka in virtual environment. The snapshots of Dwarka in virtual environment are shown below

5) **Test:** Using the greatest options found in the Prototype stage, designers or evaluators thoroughly evaluate the entire product. The five-stage model's last step, although in an iterative process like design thinking, the outcomes are frequently utilised to redefine one or more additional challenges. This deeper level of comprehension might enable you to look into the circumstances of use and how users interact with the product. It might even prompt you to go back to an earlier step in the design thinking process.

After completion of our project, we tried our prototype with some users by giving virtual experience of "The reincarnation Of DWARAKA" to them. And we got some positive and negative feedbacks on our project which helps us to improve the project to the best in the best.



**SOFTWARE REQUIREMENTS:**

1) **BLENDER:** Blender is a free and open-source 3D computer graphics software tool set used for creating animated films, visual effects, art, 3D-printed models, motion graphics, interactive 3D applications, virtual reality, and, formerly, video games. Blender's features include 3D modelling, UV mapping, texturing, digital drawing, raster graphics editing, rigging, and skinning, fluid and smoke simulation, particle simulation, soft body simulation, sculpting, animation, match moving, rendering, motion graphics, video editing, and compositing.


Some of the features of Blender:

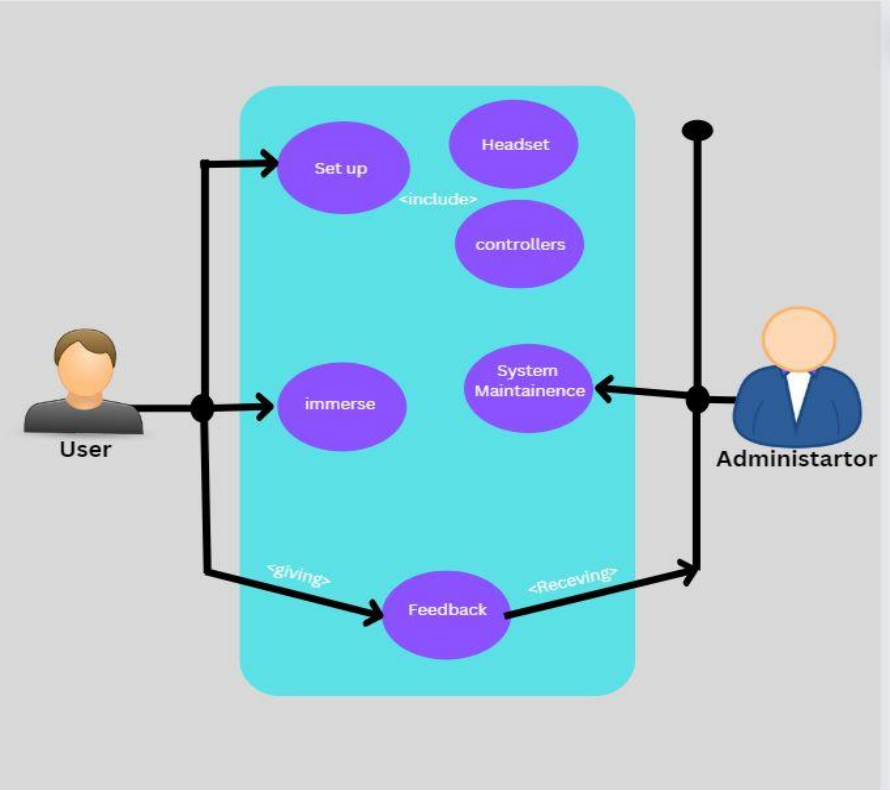
- Modelling: Blender has support for a variety of geometric primitives, including polygon meshes, NURBS surfaces, metaballs, icospheres, text, and an n-gon modeling system called B-mesh. There is also an advanced polygonal modelling system which can be accessed through an edit mode. It supports features such as extrusion, bevelling, and subdividing.
- Sculpting: Digital sculpting at several resolutions is possible with Blender. This includes dynamic topology, "baking," remeshing, re-symmetrizing, and decimation. In the latter, models are made simpler for exporting purposes (an example being game assets).
- Animation: Inverse kinematics, armatures, hooks, curve- and lattice-based deformations, shape keys, non-linear animation, restrictions, and vertex weighting are some of Blender's keyframed animation features. And inside a complete 3D pipeline, its Grease Pencil tools support 2D animation.
- Texturing and shading: Procedural and node-based textures, as well as dynamic painting, vertex painting, weight painting, and projective painting, are all supported by Blender.
- Rendering: Various materials being rendered with the Cycles render engine. A built-in render engine that supports a broad range of output formats and has scanline rendering, indirect lighting, and ambient occlusion; Cycles, a route tracer render engine that can utilise the GPU for rendering. Since Blender 2.65, Cycles has supported the Open Shading Language. Cycles Hybrid Rendering with Optix is available in Version 2.92. The GPU and CPU are used to compute tiles. A new physically based real-time renderer is called EEVEE. It functions as an engine powering Blender's real-time viewport for building objects as well as a renderer for final frames.

2) Unreal Engine 5: Unreal Engine (UE) is a 3D computer graphics game engine developed by Epic Games, first showcased in the 1998 first-person shooter game Unreal. Initially developed for PC first-person shooters, it has since been used in a variety of genres of games and has seen adoption by other industries, most notably the film and television

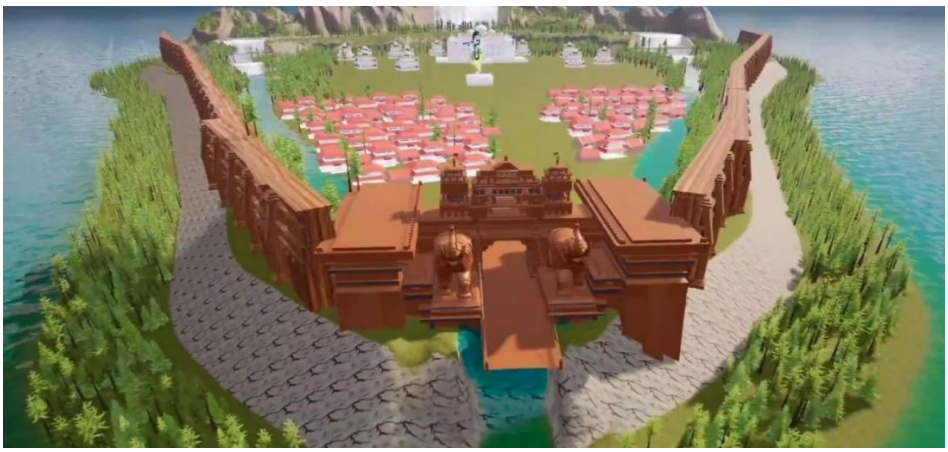
industry. Written in C++, the Unreal Engine features a high degree of portability, supporting a wide range of desktop, mobile, console and virtual reality platforms.

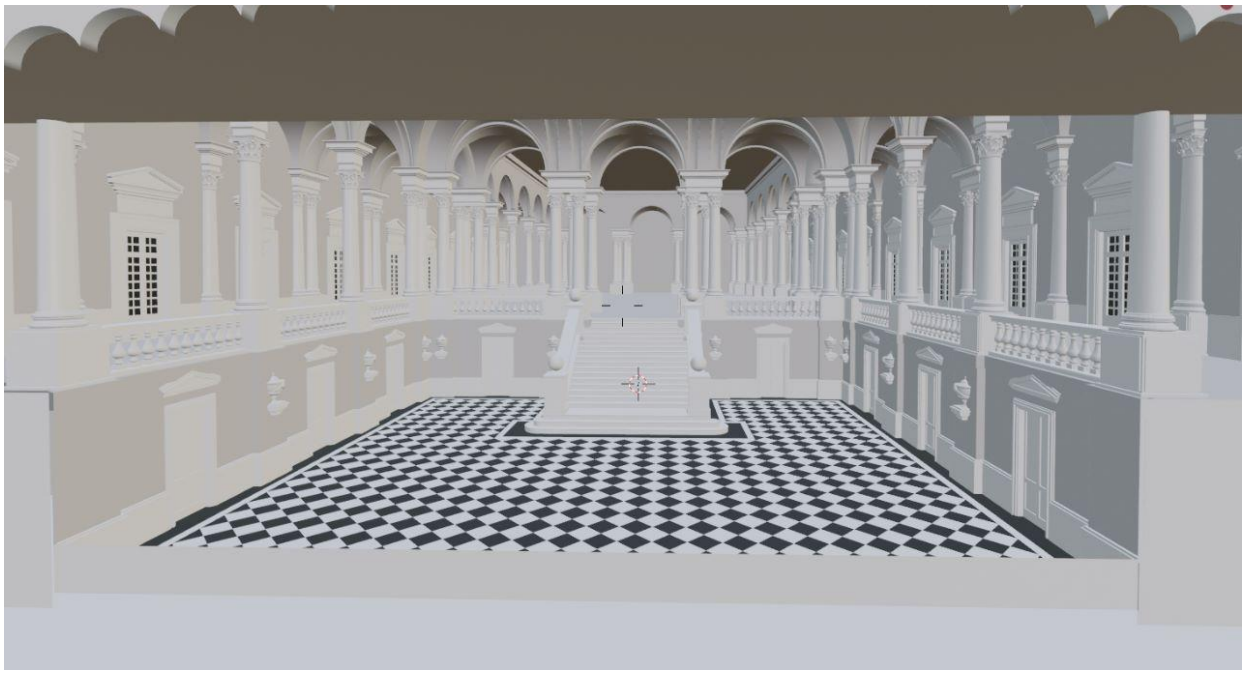
The latest generation, Unreal Engine 5, was launched in April 2022. Its source code is available on GitHub after registering an account, and commercial use is granted based on a royalty model. Epic waives their royalties' margin for games until developers have earned US$1 million in revenue and the fee is waived if developers publish on the Epic Games Store. Epic has included features from acquired companies like Quixel in the engine, which is seen as helped by Fortnite's revenue.

**USER CASE DIAGRAM:**




**SCREENSHOTS OF OUR PROTOTYPE:**





## RESULTS AND DISCUSSION

We have provided virtual reality experience for some of users to know pros and cons in our project. So that we can improve its quality some more better than before. So here we are attaching some feedbacks of our users:

- The goods in the project includes -
  first person view.
  Able to roam to the place according to our willl.
  Designing of the island and the way, how it looks.
- Improvement can be done -
  I think the village can be developed more.
  And I also think we need to work on the Mahals somewhat more.

## CONCLUSION

Thus, the user can get the immersive experience of monument that has been created. User can move and experience the monuments which not able to see in his/her life. By, these kind of monuments helps the society to secure the greatness & history of Indian Architecture.

Video Link: Dwarka Video.mp4

## REFERNCES


1. S. R. Rao, The Lost City of Dwarka. Delhi, India: Aditya Prakashan, 2018.
2. Biblaridion-online.net. [Online]. Available: https://hr.biblaridion-online.net/4099-dwarka-the-home-of-krishna-is-a-gateway-to-heaven-an.html
3. C. V. Nandakumar, "Dwaraka: An immersive storytelling experience represented in virtual reality through a graphic novel," 2020.
4. Researchgate.net. [Online]. Available: https://www.researchgate.net/profile/Kamlesh-Vora/publication/259532506_Underwater_Archaeology_of_Dwarka_and_Somnath_1997-2002_Aryan_Books_International_New_Delhi/links/0046352c6a5b469222000000/Underwater-Archaeology-of-Dwarka-and-Somnath-1997-2002-Aryan-Books-International-New-Delhi.pdf
5. W. H. Siddiqi, "Dwarkadhish Temple, Dwarka," Architecture Plus Design; Bombay, vol. 9, no. 5, p. 24, 1992.
6. V. Nandakumar Chedikulathu, "Dwaraka: An immersive storytelling experience represented in Virtual Reality through a graphic novel," Clemson University, 2020.
7. Wikipedia contributors, "Blender (software)," Wikipedia, The Free Encyclopedia, 25-Nov-2022. [Online]. Available: https://en.wikipedia.org/w/index.php?title=Blender_(software)&oldid=1123787821.
8. "Unreal Engine 5.1 documentation," Unrealengine.com. [Online]. Available: https://docs.unrealengine.com/5.1/en-US/
9. Blender Foundation, "Blender documentation," blender.org. [Online]. Available: https://docs.blender.org/