International Journal of Research Publication and Reviews

Multi-Verse AR

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ABSTRACT-

This paper presents a comprehensive overview of our project Multi-verse AR that based on today's rapidly growing technology Augmented Reality. AR is an interactive experience that enhances real-world environments by overlaying digital information on top of them. The paper begins with the brief introduction of our Multi-verse AR. Next, the paper highlights the problem statement of Augmented Reality in various fields

Keywords- Augmented Reality, Education, Healthcare, Entertainment, Future Scope, 3D models, Diploma, Smartphones, WebAR, Markerless Tracking, Marker-Based Tracking, QR scanning.

I. Introduction

The Multi-verse AR is a WebAR that is based on Mobile Augmented Reality. What does augmented reality mean? The utilisation of information in the form of text, pictures, audio, and other virtual upgrades combined with actual items in the present is known as augmented reality. Multi-verse AR aims to make learning new things easier, more enjoyable, and effective by utilising 3D models in the actual environment. With our Multi-verse AR, the user can have a dynamic and engaging experience that can be helpful in a range of industries, including business, healthcare, and education. Our WebAR-based initiative aims to make the actual world accessible through the camera on your smartphone. By scanning both the simple QR code and the simple image, we can experience the object in augmented reality as both marker-based and markerless AR are offered by us. There are currently various websites that use augmented reality, but our major goal is to introduce augmented reality in the field of diploma and make diploma education easier for students.

II. Problem Statement

Many students find the traditional classroom atmosphere to be boring and uninteresting, which results in a lack of interest and comprehension. Diploma subjects are particularly challenging to learn simply through theory; students require practical examples of some concepts in order to better understand them and gain practical knowledge. Using augmented reality in our   daily lives will make tasks simpler and more engaging because it is a new and advanced form of technology.

III. Literature Survey

These days, augmented reality is used in a wide range of industries. Augmented reality is revolutionising numerous industries.

According to our research, augmented reality was invented in 1968. Sutherland and his colleagues developed "The Sword of Damocles," the first augmented reality object, in 1968. In 1992, Tom Caudell and David Mizell invented the term AR in a paper for computer-presented material.

According to Ronald Azuma's (1997) paper "A Study of Augmented Reality," it discusses several aspects of AR, such as its history, application, problems, and future orientation.

The 2014 publication "Augmented Reality in education: A Review" by S. Dunleavy and M. Dede is a representation of augmented reality in education. It discussed the advantages of augmented reality in education; the many augmented reality learning tools, as well as the difficulties in implementing augmented reality in the educational system.

After reading this article, we discovered that diploma fields have not yet embraced augmented reality, thus we are working to change that in order to make diploma fields simpler to learn.

IV. Methodology

In every industry, the AR is bringing about major changes. AR is a potent tool for making things simpler to understand. After discovering about augmented reality, we started learning more about it. A literature survey let us get a closer look at augmented reality and identify problems that it may be used to resolve. Augmented reality will make learning easier and more engaging for students, especially in the diploma fields. After identifying the problem statement, we developed a project prototype that shows the design of our website. We looked at the best AR software and started creating 3D objects for each model. We created our WebAR in a simpler, more enjoyable manner so that every user can understand it and can use our website effectively.

V. Working of Project

Our Multiverse AR is WebAR. As you visit our website, you will see some QR codes for different objects. An AR-enabled camera-equipped device, such as a smartphone, tablet, or pair of smart glasses, is the foundation of augmented reality. Using computer vision technology, which examines the video stream, the software recognises an object when a user points the gadget at it and stares at it. Similar to how a web browser loads a page using a URL, the device then gets data about the object from the cloud. The AR information is displayed as a 3-D "experience" superimposed on the object as opposed to a 2-D page on a screen, which is a key distinction. Therefore, what the user sees is a combination of the real and the digital.

VI. Existing System

There are some Augmented Reality-based websites and applications. Users are given an immersive and interactive experience by this technology, which improves their impression of reality and makes the activity more enjoyable.

Users find these systems to be efficient, safe, and cost-effective, but there are certain limitations because they were developed for a limited selection of subjects, and it would be impossible to cover every possible topic in augmented reality.

Pokémon Go, Snapchat, Ikea, and many more are examples of existing systems based on augmented reality.

VII. Limitations

There are several limitations had been considered during the design and development process. There are various technological boundaries that are difficult because of problems with tracking precision, lighting, and computing power. These difficulties can affect user experience and are difficult to resolve

without professional knowledge. Since loading 3D models for each object requires a lot of data and takes some time, our WebAR requires a high-speed internet connection to work correctly. Since augmented reality is still in its early stages of development, several devices do not currently support it.

VIII. Future **Direction**

The ability to interact with many things in life in an engaging manner is something that augmented reality is slowly developing in every way.

There are a lot of web AR sites and apps that have been created to experience AR with several such as education, building, automobiles, etc.

Our Multiverse AR is more concentrated on diploma studies.

We have also built augmented reality for our IT field courses.

Students may study the civil, electrical, and with the help of the multiverse AR.

In the future, we will construct augmented reality so that individuals can view their daily tasks and personal lives in a multiverse for more amusement and personal benefits.

IX. Advantages

- More exciting ways to understand the things: Our Multi-verse AR helps students to understand the concepts in fun ways. Students and teachers can virtually enter the actual world and gain a great much more practical knowledge.

- No Hardware Device Needed like virtual reality: Users of Multi-verse AR can use the camera on their smartphones to bring the virtual environment to reality.

- Safe and user-friendly: Our WebAR is secure and user-friendly. We offer a simple, animated website with several instructional videos on how to use Multi-verse AR.
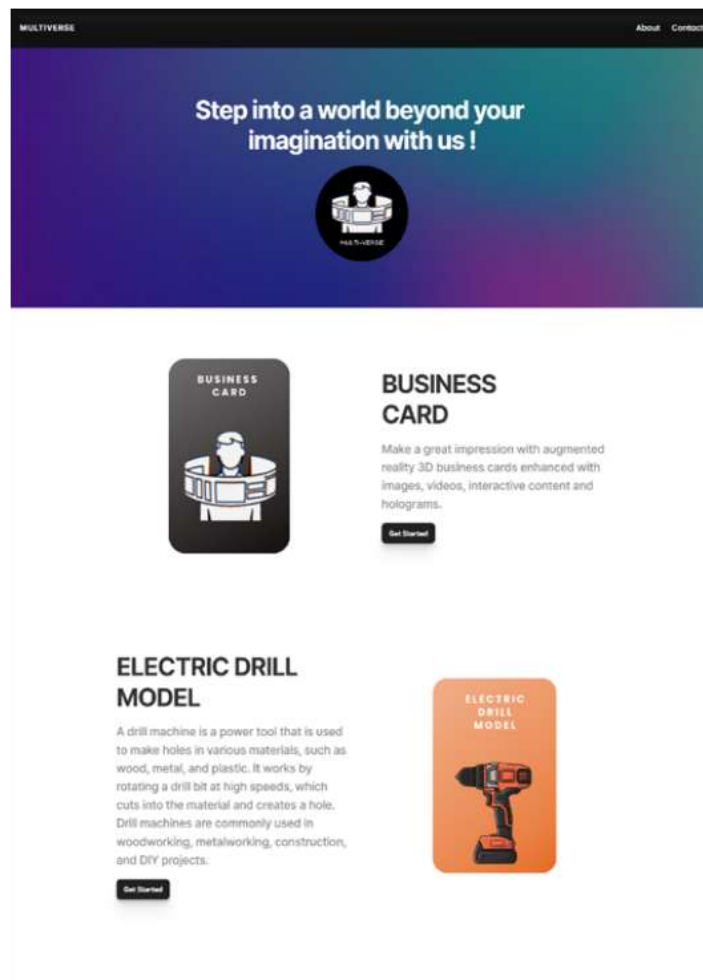
X. Disadvantages

- Limited device compatibility: To run effectively, augmented reality applications frequently need specific hardware and software. The number of devices that can handle Multi-verse AR may be constrained by this, which could reduce the number of possible users.

- Creating 3D items: Producing 3D objects requires a lot of time. We require to pay close attention to every detail when constructing 3D things.

XI. Conclusion

Our extensive research and analysis has already shown that augmented reality could improve the way we design for people. It has been demonstrated that people are better able to understand and appreciate design using AR .

With all the tools and research to back it up, We have to admit that AR can transform the way that design works by encouraging greater transparency and inclusivity between the designer and the community at large.

XII. Reference

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