

Study of Augmented Reality And Virtual Reality

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Abstract- we tend to studied the fundamental of increased reality, computer game and Mixed reality. Also, we tend to had explored however we are able to apply this idea on varied fields. Actually, the applications of increased reality computer game AR Brobdingnagian. however have elect few domains like military, interior style, Education. within the Education we've elect specially 2 topics as Biology and arithmetic. By victimization these ideas, we've tried however we are able to create academics and students straightforward to be told. By victimization this student will simply perceive the math and biology ideas. it'll additionally facilitate in creating a technique for troopers victimization mixed reality as they will see the parcel of land from their base camps serving to them in decision making the conditions throughout war like things.

Keywords- Augmented Reality, Virtual reality, Mixed reality, teachers, students, technology

I. INTRODUCTION

Augmented reality (AR) is a kind of virtual reality. With the help of this technology, people can see the real world with different adding of virtual elements of this world. People can see the real world with the help of different information with the help of visual elements and sounds. So the AR is helpful for the people to see the real world. With the help of this technology, people can see the real world with different adding of visual elements of the real world. The AR is a kind of virtual reality. The AR is a kind of modified reality with the help of information.

Virtual reality (VR) is the use of computer technology to create a simulated environment. The user is immersed within this environment and surrounded with images and sounds that complement the user's physical sensations. VR's popularity is increasing every day, with the technology being used in many industries. The gaming industry is one of its most popular uses, with the Oculus Rift headset being the most popular one used right now. Using VR technology, users can explore the world of a game through their own eyes, allowing them to feel as if they were actually there.

Mixed Reality (MR) is a technology that allows users to interact with digital objects in real-time using their own body. So, what exactly is mixed reality? In a nutshell, mixed reality

is the merging of real and virtual worlds to provide new environments and visualizations where physical and digital objects co-exist and interact in real time. It can be used to create a new experience for a user, or to augment their experience of the real world. This technology is being used in many industries, including healthcare, manufacturing, retail, architecture, and more. The technology is still in its infancy, but it's anticipated that it will be more accessible in the future. For example, in the retail industry, it could be used to create a virtual store, where customers can "try on" clothes or accessories, or even interact with products to learn more about them.

II. LITERATURE REVIEW

Below given is a list of papers we referred. The name or the title of the paper it's publishing year and the name/s of authors is given in a tabular form and also the description of all these papers is also there after the table.

Name	Publishing year	Author
Augmented VR	2018	Antonis Karakottas, Alexandros Papachristou, Alexandros Doumanoglou, Nikolaos Zoulis,
Mixed reality: future dreams seen at the border between real and virtual worlds	2001	H. Tamura, H. Yamamoto, A. Katayama
Mixed reality: Radio-frequency needle replacement	2018	Weixi Si, Xiang Yun Liaoning, Yimling Qian, Qiang Wang
A Light-Field Journey to Virtual Reality	2017	Jingyi Yu
Usage for Inside Design by AR and VR Technology	2020	Nageswarara Rao Moparthi, P. Vidya Sagar, G. Balakrishna
Indoor Marker-based Localization Using Coded Seamless Pattern for Interior Decoration	2007	Shigeru Saito, Atsushi Hiyama, Tomohiro Tanikawa, Michitaka Hirose
Augmented Reality in Education and Training	2012	Kangdon Lee
The Use of AR Elements in the Teaching of Mathematics at a Technical University	2020	Lubov V. Kurzaeva

In the first paper the importance of virtual reality was displayed. Using the traditional VR headsets one can view a particular place or model in 360-degree view. One can also view a video in 3D in 360 degree which makes it very useful in the fields of education and tourism even. It also highlights augmented reality.

The second paper highlights the importance of mixed reality and how it is related to virtual and augmented reality

and it also discusses the notable achievements made in the field of MR.

The next third paper is related to mixed reality and its very important application in medical science. Radio frequency needle replacement is a very crucial surgery but by using this doctors will get a pre brief idea of it.

The next paper the fourth one is related to application of virtual reality and how it can be used in 3D imaging technology. It also focuses on how one can create virtual reality content in very low-cost using computer vision and machine learning.

The fifth research paper highlights very useful yet a unique feature of augmented reality and virtual reality which is useful in our day-to-day life and that is interior designing. Using this trending technology one can really make 3D models of furniture, artifacts and many interior designing products and people can place them in their house where they want which will give them a brief idea of how it will look in that particular place and will give them a brief idea of purchasing the product. This technique will save money of customers and also, they will get satisfaction to a lot extent.

The sixth paper is also based on interior decoration and how one can implement it. It also throws light on position tracking in users' area. The paper also highlights that this technique is cost efficient and a lot loved by the customers.

The next paper flashes light on how augmented reality and virtual reality can be used in the fields of education. What we learned from this research paper was that we can actually make a 3D model of various diagrams in science such as motor, heart, kidney, gears, etc. and a lot more. The student can scan the picture in the textbook and he/she will get a 3D model of that particular diagram. This will give a visual 3D diagram in front of the students and it will be really easy for them to understand the concepts. We also implemented this and were able to successfully able to scan and bring a 3D model on our screen.

Mathematics is really a difficult subject for many people and the next research paper tells us how mathematics can be made easy using this emerging technology. One can bring graphs to life using augmented reality and virtual reality and also many things like solving equations can be made 3D which will be very useful for students to grasp a particular concept.

III. METHODOLOGY/EXPERIMENTAL

So first off we tend to used unity computer code to implement military applications. Unity offers users the flexibility to make games and experiences in each second and 3D, and therefore the engine offers a primary scripting API in C#, for each the Unity editor within the variety of plugins, and games themselves, moreover as drag and drop practicality. Unity could be a second/3D engine and framework that offers you a system for coming up with game or app scenes for 2D, 2.5D and 3D. I say games and apps as a result of I've seen not simply games, however coaching simulators, first-responder applications, and alternative business-focused applications developed with Unity that require to move with 2D/3D area. Unity permits you to move with them via not solely code, however additionally visual parts, and export them to each major mobile platform and a full heap more—for free. (There's additionally a professional version that's terribly nice, however it isn't free. you'll be able to do a formidable quantity with the free version.) Unity supports all major 3D applications and lots of audio formats, and even understands the Photoshop .psd format therefore you'll be able to simply drop a .psd file into a Unity project. Unity permits you to import and assemble assets, write code to move together with your objects, produce or import animations to be used with a sophisticated animation system, and far a lot of. So we tend to created a parcel of land victimization this computer code wherever we tend to tried to make a duplicate of a battleground. it's similar elevations and therefore the troopers at specific positions. Fig(C) displays some a part of the parcel of land that we tend to created. For implementing alternative applications like Educationand Interior coming up with we tend to used Unite AR. Unite AR is AN increased reality platform that allows everybody to make their own increased reality expertise. victimization Unite AR couldbe a terriblystraightforward task. first off add your app basic options. Enter your app name, select the font and app icon for your excellent AR app. Then customize your screens. Apply the options and customize to form your app the most effective app ever. Publish your AR app. therefore we tend to elect target pictures so applied individual 3D model thereto image and therefore the downloaded it's QR code. Then transfer Unite AR app from play store so simply scan the target image or the QR code your model is visible on your device that seems as if it's floating and you'll be able to rotate or scale that model as per your would like. Fig(A) and Fig(B) displays our implementation within the field of Education and Fig(D) displays the implementation within the field of Interior coming up with. Customize to form your app the simplest app ever.

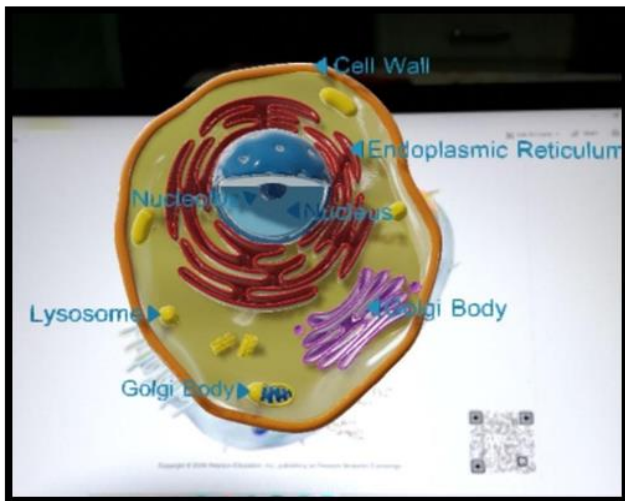


Fig.(A)

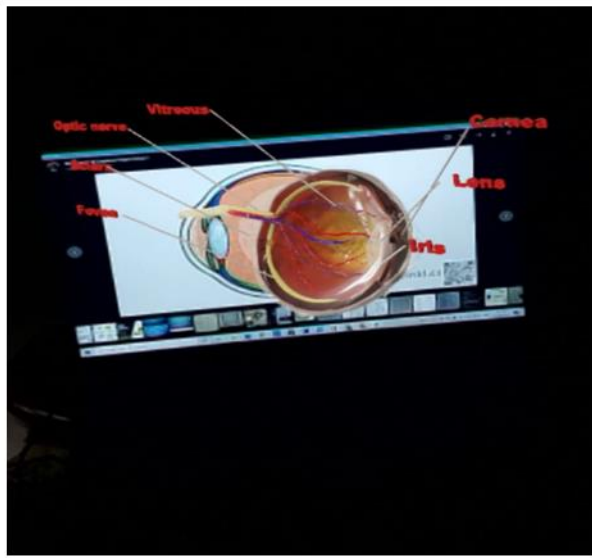


Fig.(B)



Fig.(C)



Fig.(D)

IV. FUTURE SCOPE

We can build a lot of economical computer code similar to Unite AR wherever we are able to embrace a good vary of 3D library. we are able to add a lot of 3D figures that we tend to scan. we are able to add 3D figures in our app associated with education all told fields and increase the library and to incorporate all the figures within the subjects like science and math which can facilitate students to know the ideas well and surpass in this specific subject. {we are able to} additionally add 3D increased reality models for engineering with the assistance of that the scholars can visualize and might create learning a lot of fascinating. the foremost helpful application in Mixed reality is in Surgical applications. it'll provide surgeons offers surgeons the convenience of viewing the X-radiation (CT), and resonance Imaging (MRI) scans of the patients directly in 3D format. this might facilitate surgeons discover the precise a part of the patient's anatomy wherever the operation is to be performed and therefore complete the surgery effectively. Mixed Reality can also be terribly helpful for diverting purpose in fields of vice and gamers can get pleasure from having time with this technology. Our future scope will also include to create our own 3D model library which will be very wide having a lot of objects in various fields including all mentioned above. We will set all the images present in all the most readied books of science and will include all the 3D images in it.

V. CONCLUSION

Increased Reality and video game are key initiatives within the education and planning trade within the close to future. These technologies can offer the industries with the potency and adaptability it needs for its daily operations. Coordination and project coming up with area unit the areas wherever AR/VR technologies can cause potency and influence be the foremost useful. The increasing would like and growing demand for value effective solutions have

conjointly diode to magnified R&D during this field, that has yielded positive situations. The combination of BIM and AR/VR technologies can lead to a decrease in value, quality, and time saving; and this technology is believed to be a game changer for the education and planning industries.

- [7] Kangdon Lee-Augmented Reality in Education and Training-2012
- [8] Lubov V. Kurzaeva-The use of AR element teaching mathematics at technical university-2020

VI. RESULTS AND DISCUSSIONS

Results of our project area unit we tend to were triple-crown in developing 3D increased Reality objects victimization unite AR that we will read employing a Unite AR app by scanning it. The several object would seem on the screen of your mobile. For education we tend to created heart, brain, internal structure of cell, etc. and in interior planning we tend to created seat, table, chair, etc. that we will place on your floor. We tend to conjointly with success created a field of honor parcel of land victimization Unity code. The parcel of land consists mountain ranges, soldiers, vehicles like tanks, military vehicles and their basecamps. We tend to were able to read this parcel of land with success on Unity software. This is very useful in terms of national safety and also the safety of the soldiers due to its applications like remote monitoring, viewing the battlefield from the basecamp and the soldiers can actually give a visit to it by just staying in the basecamp. One may also read this on Microsoft HoloLens if he/she has it.

VII. ACKNOWLEDGMENT

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