



AR USING HEALTHCARE

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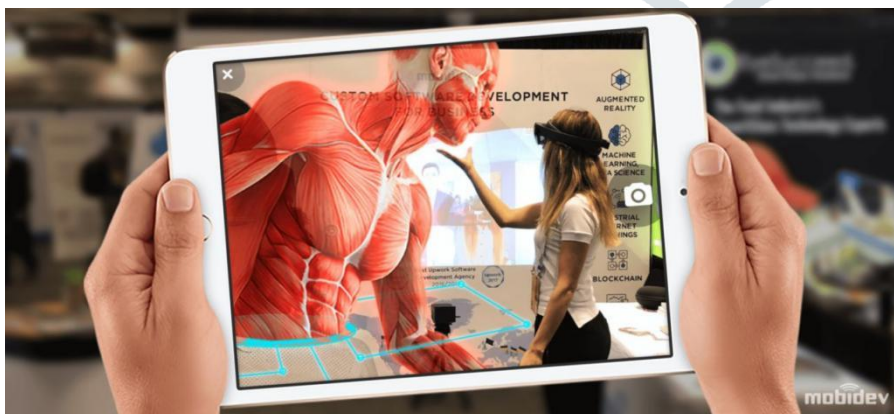
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Abstract :

A relatively new technology called augmented reality (AR) enables the combination of actual ambient inputs and digitally created three-dimensional representations. The use of Augmented Reality (AR) in healthcare has recently advanced, demonstrating how important technology is to the present healthcare system. Augmented reality (AR), in particular, has the ability to provide educational institutions with a highly realistic located learning environment that will facilitate sophisticated medical learning and transfer. The developed augmented healthcare application's goals are to enhance patient care, boost productivity, and cut expenses..

The current COVID-19 pandemic, which has furthered the shift toward online learning, emphasis's these benefits. This article examines the crucial functions of augmented reality-based healthcare solutions and sheds light on both their respective platforms and recently developed ones. It also handles related issues.



Keywords:

Augmented reality (AR), Healthcare applications, Healthcare challenges, AR -based healthcare.

Introduction:

Virtual reality is something that a lot of people are familiar with, and that's even more true now that head-mounted displays have been developed so that users can use their smartphones to experience virtual reality phones. AR is a technology that is quickly evolving. AR-based educational applications, including medical education and training, we are suggest to use augmented reality in the medical student practice on live practical project so student can easy to understand & it can practice also on time. In the medical line doctor can also use this app & it can easy to guide the other doctor & staff member.



AR offers the learners a singular opportunity to get ready for challenging social circumstances. The development of inter-professional abilities, which are essential for healthcare professionals, is also supported by AR.

Despite being frequently seen as a tool to improve knowledge and practical abilities, AR medical training also offers helpful situations to support.

History Of AR

Although AR seems futuristic, it has been around for more than 50 years. Ivan Sutherland at Harvard University and the University of Utah invented augmented reality (AR) in the 1960s, when it first appeared on the scene.

Since its inception, augmented reality has advanced significantly across several industries and applications. In a simple description, augmented reality (AR) is a complicated system that works by a target activating a virtual trigger that brings virtual presences into the users' experience. This target may be voice-activated, a geo-location, an object recognition system, or a patterned marker. The most popular ways to present the virtual component of augmented reality (AR) are by projection onto a see-through display, head-mounted displays, and handheld devices.

Advantages of AR

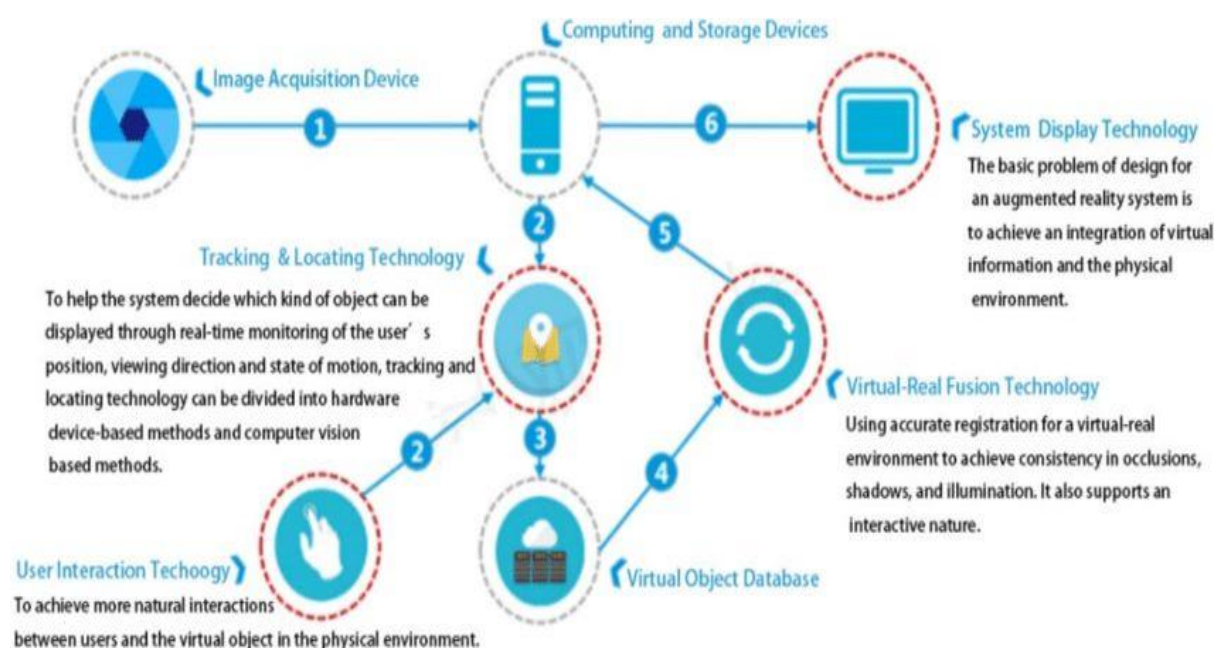
Along with aesthetic, auditory, sensorimotor, olfactory, and haptic things, multisensory objects can also be made. Physical data from many sources can be merged in real time in a

virtual environment. 3-D anatomy data may now be shown overlaid on a patient after years of research. They are frequently produced employing eyewear showcases that superimpose data over the viewer's environment. By easing the obstacles associated with treatment regimens, clinicians can increase production, safety, and efficiency while employing a single AR display. Due to safer procedures and the removal of the need for extra screens, among other things, augmented reality in medicine offers the potential to lower expenses. These days, hospitals must invest in pricey ultrasonography, computed tomography, and systems for bronchoscopy, each with its own display. Additionally, augmented reality does offer a shared display, doing away with the requirement to gradually show each patient's data on a different monitor.

The use of augmented reality is expanding outside the fields of technology, retail, and medicine. People have been developing the idea of augmented reality since the late 1970s. In this post, we'll take a closer look at the advantages of augmented reality in the healthcare sector. You'll discover how augmented reality (AR) can fundamentally alter health insurance in the parts that follow. With the aid of augmented reality (AR) technology, users can overlay digital information onto the way the world is right now.

Augmented Reality in Healthcare:

Nowadays, there is a lot of focus on creating applications for patients and healthcare professionals to utilise directly. A wide range of disciplines, including diagnosis, surgery, rehabilitation, monitoring, guidance, education, etc., may benefit from augmented healthcare solutions. In general, AR technology made the healthcare system more efficient thanks to its wide range of services and platform [29]. The term "AR service platform" refers to a structure that prioritises data organisation, information gathering, and consistent service delivery, as demonstrated in Fig..



Visually driven technologies such as X-rays and CT scans are commonplace in the healthcare sector. Put simply, they help medical professionals to see inside people's bodies to detect, diagnose and treat patients.

Augmented reality can build on these established technologies. With the potential to create accurate and realistic 3D images that can be accessed and scrutinized by practitioners via augmented reality hardware such as the Microsoft HoloLens. This can help to accelerate diagnosis and improve patient care.

Conclusion:

The goal of this study was to determine how an AR mobile application affected the UCT undergraduate health science students' motivation to learn. There is room to investigate the potential of augmented reality to increase student learning motivation and help to improve academic accomplishment, according to the literature, which suggested that there hasn't been enough research done on the effects of employing mobile AR in education. The attention, relevance, certainty, and satisfaction (ARCS) model of motivational design was used to guide the development of the study questions from the literature review. The definition of augmented reality (AR) was defined as the merging of the real and virtual worlds, supplementing the real world with computer-generated virtual items in real-time, and the application of AR in education was discussed. Given that AR may be used very readily through mobile devices, mobile AR was discussed. The mobile app Anatomy D was used in the design as an instructional augmented reality tool.

Future scope:

We are decided to use Augmented reality (AR), in medical line. Means the student can demo live practice using this application. So, student can easily understand what is learning & how it work.

Aim In medical schools, surgical specialties are underrepresented, and anatomy instruction is frequently regarded as inadequate by students. The use of augmented reality (AR) offers a fresh method for enhancing anatomical understanding. In this study, a series of surgeon-led anatomy tutorials will be used to assess AR as a strategy for preparing students for their surgical assignments. Method A 3D anatomical model was projected and small-group renal anatomy courses with an emphasis on transplant operations were delivered using the Microsoft HoloLens 2. Conclusions Medical students enjoy and find AR-based anatomy courses to be more dynamic and engaging than traditional techniques. In addition to conventional approaches, AR provides novel options for enhancing anatomical instruction and surgical training.

Example: A teacher can teach on heart related topic, so the right side of the heart receives blood that is low in oxygen because most has been used up by the brain and body. It pumps this to your lungs, where it picks up a fresh supply of oxygen. So, it's understand is complicated in using AR application student can watch front of on face how it works and it also practice on them. It use is very easy so student can easily understand & also use easily.

References:

- 1) Kevin Johnston, Jacques Ophoff, February 2019, DOI: [10.1155/2019/7208494](https://doi.org/10.1155/2019/7208494)
- 2) Vincenzo Ferrari, Gudrun Klinker, Fabrizio Cutolo
<https://doi.org/10.1155/2019/9321535>
- 3) Stuart Falconer, aha Haq, Dolly Li Chong, Khawaja Aziz
August 2022 , DOI: [10.1093/bjs/znac268.035](https://doi.org/10.1093/bjs/znac268.035)
- 4) Emily S Patterson, July 2021, DOI: [10.1177/15553434211019234](https://doi.org/10.1177/15553434211019234)
- 5) Arash Hadadgar, Egui Zhu, Italo Masiello, Nabil Zary, July 2014,
DOI: [10.7717/peerj.469](https://doi.org/10.7717/peerj.469)
- 6) Emine Pınar Martlı, Nigar Ünlüsoy Dinçer, January 2021,
DOI: [10.5505/pajes.2020.38228](https://doi.org/10.5505/pajes.2020.38228)

