Use of Augmented Reality in Education Field

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ABSTRACT: ***Digital images are commonly used to simulate a concept or simulation model in postsecondary learning. Mechanical systems, from the two dimensional design plan or a 3d Design concept, are not simple for many learners, although. That is why we carry out real system maneuverings associated with various depictions, students particularly with no technical skills. Increased reality will respond to the challenge of linking a depiction to the actual system. Since the use of increased realism in mechanical design teaching methods has not yet been achieved, the challenge was to determine the value of the technique for understanding mechanisms. This study aims to propose method of understanding through the technology of effective teaching reality. In this research, the author uses augmented reality to combine virtual and augmented things in one media, a smart phone in this case. When Aggrandized Reality technology is added to the learning content, the learning process is improved and the incredible and exciting factor in the learning process raised.***

KEYWORDS: Augmented Reality (AR), Learning methods, Training, Education, Information, Modern technology.

INTRODUCTION

AR technique helps in the non-real image information produced by the system to be converted into a directly or indirectly real world situation in actual. AR differs from Virtual Reality because a virtual world created by a machine is supposed to happen to users. The universe is valid by AR but is enhanced by the understanding and imaging of machines. In other words, AR bridges the difference in physical and virtual seamlessness. Both mark or marker-free may be available in AR systems. The understanding the following impacts on the marker includes three basic components, a booklet for descriptions of the markers, a brochure for collecting and transferring data from the brochure to another form of data and a cube for increasing information to 3-dimensional computer-rendered details. Less applications for markers include a tracking system with GPS, a compass and an image analysis device in place of the 3 system components that are focused on a manufacturer [2]. Markers are less applicable since they operate anywhere without specific labelling or other frames of reference.

Many other students have showed that people can improve their reading skills and improve their behavior depends on the virtual and enhanced reality of education. The implementation of AR in training and education is still very difficult despite much work over the past two decades because of problems with incorporating AR with conventional learning methods, costs for creating and maintaining AR and overall aversion towards emerging innovations [3]. Moreover, considering the ability for AR to attract and inspire learners by analyzing and exploiting opportunities from a range of contexts that have not historically been taken into consideration, AR's training and education approach, due to developments in computing and information technology, would be more streamlined and more user-friendly than ever. While many Applications have since the inception of AR in the mid-1960s been built for training and education, it has just started discovery and exploration of its capacity and pragmacy. He stressed that AR is able, from a variety of viewpoint, to involve and encourage students to find possibilities and adjust those to the reality.

AUGMENTED REALITY TECHNOLOGY

Display

an AR display that actually offers a listening aid for connecting physical data to a computer with digital data to provide different effects of the sounds adding to the better experience of the customers and allows the

customers to use the microphone to interact with the application and as a communications tool. AR display consists of two types of the screen.

Optical See Through view (OST).

Semi-transparent display screens displaying virtual data in this form. Mixing of physical world and virtual world is not possible on TV but can be made on the eye's retina. Upon that display style, users don't see the actual world. So, the world your computer creates is what you see. The back camera is usually used to capture images from your external world by your smart phone system and the program mimics the AR icon on the display. See picture here for further information:

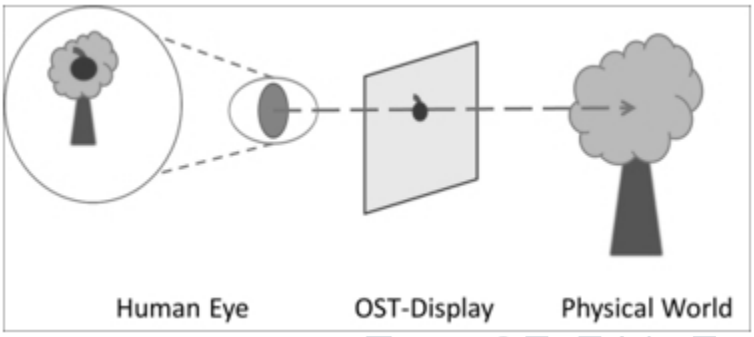


Fig. 1: Optical see-through mechanism

Virtual Objects in AR

The monitor either would become a display carried on or on the head of either the OST or VST displays. The artificial entity is shown on the screen. Many argue that if the virtual entity is positioned in a fixed location on the display screen, this can be named AR, only called AR, unless the object is placed in a certain position within the real world and compared to the system itself. This capability can use accelerometer, GPS, gyro sensor and other sensor characteristics of your system, monitor your place and track your movement. Everything must be in real time.

Interactions in AR

The current trend in consumer AR technologies is VR, where handheld AR applications can be used both indoors and outdoors. It is possible to achieve deux accurate services with a handheld device, as well as the embedded hardware as one way. The methodologies used for registration and engagement are focused on characteristics. It can be found in a number of applications. These are all methods: Real time video generated on your smart phone screen by the rear camera is used in sensors of AR. It uses GPS position data combined with angle sensors including accelerometers and gyroscopes. Place as well as the measures of the orientation are eliminated and monitoring data that used classify virtual items are generated. The negative side of this approach is the imprecision of the GPS characteristics that allow virtual objects to be placed.

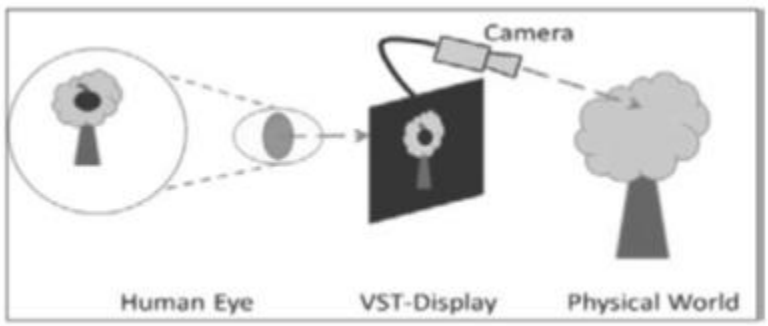


Fig. 2: Video see-through mechanics

In addition, the GPS feature often upgrades its position in a fixed period, which sometimes prevents AR application (laughter), particularly if you move quickly. The tech company is abandoned. The AR approach through vision is another common form of AR. Obtained real-world data evaluated with algorithms from the computer vision analyze static images in order to recognize the identifiable features of the camera. This method produces the artifacts and users location information. Digital and real-world artifacts are the benefit of using this method, to placing them in the right position and location. This can also implemented for the detection of the 3D as well as the 2D markers. This function is now expanding with the natural marker that can be used with established artifacts.

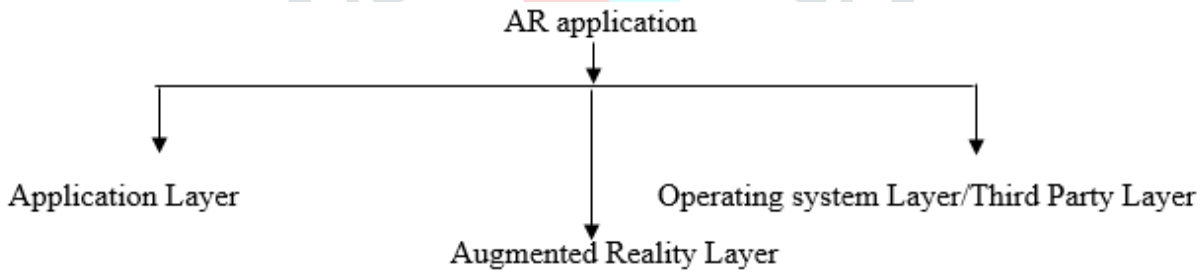
Marker

A marker is used to view virtual objects in AR; marker is useful in the notification of apps to visualize virtual objects. The shape of the marker may be 2D or 3D. Read markers with image processing techniques in application inside the system. Most programs are labeled with a QR or barcode, while others use images or actual 3D objects. In the context of AR, marker can be used by software as position identification must be registered before displaying the virtual object.

Human relations in the application for the enhanced reality can vary; (1) the user of a smart phone can interact and communicate by tapping the screen; (2) Secondary method by means of a screen mounted on the overhead in which the screen displays the enhanced realities coupled in the head (e.g. Microsoft HoloLens, etc.)

AR ARCHITECTURE

The AR Architecture can be classified into three layers, viz:



An application layer refers to the logical framework of the application, with the software architecture integrated in the application layer all properties (environment, object and character) connected. The AR layer focuses on AR objects, screens and AR design interfaces. The operating system and the AR archive are OS Framework or third-party portion.

LITERATURE REVIEW

This paper discusses the value of augmented reality as an advanced learning tool with numerous use scenarios. It will be shown which multiple teaching and learning targets can be accomplished by using this technology in training with a particular focus on realistic learning scenarios in the industrial environment. This article aims at improving education and training to fulfill the digitalization needs more effectively. This study outlines the implications of the increased reality in popular society and in education and explores the teaching and learning potential of technology. We reaffirm that learners are creating increased realities in order to enhance their abilities to think better, because of the prominence of the reality in education applications for transmission of information. An illustration of student work resulted in augmented expectations of logical reasoning, as well as the critical thinking is used to present a test case of 'learning by nature' Virtual Reality in high school Visual Art [1]. This study reviews many literatures on mobile augmented reality knowledge, and exemplifies educational potential.

Integration has provided new ways to enhance the coherence of learning as well as the educational practices. AR was one of the newest technologies for a modern way of learning before now. Popularization of smart phones globally, the broad utilization of AR on portable devices like smart phones and Tablets has grown [2]. The article explores the use of VR as well as the AR technology progressed underneath the Integrated SKILLS Program for IMA. AR as well as the VR innovations are now commonly considered to be effective educational instruments for particularly stressful IMA activities. However, contrary to conventional training methods, their performance and efficacy must be empirically tested [3]. The whole work developed a new concept and design for multi - modal enhanced reparation and assembly learning based on reality that includes sub competency training and evaluation of training equipment. Building on these expertise and the appropriate approaches, since processing techniques are seen as the most essential skills in service and assembly operations [4]. This paper discusses the design and implementation of YouMove and its interactive mirror, and also presents a user study in which a factor of 2 showed that YouMove improved learning and short-term retention compared to a traditional video demonstration [5]. This paper presents an extended basis for future work by providing in the AEC sector a systematic study of the development of AR.

In this review, the discourse in these reviews is further reduced by only reviewing those 133 papers found in a search for "increased fact." In the following aspects, selected journal papers are grouped: Improved focus, business field, audience goal, project stage, product saturation point, area of deployment, relative position and innovation [6]. This paper explores the different applications of the Augmented Reality (AR) technologies in different educational fields. AR is a device which allows 3D structures created by computers to overlay the real data in real time. There has been a boom in AR applications in all information technology fields in the last few years. The paper explicitly explains the features of AR systems and their existing uses in various fields of education and training, such as mathematics, technology, and medicine [7]. This study explored recent trends and research methods in the growing software industry, its implementations and its usage in teaching, studying and training. In order to identify strengths and weaknesses and pick appropriate ones in teaching, learning and training, hundreds of augmented reality technologies, their areas of use and functional uses were researched [8]. The study's aim is to analyze the potential of augmented reality technologies to meet the challenges outlined above. This paper recognizes the promise of augmented reality as a creative learning tool showing multiple usage cases to accomplish this goal. It will be shown which multiple teaching and learning targets can be accomplished by using this technology in training with a particular focus on realistic learning scenarios in the industrial environment [9].

CONCLUSION

In influential newspapers and journal articles, AR's prospects as a visualization method is brilliant as shown by its interests in especially in corporate circles including in the fields of education and training. There still remain numerous questions of performance, particularly considering the investments needed in development and research, compared to conventional methods. In forthcoming training and education, moreover, there is indeed a lot of hope for ARIn fact, emerging technology and information exchange will be well and advanced to integrate actual memories with something most in a collaboratively transparent manner. This allows AR to offer experiences through desktop computers and Smart phones.

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