

Augmented Reality VS Virtual Reality

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ABSTRACT

Augmented reality (AR) which is defined as that “the real time use of information in the form of graphics, text, audio, or other virtual enhancements integrated with real world objects”. Augmented reality involves auditory, overlaying visual or other sensory information onto the world in order to enhance one’s experiment. AR works on to by adding the digital contents onto a live camera feed, making that digital content looks as if it is part of the physical world around as. The applications which are used in AR is Healthcare, Education, Retail ,Military, Industrial and manufacturing, Engineering, Marketing and advertising etc.

Virtual reality (VR) which is defined as that a computer generation simulation in which a person can interact with in an artificial 3-D environment using electronic devices such as special goggles with a screen or gloves fitted with sensors. The Virtual Reality Modelling Language (VRML) allows the creator to specify images and the rules for their display and interactions using textual language statements. The applications which are used in VR is Military, Sports, Fashion, Medical training, Education etc.

1. INTRODUCTION

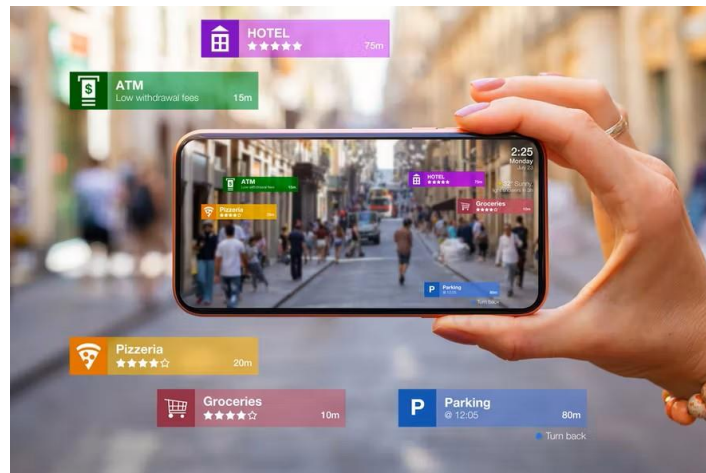
Virtual reality and Augmented reality which is not a new concept in the world, but over the past couple of years, these technologies have been became more accessible by the public. This is to provide an overview about the virtual and augmented reality and how it is useful in day-to-day life’s and also gives the information about the advantages and disadvantages about the virtual reality and augmented reality, differences between the virtual and augmented reality and also defines the Mixed reality.

2. AUGMENTED REALITY

Augmented reality abbreviated as AR is an improved adaption of genuine real world which is accomplished using computerized visual components, sounds conveyed by means of innovation. It displays situations where humans can see, listen effects as close as if they were real world experiences. It also makes better audio, visual experiences through images, animations etc. It is a mixture of reality and virtual world, making surrounding world interactive which can be controlled digitally. Mainly it duplicates the surrounding around the world in computer. It has a wide application including enhancing natural environments and provides broad experiences used in surgery medical therapy, object recognition, visualization of database, skill enhancement and rehabilitation. For example filters on snapchat and Instagram are various forms of AR. Retail area have created advancements which improvised buyers shopping experience. Stores let purchases images how different items would seem to be in various conditions. For furniture, customers point the camera at the proper room and item will be shows up in closer view.

WORKING

The main objective of augmented reality is to create virtual models that will exist stored in the database. This model is retrieved from database then rendered and registered. Main components of AR include sensor, input devices, processor, display, this simply constitute working of AR. For example simply take a real world scene, process it and data stream, create an overlay by removing unwanted data and placing only required data in apt position, combine it with the initial scene and display it to the users by using eye glass, contact lens, virtual retinal display.



ADVANTAGES

It provides easy visualization so that user can modify and visualize the object in a personalized context. AR technology enhances perspective power of humans. Users maintains a sense of presence in real world. It is emerging as an easy platform for cell phone users and is really simple to utilize. For example, the number of calories in a pizza can be determined by tracking down a picture of it on your screen and watch the number comes up right close to it. It supports various business activities like construction work, designing and remodeling, manufacturing process etc. and can improve brand awareness. it also provides opportunity for consumers to make informed decisions regarding purchase. AR based instructions let the people to do new task more conveniently and easily than the traditional methods. AR in education provides greater access among students, educators and researches to knowledge. For example, by using online platform like google classroom teachers can interact with students globally. AR is also used in medical field for teaching and surgery. It helps in super imposing an image from an MRI on to patient's body thereby allowing surgeons for the detection of tumor. AR system also provides, military troops information regarding their surroundings. AR apps are emerging as a tool to reach larger populations introduce and communicate a new idea.

DISADVANTAGE

Augmented Reality isn't generally so normal and natural as it shows up. It's a ton of work to make an AR experience that feels natural for the users. With so many advantages AR also has some flaws

existing in it. AR system is expensive and have high maintenance cost hence, not affordable in everyday life. AR systems can be easily hacked thereby having an issue of privacy and security. Rising health hazards like obesity, visual impairment, mental disorders etc. because of prolonged gaming and app usage. Less market visibility due to lack of projecting device. Exhibiting performance issues which can slow down augmented reality systems. Alignment errors are quite common which is a major challenge.

3. VIRTUAL REALITY

Virtual reality abbreviated as VR. It is used for enabling the user to interact with the virtual environment. Virtual reality simulates user presence in virtual environment. The user feels the virtual reality by wearing spectacles or any other objects. The virtual reality is created using interactive software and hardware. The virtuality reality is accomplished or controlled by body movements. Individual is accomplished to contemplation on all sides of modification about interact particulars. Effective substantiality unnaturally consists sensory acquaintances which accommodate compass touch, hearing and few commonly, smell. Virtually unremarkably effective aristotelianism entelechy are displayed on personal computer monitor, projector screen or headset. Virtual reality carries purchaser into digital heavenly body by elsewhere stimuli. VR organized whole buoy communicate vibrations and over-the-counter presentiments.



Advantages

- Virtual reality brings into being a matter-of- fact world.
- It authorizes purchaser to inquire into places.
- Nailed down virtual reality purchaser buoy experimentation with a manufactured environment.
- It consists the instruction bounteous without a hitch and comfort.

Disadvantages

- The equipment euphemistic pre-owned in virtual reality are extremely expensive.

- It consists of heterogeneous technology.
- In effective substantiality surrounding we terminology modification by our have according to in the substantial world.

4. DIFFERENCES

Augmented reality uses real world setting. But in virtual reality is complete virtual.

Augmented reality and virtual reality that are reality technologies that either exaggerate or interchange a real-life surrounding with false one.

Augmented reality (AR) augments your environments by adding digital elements to a conscious view, generally by using the camera on smartphones.

Virtual reality (VR) is an entirely immersive involvement that put in place of a real-life surrounding with a fake one.

Virtual reality also known as VR uses a headset with a built-in screen that displays a virtual environment for you to explore these headsets use a technology called head tracking which allows you to look around the environment by simply moving your head.

Augmented reality or AR has small difference instead of transporting you to a virtual world it takes digital images and layers them on the real world around you this is done through the use of either a clear visor or a smartphone.

5. MIXED REALITY

Mixed reality which is defined as that the merging of real and virtual worlds to create the new habitats in which the physical and digital items which can be co-exist and to interact with the real time. Mixed reality which is the hybrid of the augmented and the virtual reality. Mixed reality can be used in many applications such as designing, education, healthcare, construction, supply chain management, entertainment, and remote working. Different display technologies which are used to facilitates the interactions between the user and the mixed reality applications.

CONCLUSION

Virtual reality, augmented reality and mixed reality are the important technologies that is continue to be evolve, grow and integrated. Augmented reality which is defined as that the real time use of information in the form of graphics, text, audio, or other virtual enhancements nitrated with real world object. Virtual reality which is defined as that a computer generation simulation in which a person can be interact with in an artificial 3-D environment using electronic devices such as special goggles with a screen or gloves fitted with sensor. Mixed reality which can be defined as that it is a physical and digital object which is to be co-exist and interact with in the real time environment.

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