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"Augmented reality in entertainment"

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ABSTRACT :

The basic idea of Augmented Reality is to super imposing graphics, audio and other sense enhancements over a real world environment in real time. Augmented Reality is still in an early stage of research and development at various universities and high-tech companies. Eventually, possible by the end of this decade. We will see first mass marketed Augmented Reality system, which one researcher calls "the Walkman of 21st century". What augmented Reality attempts to do is not only superimposing graphics over a real environment in real time, but also change those graphics over a real environment in real time, but also changes that graphics.

Keywords: scene generator, tracking system, display, Optical see-through HMD, video see-through HMD, Virtual retinal system.

I. INTRODUCTION

Augmented reality is new technology that involves the over lay off computer graphics on the real world. One of the best over views of the technology is that defined the field described many problems and summarized the developments up to that point.

Augmented reality technology has the potential to revolutionize the entertainment industry. By over laying digital information and graphics on to the physical world, AR can enhance live events, movies, and video games in ways that where previously un imaginable.

One of the most exciting applications of AR in entertainment is live events. imagine attending a concert and being able to see the lyrics to a song displayed in front of you, or visual effects that enhance the performance on stage.AR could also be used to create interactive experiences for attendees, such as allowing them to take photos with virtual version of their favourite performers. In the film and television industry, AR could be used to create more immersive and interactive viewings experiences. For example, a movie theatre could used AR to project special effects on to the walls and ceiling or to give audience numbers the ability to choose their own camera angles during the films or for any scenes.

Video games are another area where AR could have a major impact. Imagine playing a first person shooter game and being able to see enemy positions and other relevant information displayed in your field of vision. AR could also be used to create more realistic training simulations for military and first responders. The use of AR in the entertainment industry has the potential to create unique and engaging experiences that blend the digital and physical worlds in exciting new ways.

Fig 1 : The above fig shows example of AR.

II. AR COMPONENTS

Scene Generator

The scene generator is the device or software responsible for rendering the scene. Rendering is not currently one of the major problems in AR, because a few virtual objects need to be drawn, and they often do not necessarily have to be realistically render in order to serve the purpose of applications.

Tracking System

The tracking system is one of the most important problems on AR systems mostly because of the registration problems. The objects in the real and virtual worlds must be properly aligned with respect to each other, or the illusion that the two worlds coexist will be compromised. For the industry, many applications demand accurate this registration, specially on medical systems.

Display

The technology for AR is still in development and solutions depend on design decisions. Most of the displays devices for AR are HMD (head mounted display), but other solutions can be found.
When combining the real and virtual world to two basic choices are available: optical and video technology. Each of them has some trade offs depending on factors like resolution, flexibility, field-of-view, registration strategies, among others.
Display technology continues to be a limiting factor in the development of AR systems. There are still no see-through displays that have sufficient brightness, resolution, field of view, and contrast to seamlessly blend a wide range of real and virtual imagery. Further-more, many technologies that began to approach these goals are not yet sufficiently small, light weight, and low-cost.

AR DEVICES

The major classes of augmented reality are can be distinguished by their display type: optical see-through, virtual retinal system, video see-through, monitor based AR.

OPTICAL SEE-THROUGH HMD

Optical See-Through AR uses a transparent head mounted display to show the virtual environment directly over the real world. It works by placing optical combiners in front of the user's eyes. these combiners are also partially reflective, so that the user sees virtual images bounced off the combiners from head -mounted-monitors.
Prime examples of an optical see through AR system are the various augmented medical systems. the MIT image guided surgery has concentrated on brain surgery.

Fig : the above fig is optical see through HMD.

Virtual Retinal Systems

The VRD aim was to produce a full colour, wide field of view, high resolution, high brightness, low cost virtual display. It has the exclusive license to commercialize the VRD technology these technology has potential applications from head-mounted displays for military, aerospace applications etc.

Fig: Virtual Retinal System

The VRD projects a modulated beam of light directly onto the retina of the eye producing a rasterized image.

VIDEO SEE-THROUGH HMD

Video see through AR uses opaque HMD to display merged video of the VE and view from cameras on the HMD.
This approach is a bit more complex then optical see through AR, requiring proper location of the cameras. However, video composition of the real and virtual worlds is much easier. They are variety of solutions available including chroma-key and depth mapping.

MONITOR BASED

Monitor based AR also uses merged video streams but the display conventional desktop monitor or a hand held display. It is perhaps the least difficult AR setup, as its eliminates HMD issues. Princeton video image, including. Has developed a technique for merging graphics into a real time video streams. Their work is regular seen has the first down line in American football games.
It is also used for placing advertising logo's into various broadcasts.

Fig : the figure shows monitor based example.

III .APPLICATIONS

***MUSIC*:**
AR could be used to enhance music festivals and concerts by adding digital elements to the physical environment. For example, an AR app could display the lyrics to a song as it is being performed, or it could add visual effects that enhance the performance on stage.

THEATER:

AR could be used to enhance plays and other live performance by adding digital elements to the physical environment. For example, an AR app could display set designs or special effects, or it could provide additional information about the characters and the story.

MOVIES:

AR could be used to create more immersive and interactive viewing experiences in movie theatre. for example, a theatre could use AR to project special effects onto the walls and ceiling are to give audience members the ability to choose there own camera angles during a film.

VIDEO GAMES:

AR could be used to create more immersive and interactive gaming experiences. For example, an AR game could allow players to see digital elements overlaid on the physical world, such as enemy positions or special power-ups. AR could also be used to create more realistic training simulations for military and first responders.

IV. CONCLUSION

The role of augmented reality in the entertainment industry is significant and growing. AR has the potential to revolutionize the way experience movies, live events, and video games by adding digital elements to the physical world. With its ability to create immersive and interactive experiences, AR has the potential to change the way we consume entertainment and could lead to the creation of entirely new forms of entertainment. In fact, it is fast evolving in other industries to at an unparalleled speed.

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