

Emerging Applications of Augmented Reality System for Future Industry

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Abstract- Augmented Reality (AR) makes the real-life environment about us into a digital interface by putting virtual objects in real time. It Augmented Reality Apps are software applications which merge the digital visual (audio and other types also) content into the user's real-world environment. This project focus on the use of desktop display interfaces for applications of augmented reality (AR), there are including the games, education, business, medical, etc. This type of interface, the user is able to look at a screen and see the computer-generated graphics displayed above markers. In AR process overviews of desktop display interface alleviate most of the problems associated with head mounted displays (HMDs). AR applications also require removing real objects from the perceived environment in addition to adding virtual real objects environment

Keywords— Augmented Reality, Computer generated, 3D view, GPS, Construction industry, Education, Environment.

I. INTRODUCTION

This technology has advanced to the realism in computer game is incredibly accomplishable but in our obsession to breed the planet human expertise in virtual area in overlook the most important aspect at makes us who are our reality^[1]. It enough just to trick the eye or pool the body and mind one must capture the immigration in order to create compelling experience. It creates imperishable computer-generated environment and the real world games, business, education, medical, GPS, construction industry, 3d view augmented reality is closer to the real world are AR adds graphics and sounds. Hatpins and small to the natural world picture you as it exists^[3]. AR will truly change the way of view the world picture self walking or drinking down the sheet with augmented reality display which will eventually look much like a normal pair at empathetic glasses. These input range from sound to video to graphics to GPS^[4] overlays and move AR will be implemented 3D assembly presentation at the specific function the advantages. In this paper propose an approach by which a user can create own 3d augmented reality scenes that enable interaction between the real world environment^[2-5]. AR to occupy its place in our audio-visual media and to be used in various fields in our life such as news, sports, electronic commerce, design. In addition AR used in the learning whereas it enables student to access location specific information provided through various sources^[4]. This paper provides the inclusive study of AR including its history, architecture, applications, current challenges and future trends. AR technology has advanced so has the way of visualizing simulations and information. Even

though users cover out 3G and Google map, it takes a consideration to be familiar to the surrounding^[5]. GPS drive/walk navigation and AR GPS compass map 3D virtual reality^[5-6].

II.FUTURE OF AUGUMENTED REALITY

Augmented Reality is the technology which captured our imagination like for our work. This technology as often presented as the futuristic technology. AR being science based concept to science based reality. AR has developed from consumer space to corporate space.



Figure 1. Augmented Reality

AR has been a time when the cost of augmented reality was so important that the designers could only vision of working on design projects that are involved in it but now it has changed and is available on mobile phones and mobile apps as well. According to the expert, the AR market could be worth \$122 billion by 2024 to mix the reality with fictions in

images. There are some more challenges in AR that are still to resolution. For ex: GPS is only accurate to within 30 feet and does not work in indoors but with improved image recognition technology it may get resolved.

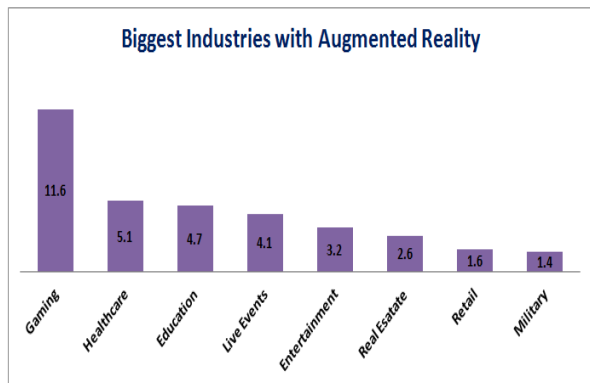


Figure 2.Future Industry For AR

AR technology has many more propose to the industry than just the entertainment. In the year 2025, the Healthcare industry will generate the returns of approximately \$5 billion and some technology insiders expect to see the most advancement in the healthcare industry because of augmented reality technology. The Travel industry is expected to detonation as 84% of customers worldwide, among which the 42% believes that in AR is the future of travel and tourism. The future will along AR when it becomes to improving the task efficiency or the quality of the output of an experience for the user.

III. WHAT IS AUGUMENTED REALITY

AR technology that superimposes a computer-generated image on a user's view of the real world thus provided that a composite view in physical world. AR technology was dost not create the artificial environment. But just to replace with the virtual one instead it appears in direct 3D view of the existing environment. Now-a-days AR development and adds the sounds, image, video, graphics, etc. This technology has many applications developmental in models, but it also provides the rich audiovisual experience is the primary objective.



Figure 3.Virtual Reality

This technology works on employee the automated simulation and technique such as image and speech identification. This technology is the improved version of realty where help with the super-imposed computer-generated images, live direct view and indirect views of the physical world environment are augmented reality. AR in current enhances into constructing a building view in reality can play a major task.

III. AR-APPS IN 3D VIEWERS

Augment it allows to using see their products in 3D assembly in a real-life environment. This app is accessible on equally, IOS and android platform. Augment is a mobile app that lets an your customers imagine your 3D models in Augmented Reality, incorporated in real time in their actual size and environment.



Figure 4. AR 3D View

IV. AUGUMENTED REALITY IN BROWSERS

Augmented reality will be a expensive adding to a lot of accessible web pages. For example, it can help populace learn on education sites, and allow prospective buyers to imagine objects in their home online shopping.

A. ARGON4

AR browser is a very popular way to implement AR technology on mobile phones for its impressive cross-platform feature. This is a fully-featured web browser that has the ability to put on view augmented reality. It allows any 3D view of reality to be augmented. These AR applications, which are built in AR browsers, provide another angle to get extended information about the physical world and try to take AR technology to more and more populace with smart phones.

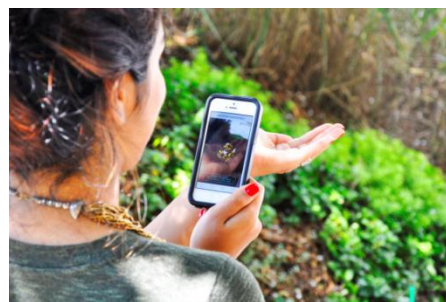


Figure5. AR Browser

B. AR Browser SDK

This browser allows the users to add augmented reality geo-location view to the Android and IOS application in less than 5 minutes. AR SDKs offer advance technology and tools to create the AR solutions for the AR apps developing. It is open source java platform in independent software. They contain many important fundamentals functions for the image, recognition, and different other software algorithms for ARK it, ARCore (Google), Wikitude, ARToolKit there are software package in AR technology elements.



Figure6. AR Browser SDK

V.MEDICAL

AR technology is used to medical students practice the surgery in a controlled environment. AR in surgery is also a proven application of this technology. According to the AR technology have developed ultra sound technology where ultra sound technicians and patients can view the ultra sound image all through a smart glass. This kind of portable ultra sound is especially important in developing economies in terms of portability and affordability.

Augmedics uses AR technology use to reduce surgery time, invasiveness in spinal surgery. Surgeons wear a HUD where the insides of the patients can be clearly visible as a result of which lot of procedures can be done externally without much incisions and invasiveness. This reduces surgical complications also the recovery time. Google glass helps mothers with breastfeeding their babies. It also reduces the dangers of operation by giving the surgery improved sensory perception for AR technology.



Figure7. AR With Medical

VI.MILITARY

AR technology for the military industry, using many technologically advanced means gaining tactical advantage and primacy. The Army always try to the influence technological advancement and usually stands in the advance guard of innovation development.

Virtual reality is already being used for many purposes. But AR proposed on just started gaining its momentum in the military, but the first concepts and prototypes already look like something from the sci-fi movies about futuristic warfare. AR technology is used for the simulation for training purposes and the important data such as adversary location can also be accessible with the help of AR technology to the soldiers within their line of display.



Figure8. AR with Military

VII. AUGMENTED REALITY IN GPS

A. AR GPS Drive/Walk Navigation

The application makes use of the Smartphone's GPS and camera to execute a car navigation system with an augmented. AR technology is now using by the world head of in GPS navigation technology, allowing a virtual cover up to live cameras in real-time environment. Well, now with the latest application of Augmented Reality (AR) to the world's leading GPS navigation system, blindly following a purely animated GPS map while on the road is a thing of the past. The new AR feature is not only intuitive, but it's also safer than traditional navigation apps. Drivers can rest assured they won't miss anything crucial on roads or highways, as the real-time camera preview enables them to check conditions on the screen without impacting driving safety.



Figure9

B. AR GPS Compass Map 3D

The app also allows the users to share their current location and the locations of their waypoints with their friends. Locating landmarks (e.g. via autonomy / longitude) has certainly not been easier thanks to a green pointer on top of the compass that always points en route for the currently selected familiar sight. Our unique fusion and filtering algorithm that combines the values of the magnetic field sensor, the accelerometer, and the gyroscope gives you a maximum in precision and stability of the compass.



Figure10

VIII. AUGUMENTED REALITY IN GAMES

With advanced technology of the computing power and gaming applications in AR are on the upswing. Some the popular like games including Pokémon Go, Real strike, Temple Treasure hunt, etc have created a awareness and excitement in customers for gaming.

A. Pokémon go

It uses real locations to encourage players to far and wide in the real world to discover Pokémon. AR "Pokémon Go" has brought the **technology** to a brand new audience. The **game** offers an "AR taster," where players can experiment with location tracking and virtual **game** play with familiar characters that have entered the collective consciousness. Pokémon GO has let us use our phones and camera to overlay Pokémon onto a view of the real world since launch, but the execution has always been a bit simple. As the only sensor it really cared about was the phone's gyroscope, Pokémon just sort of floated about in the space in front? AR games use of these have been all age of group in people world. AR game works with all mobile device and android Smartphone's creatures the everyday background.



Figure11

B. Real strike

This is popular 3D-shooting AR game which is available only on IOS. Real Strike is one of the popular technologies for AR games, then designed for persons who love shooting in the virtual combat zone. This is AR-based video game convert your surroundings into a military base. In this app is the world's first augmented reality First-person shooting (FPS) game. Do check below YouTube video to see it in action. While playing this Augmented reality game at night, you can also use thermal and night vision for your shooting mission.



Figure12

IX. SCOPE OF AUGUMENTED REALITY

There are many industries that can be impacted augmented Reality and can be a potential market this technology is development. Marketers need to understand and 3D view of customers. There are many developments:

A. Manufacturing

Complex assembly: AR there was only workers and handle tools and long work under one individual product. Then Henry Ford introduces the idea of conveyor line and the speed of production assembly significantly increased. Now-a-days in much more type of cases, it is entirely automatic, and in some areas live workforce is still exceptional.

Augmented reality applications will provide the workers can be visual display of the parts and details to gather the information about the required instruments for every step. They may also highlight for completed over the pieces, give the whole 3D training. And what are even more important, AR devices like smart glasses enables hands-free world.

B. Real estate

Augmented Reality putting in real estate to fortify the land business by its one of a kind impressions offering convenient and proficient approach to sell or purchase properties for both manufacturers and purchasers. The way AR is getting so conventional for potential purchasers; it's not too early to state that fate of augmented reality in real estate looks brilliant. Putting augmented reality in real estate resembles to convey unrest to the business. By its inimitable attribution, a

purchaser can pick best property alternatives and settle on a choice quickly with no doubt.



Figure13

B. Automotive

AR technology is used for many types of purpose in the automotive industry. Across many different industries and sectors, AR has been used as a tool to better educate customers, particularly regarding technical information. The ability to overlay technical data onto real world objects (i.e. cars, showrooms) to provide customers with contextual information that they can interact with, is much more compelling as an augmented reality experience than it is through more traditional channels such as online or video. AR global supplier of automotive parts, needed an interactive tool to help with the communicate their assurance to technology and innovation, as well as educate their customers about the finer details of their products. Working together we created an 'x-ray car' AR experience at the Auto mechanic show in Frankfurt. Customer engagement at the event increased compared to previous shows and the AR experience is currently being used by Delphi's sales team across Europe technology.



Figure14

C. Education

Nowadays 80% of young people own Smartphone's. AR technology in a variety of ways could contribution student's extra digital information about any subject, and make multipart information easier to understand and learning. AR has truly brought the unlimited potential for teaching and

learning process. This technology making the head AR glasses using education for learn about the 3D virtual reality live.

Augmented Reality in education is the use of AR apps openly in the classroom. In this technology used and they can help the teacher teaching a subject, present a visual image of the material, and they can help students for test out their knowledge in practice. In this technology using for medical students can also try their real view for surgery on without injuring patients and future astronauts can understand.



Figure15

.E. Travel and tourism: AR is among the countries that grasped AR opportunities to create attractive shows and draw tourists. Street cipher, road maps that help navigate and travel around cities, hotel room tours in the world. In the travel & tourism industry has AR technology has an important role by viewing routes and direction through GPS/navigation mobile apps. It translates the cipher on the street and gives the information about visiting the attractions. It also adds a layer of extra reality to museums which ensure about the user's practice with new tradition with culture. This technology helps GPS tracker to locate the destination of your journey and locate you in the easiest way on the route.



Figure16

F. Retail

Augmented reality has established the strong traction in the retail industry. In this technology, with use of the AR technology businesses using to provide the new level of interaction between the customers their products, either online purchases in-store. AR apps provide the shoppers

direct product information and comparison with other retailers when they position their mobile phones, which allow them to set a partiality for their requirements. In retail augmented reality has myriads of opportunities. This technology will be virtual correct rooms to help customers choose on the size or a color of a product.

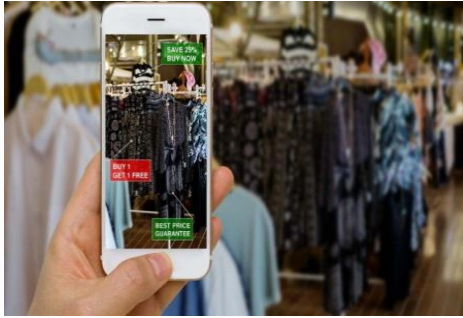


Figure17

X. CONCLUSION

Augmented Reality (AR) is a technology that has altered the face of Smartphone's apps, business, education, and gaming. AR apps act as a magic window for the viewers that let them see the holograms and manipulate 3d models. **Augmented reality** is inverse reflections of one in another, regarding what each technology wants to accomplish. **Augmented reality** overlays virtual elements in the real world, with including virtual reality in live 3D view a real-life setting. AR technology is always providing latest improvement in the world. Future work will be electronic glasses using view on the reality environment in the industry.

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