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## Virtual Reality

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### ABSTRACT

Virtual reality is an experience that puts the user into a simulated environment meant to reproduce the feelings we experience in our real life. It uses computer technology to place the user inside this reality instead of having him to look at a screen. It tries to simulate as many of our senses as possible such as sound, smell, vision, touch etc. to immerse us into the virtual world. They are used in entertainment industries to put the users in the media they are using, in the military to provide them with the real life situations the soldiers may face or in the learning and education department to provide them with deep learning of their courses.

### INTRODUCTION

Virtual reality or VR is an artificial set of images, sounds, smells etc. produces by a computer to create a simulated environment that incorporated auditory, visual, haptic and other types of sensory feedback. This technology can be used to create environment similar to the real world that is not possible experience in conventional physical reality or may be highly risky to do so. The advantage of virtual reality over other mediums is that user does not even need to leave the safety and comfort of his house in order to experience the virtual world.

Although virtual reality has come to the public attention since the 1980s, it is only the last decade

that the VR headsets have seen such an increase in sales. New hardware has entered the consumer market providing affordable pricing models but also completely new technologies are being designed and developed simultaneously. The beginnings of modern-day virtual reality can be traced back to 2012 when a Kickstarter project named Oculus Rift was introduced with the purpose of providing an affordable high-quality Head-Mounted Display (HMD) to the public. The latest version of Oculus Rift S has LCD display, 2560x1440 resolution per eye, an 80 Hz refresh rate, tracking and positional capabilities. The device also features a 110-degree field of view and integrated headphones with 3D audio effect.

VR still has a long way to go and still huge developments have to be made to make in indistinguishable from the real world and make it cheap, affordable and easy to use for the normal everyday user.

### Implementation of Virtual Reality

Virtual Reality has a huge scope of implementation in the current generation. But the most important and common use of this technology must be from the entertainment sector. Videos and movies may try to put the user in their world using this

technology and provide even greater entertainment. But the largest user base of the VR from this sector goes to the gaming industry. Unlike movies and videos where you see the from a third person perspective of the world the characters their reside, video games let you control your character and has always tried to put you in their shoes it is in. So, it was inevitable that they use VR too to immerse us even more into this world.

VR devices used in the game industry are enabled with interactive software and hardware. The VR games can be experienced or controlled by the movement of the body. Thus, the user, with a virtual reality headset can move around the artificial world. Moreover, the user can interact with the 3D creatures that appear on the screen. According to the survey “Global revenues of VR in the gaming industry were \$4.3 billion in 2015.” The new age of virtual reality has started after the announcement of the first prototypes of Oculus VR and Samsung Gear VR. The VR headset is equipped with the hand controllers and tracking technology to offer user outstanding experience.

Virtual Reality offers the potential for an extremely engaging and immersive experience that could present real opportunities for learning and development. By harnessing the technology of VR, medical trainers have an opportunity to complement existing training by allowing employees to do something that’s relatively rare when it comes traditional learning avenues in the medical profession. VR essentially offers medical professionals the opportunity to rehearse and tailor new skills and knowledge in an extremely realistic environment without the associated risks.

With its ability to provide a flexible range of simulations, VR remains the most effective and widely used option for military training. Traditional boot camps used artificial weapons to provide training to the soldiers, which did not offer real-life experience. Now, with the use of VR, the military creates boot camps that include caves, motion trackers, vests, and weapons to provide better training to the soldiers. In extreme environments like jungle and desserts, navigation and teamwork are crucial. VR helps soldiers to train in such environments. VR is helping soldiers to get trained in handling fighter planes, submarines, and ground

vehicles without a need to get into an actual vehicle. The VR simulators also provide the data and feedback about the reaction of the soldiers during different scenarios. The data about the reaction can be used to deliver customized training to the soldier. It was practically impossible in traditional training procedures to train medical personnel under the conditions of war-like surroundings. But, now, with the use of VR, medical personnel can be placed into virtual close-to-combat scenarios. For example, a trainee can be placed in a simulated vehicle with a prosthetic body to immerse him in a warzone-like environment. Virtual scenarios allow medical professionals to practice different skills under stressful conditions.

## Future of Virtual Reality

Virtual Reality is one of the technologies with the highest projected potential for growth. The experience they provide right now to the average user is mostly auditory and visual. It still has a long way to go to provide simulations of touch, smell and other senses. Also, VR is not currently user-friendly or feasible. Users have to have a separate room with open space dedicated for using VR. It has to be set up with lots of wires and cables. Also, wearing the heavy headset for long durations is not also possible too. In future, these limitations are sure to be overcome and a more immersive experience is bound to be achieved.

## Conclusion

Virtual reality offers both challenges and opportunities for the entertainment and educational sector. VR technologies can be used as an educational and training tool with the advantages of being fully controllable, practical and out of danger. With the progress in 3D visualization technologies, an increasing range of teaching and training material can be utilized in virtual reality environments.

Virtual reality shows a lot of promise for the future as it gives an immersive experience for a user. Thus, businesses may leverage this key feature and

take a step further in their product and services advancement.

Despite all the obstacles, the VR market is developing, especially in gaming, and in enterprise segments. The tendency goes towards virtual reality becoming mainstream in the near future. So, it's inevitable that those businesses that start implementing VR solutions into their processes have great chances to dominate the market.

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