

VR IMPLEMENTATION TODAY

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332

VR and AR are defined. The spheres of their application are considered and compared. The companies that are investing in the development of the technologies of the future are mentioned.

Virtual reality devices gain popularity day by day and they will soon become as functional as mobile phones. With the help of such devices, users will be able to do the shopping, attend mass events, look around the house they would like to buy and do many other actions without even leaving their home. The advantages of this technology are obvious: it is convenient and saves a lot of time [1].

Virtual Reality (VR) is a simulated experience that can be similar to or completely different from the real world. Augmented Reality (AR) can be defined as a system that incorporates three basic features: a combination of real and virtual worlds, real-time interaction, and accurate 3D registration of virtual and real objects [2]. Further, where we will discuss the application of VR technologies, we will mean both VR and AR.

To immerse yourself in the virtual reality you need special equipment such as the headset, a device like a thick pair of goggles that goes over your eyes. The popular ones are Oculus Rift, HTC Vive, Sony PlayStation VR, Samsung Gear VR and others. The companies, which produce equipment, also create and support games for these devices. Among the most popular VR games are Astro Bot Rescue Mission, Beat Saber and Job Simulator.

To experience VR deeply you can use a special costume. For example, from the company Teslasuit, which is invented and developed in Belarus. This costume provides users with sensation and a sense of touch in virtual and augmented reality. This electro-stimulation improves the learning experience by increasing immersion, fostering 360-degree awareness, and engaging muscle memory.

Virtual and augmented reality projects can not only create conceptually new markets, but also expand existing ones. According to the Goldman Sachs Global Investment Research (January 13, 2016) there are nine spheres of the application of VR/AR technology. Among them, there are video games, live events, video entertainment, retail, real estate, education, healthcare, engineering and military [3].

Video games.

VR technology heightens the quality of video games by completely immersing a user in a virtual world while AR technology can turn your physical world into a videogame canvas. VR video games are seen as the first consumer market to develop because both the hardware and software are further along in development (compared to the other VR applications). The gamer community is also eagerly awaiting the technology.

Belarusian companies also make VR games. Wargaming together with VRTech have developed World of Tanks VR. The game is designed for halls with virtual reality with the effect of full immersion.

Live events.

The next use case for VR technologies is the streaming of live events. You can feel like you are physically attending the event with the best seat in the house. It also solves the problem with the limited seating at events and makes events essentially available to anyone and anywhere.

One of the first companies, which stream live events, was NextVR. It cooperates with major sports federations: NBA and Turner Sports. NextVR specialists launched the first virtual broadcast of a sports match on October 27, 2015.

Video entertaining.

You may think that video entertainment is quite similar to video gaming, but it is not true. This sphere is about movies and TV entertainment. Instead of watching a movie on two-dimensional screens, users can be completely immersed in the film. Similar to videogames, creating content is a key challenge for virtual reality video entertainment. To gain the full VR experience, movies must be filmed with a 360-degree camera that means current films cannot simply be ported over. VR is essentially a new storytelling format that will require different writing and producing techniques than traditional movies and TV.

Retail.

The sphere of retail is about shopping on the Internet.

Home Improvement store Lowe's has a "Holeroom" at six of its stores where shoppers can configure kitchens and bathrooms and view their designs with Oculus devices.

Microsoft and Volvo announced a partnership and have performed a demo where HoloLens can be used by consumers to configure cars at a dealership.

With the help of VR you can see how clothes look on you without physically trying them on. It is the third. The key challenge is developing software that works with VR/AR devices for these specific commerce use cases.

Real estate.

Typically, clients visit multiple properties before deciding on the one they want. This requires a lot of time and things get complicated if a property is far from where a client lives. In this case, visiting a property is not only time-consuming but can be expensive. VR technology helps solve these problems, allowing

millions of people to virtually visit properties without leaving their homes. Simply put on a VR headset and you can experience immersive, three-dimensional walkthroughs of properties. In a matter of minutes, potential buyers or renters can virtually visit dozens of locations and decide which are worth visiting in person.

Education.

We believe VR/AR technology has the potential to be a standard tool in education and could revolutionize the way in which students are taught. Teachers can use VR/AR as a way for students to interact with objects in a 3D environment. For example, students can learn about the solar system or a historical event by interacting with those virtual worlds. Google is offering Cardboard to schools for free and has already developed over 100 "virtual field trips." We are also seeing traction of virtual reality at the higher end of the market with medical schools experimenting with AR.

Healthcare.

We see several use cases for VR/AR technology in healthcare:

as a tool to aid doctors in medical procedures and day to-day tasks,
for physical therapy and to treat phobias like fear of heights,
to increase access to doctors through virtual visits.

1. When Google Glass was first introduced, Google offered select hospitals Glass devices to test the product. During these trials, surgeons used Google Glass for a range of functions, like projecting CT scans and MRIS on to the field of vision as he or she would operate, scanning bar codes to gain basic medical information about the patient, and alerting the doctor with lab results.

2. In the therapy use case, VR can treat patients with anxiety disorders (such as PTSD) or phobias. These virtual worlds can create artificial, controlled stimuli in order to habituate the patient to those environments that cause anxiety. VR can also be used to rehabilitate patients, such as amputees.

3. We also see an opportunity for VR/AR to increase consumer access to doctors. Doctors are already conducting video-based visits and VR can enhance that experience.

Engineering.

We see VR/AR technology disrupting both the computer-aided manufacturing (CAM) and computer-aided design (CAD) markets. In product manufacturing, VR/AR can enable engineers to test scenarios and designs before the products are made, driving productivity and cutting down on the cost of wasted materials. According to Forbes, Ford has been using virtual technology to design cars since 2000.

Military.

The US military has been using virtual reality for training purposes since at least 2012 with proprietary hardware and software. Examples of simulations currently used include flight simulations, battlefield simulations, and medic training. These simulations help soldiers train for dangerous settings in a more cost-effective manner than traditional approaches.

To conclude, it should be noted that VR undoubtedly will be a part of our life and will bring many benefits. To my mind, one of the most important spheres of application of VR is healthcare, because thanks to VR technologies many people can be cured and saved.

References:

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