Mixed Reality

→ *blending the physical world with the digital world*

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Mixed reality (MR) is the next evolution in human, computer, and environment interaction and unlocks possibilities that were restricted to our imaginations. It is made possible by advancements in computer vision, graphical processing power, display technology, and input systems.
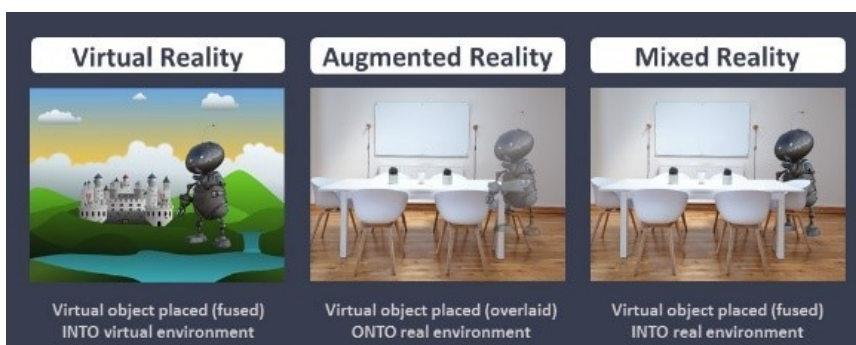
The Background of MR

The first immersive mixed reality system that provided enveloping sight, sound, and touch was the Virtual Fixtures platform, which was developed in 1992 at the Armstrong Laboratories of the United States Air Force. The project demonstrated that human performance could be significantly amplified, by overlaying spatially registered virtual objects on top of a person's direct view of a real physical environment.

Environmental input and perception

Environmental input captures things like a person's position in the world (e.g. head tracking), surfaces and boundaries (e.g. spatial mapping and scene understanding), ambient lighting, environmental sound, object recognition, and location.

Understanding the Difference Between the HoloLens, Google Glass, and the Oculus

The Microsoft HoloLens is mixed reality (virtual and real objects interact), Google Glass is Augmented Reality (virtual objects overlay real environments), and the Oculus or HTC Vive is Virtual Reality (a purely virtual world).


Virtual Reality	Augmented Reality	Mixed Reality
Virtual object placed (fused) INTO virtual environment	Virtual object placed (overlaid) ONTO real environment	Virtual object placed (fused) INTO real environment

GETTING THE MOST FROM MIXED REALITY

A magic leap of MR

⊕ MR Rationalizing Classroom and Teaching

One of the most important factors that usually helps students understand a particular topic or concept related to a subject is the practical demonstration of the concept. The benefits of MR into educational classes includes Gamification of learning, Virtual labs, more engaging, fun and effective learning experience, eliminates the problem of accessibility as well as the lack of physical infrastructures
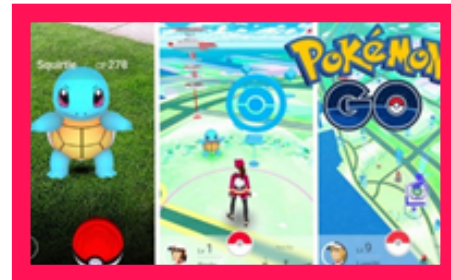

⊕ MR Revamping Gaming Industry

The mixed reality technology in the gaming sector can not only help the players to visualize the entire scenario of the game but also make the players feel that they are an integral part of the game. The players can witness a 360-degree view of the locations and hence could visualize every part of the game in 3D format. Some of the successful examples of mixed reality games on Android and iPhone till date are SpecTrek, Ingress, Gbanga, and Pokémon Go.

⊕ MR Revolutionizing Healthcare

Mixed Reality combines the real world with the virtual to create solutions that we never thought possible and has found an integral place and application in healthcare. It provides better quality treatment and customer experience.Mixed reality technology offers surgeons the convenience of viewing the Computed Tomography (CT), and Magnetic Resonance Imaging (MRI) scans of the patients directly in 3D format. This could help surgeons detect the specific part of the patient's anatomy where the operation is to be performed and hence complete the surgery effectively.
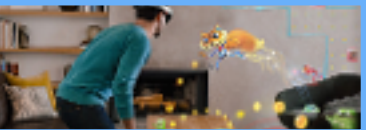
⊕ MR Refurbishing Business

Mixed Reality is empowering new scenarios in training, coaching, remote work, and other enterprise functions.As the industry evolves and the technology improves, mixed reality would surprise the industry by crossing over with other emerging technologies, such as machine learning and artificial intelligence, or with internet of things applications, creating a unified,high-tech ecosystem of intelligent products.

Mixed Reality: a reality ahead of VR and AR