Chapter 16
An Augmented Reality (AR) Experience for Lorenzo Lotto

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ABSTRACT

Virtual interactive experience created for the Picture gallery of Jesi (Italy). Namely, three interactive works realized with Unreal Engine 4 to give the spectator a greater immersiveness on the immortal pictures of Lorenzo Lotto. The goal was achieved by creating three choreographies with audio supervised by a historian, recreation of the works with three-dimensional graphics and a specially composed soundtrack by Tecla Zorzi. The augmented reality (AR) application was realized specifically for Android tablets.

AR AND VR IN GAMIFICATION: NEW WAYS TO EXPERIENCE REALITY (MIXED REALITY, LAST FRONTIERS OF GAMIFICATION)

Thanks to new software and hardware technologies, the user can experience ever more immersive and tangible experiences from our senses.

Thanks to special viewers that isolate the user from the surrounding environment, Virtual Reality allows to enter an immaterial space, digitally created and to live it not through the perception of a luminous rectangle, like the screen, but through a spherical projection that develops around the user. Through these new devices, the user can turn his head and look at this world from the angle he prefers, moving inside thanks to joysticks or more advanced devices that allow the real movement of the body. Thanks to gesture technology and hand recognition, the experience becomes even more realistic and immersive, bringing the user to have a "tactile" relationship with virtual objects: although he cannot actually touch them, he is able to manipulate them with same gestures that he would carry out in reality. VR is used in entertainment and gaming, creating more and more engaging gaming experiences.

Figure 1.

Initially used to build HUDs[1], the latest Augmented Reality technology is very different, allowing us to enrich the world around us with digital content. In this way, the user is not estranged from the real world, never losing visual contact with it, but rather enriching it with digital interactive content.

The fields of application of AR are manifold, from the simple display of useful information in places like stations and roads (let's think of Google Maps AR), up to the interaction between public and work in a museum.

Recent examples are the Google Street View AR, which recognizes buildings and streets and allows orientation through digital road signs, and Google Lens, a tool that allows the recognition of texts, their translation, the recognition of objects and products.

A Military Jet HUD

The Mixed Reality superimposes the virtual reality to the physical one observing the real world by drawing information in AR or allows to see and move virtual objects that interact with the analog world perfectly integrated with the environment.

The landing on the market is still far away but in recent years many experiments have been made, one of these is Microsoft's HoloLens: a device, similar to a helmet for VR technology, which includes transparent lenses that allow the visualization of one's field visual and information about it in AR. HoloLens can be adapted to different types of applications, from assistance in the construction and maintenance of any project to playful applications such as the visualization of the Minecraft world on one's home table, allowing for complete interaction.

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