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MEDST 235

Professor

Assignment #1

Profile: Virtual Worlds

Steven Spielberg directed “Ready Player One,” a movie based on the best-selling novel by Ernest Cline. Set in a futuristic world, humans find salvation and an escape from the chaos of their world in a virtual world called the Oasis. To get into the Oasis, players must wear a VR (virtual reality) headset and full body gear. Ernest Cline created her novel based on the advancement of virtual reality technology. But few people know enough about virtual reality and where does it come from?

What we know as virtual reality today is the creation of computer-simulated illusions that people can experience like the real world. From that concept, a virtual world was developed entirely made of computer-based simulations. These worlds are then populated by users through the creation of personal avatars, which allows users to simultaneous and independently explore these virtual worlds. Through their respective avatars, users can participate in various virtual activities, as well as communicate with users worldwide. But the world of virtual reality came about long before the term, or even computers, were a thing.

The first attempt at creating a virtual reality started in the 19th century with the creation of 360-degree murals. These paintings were intended to fill the viewer’s entire field of vision, thus creating a sense of realism around a historical event or scene.

In 1838, English scientist and inventor Charles Wheatstone created the first stereoscope, using twin mirrors to project a single image. This gave users a sense of depth and a wider image of the photos. Wheatstone’s invention was developed by his research that explained how the brain processed the different two-dimensional images from each eye into a single object of three dimensions.

In 1929, Edward Link invented a device called the “link trainer,” also known as the blue box. An aviation pioneer, Link developed an early flight simulator that was driven by motors to simulate pitch and roll when pilots were learning to fly. The device was created as a prototype of a plane with a built-in motor that simulated the scene of turbulence and disturbances during a flight. More than 500,000 pilots used the new technology to improve their skills during World War II.

The technology was later developed into the View-Master in 1939 by William Gruber, and was used for virtual tourism. The View-Master’s design is used in today’s virtual technologies, like the Google Cardboard or VR headset devices.

Virtual reality technology took hold of the Hollywood film industry years later. Cinematographer Morton Heilig developed the Sensorama in the 1950s, which became known as the “cinema of the future”. Since films are created through sound and image, Heilig used that concept to enhance the viewing of films into a three-dimensional projection. The Sensorama was an arcade-style theatre cabinet that would stimulate all the viewer’s senses depending on the sights and sounds from the film. Audiences would then experience the film in a virtual manner. The Sensorama’s features were stereo speakers, a stereoscopic 3D display, fans, smell generators, and a vibrating chair. Heilig created six short films that were viewed on the Sensorama, titled *Motorcycle*, *Belly Dancer*, *Dune Buggy*, *Helicopter*, *A Date with Sabina*, and *I’m a Coca-Cola Bottle*. Unfortunately, the Sensorama wasn’t successful, but it did create a new innovation for 3D cinema and virtual reality machines.

 In 1960, Heilig patented the Telesphere Mask, the first virtual reality head-mounted display. The headset displayed a stereoscopic 3D and a wide vision with stereo sound connected to miniaturize TV tubes. The Telesphere Mask wasn’t successful either, but it was taken and adapted by the military. In 1961, two Philco Corporation engineers developed the first head-mounted display known as the Headsight. This device wasn’t developed for virtual reality, but for use of surveillance technology. The Headsight was built with a video screen for each eye and a magnetic motion tracking system linked to a closed-circuit camera. Although the Headsight was the precursor to virtual reality head-mounted displays, it lacked the involvement of a computer and image generation.

In 1965, Ivan Sutherhold invented what he called “The Ultimate Display”, a head-mounted device that he believed was the “window into a virtual world”. Sutherhold was a computer scientist and electrical engineer. His concepts behind “The Ultimate Display” were to simulate reality to the point where one could not tell the difference from actual reality through a head-mounted device and 3D sounds and images. The device was created on a computer hardware system to create a virtual world in a real time setting, allowing users to interact with objects in a realistic manner.

In Sutherland’s own words, “The Ultimate Display would, of course, be a room within which the computer can control the existence of matter. A chair displayed in such a room would be good enough to sit in. Handcuffs displayed would be confining, and a bullet displayed in such a room would be fatal. With appropriate programming such a display could literally be the Wonderland into which Alice walked.”

Three years later, Sutherland went off to invent a continuation of a new virtual reality technology, the Sword of Damocles. This was the first virtual reality and augmented reality head-mounted display that was connected to a computer. It was a built contraption hanging from the ceiling and the user was strapped into the device. The device was developed on computer-generated graphics, basic wireframes, and objects.

In 1969, computer artist Myron W. Krueger developed a series of projects on the nature of human creativity in virtual worlds that he called, “Artificial Reality”. Most of his progression projects were the Glowflow, Metaplay, and the Psychic Space – which all led to the Videoplace technology. This technology enabled users to communicate in a computer-generated environment worldwide.

The term “virtual reality” wasn’t created until the mid-1980s. John Lanier, founder of the Visual Programming Lab (VPL) developed the virtual reality gear that included gloves and a head-mounted device with the purpose of enabling the user to move around the virtual world.

Later in the 90s, virtual reality machines became accessible to the public since it was still financially out of reach for the average household. The Virtuality Group launched a range of virtual arcade machines.

The famous gaming company SEGA created the VR headset for the Sega Genesis console in 1993, which remained a prototype, but was used to develop today’s VR gaming accessories for Sony’s gaming console, PlayStation 4.

Overall, the purpose of virtual reality technologies has mainly been entertainment, but it has also served the science and military communities. Virtual reality in the 21st century is more complex, where it is controlled through Internet-based systems. VR headsets are now more accessible for mobile phones, like the Samsung VR headset. The evolution of what we consider virtual reality technology today can be traced back to times when technology was considered primitive. It’s clear that without these advancements, and the enhancement of past inventions, virtual reality technology would be virtually fantasy.

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