VIRTUAL REALITY OVERVIEW
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Computer technology has advanced to the point of being able to produce plausibly realistic alternative input to human senses, providing what is termed virtual reality, artificial reality, or cyberspace. Virtual Reality (VR) is a new way of using computers, of interacting with the data they contain. To use a traditional computer, you face a screen, looking through the glass at symbols and pictures, giving commands with a key board and perhaps a mouse. The pictures are typically stationary, and almost always 2-dimensional. Even the systems which today claim to be 3-D are mostly so only in their graphical database, with the display being a perspective projection of the 3-D world onto a 2-D screen. With VR systems, you wear the computer displays (eyephones), and your body is instrumented with sensors. You are thereby effectively surrounded by a "watch and wear" reality generated by the computer. The computer-synthesized world becomes your realm of experience. Control is gestural, visceral. Through techniques such as realtime shaded color stereoscopic presentation of the synthetic scene to your eyes, and the tracking of position and gesture of limbs to permit authentic interaction with the virtual surroundings, you enter the world of the computer. The technology of flight simulators is adapted to what could be called personal simulators. VR displays are dynamic, and the imagery stereoscopic. It is frequently difficult and occasionally impossible to perform certain operations with conventional display systems which have lost information through the projection of a 3-D world onto the flatland of a 2-D display screen. VR retains the depth, displays it stereoscopically, and adds the flexibility of realtime motion and rotation of objects and viewpoints to permit examination from any angle. With VR software there is no interface. More correctly, the interface operates transparently, just like the one you were born with, the same one you have always used for interacting with the physical world. If you wish to select and move an object, you do not need to pull down a menu or click on the object with a mouse. Instead, you move your body by walking to where the object is, reaching out with your hand, and literally grab the object, carrying it in your hand, and releasing it at its destination. But the emulation of natural reality need not extend so far as to become tiresome. To fly like Superman within VR, simply point in the direction you wish to go, and the software takes care of effortlessly translating your viewpoint in that direction. Technically, VR is related to and a by-product of other trends in computation today. Its development is facilitated by the proliferation of fast 3-D workstations being developed for scientific visualization applications, machines such as the Silicon Graphics Iris, the Reality boards from RealWorld Graphics, and the availability of faster floating point processors such as the Intel i860 and i486 chips. Physical simulation is becoming more prevalent, both in computer graphics modelling physics to portray realistic motion, as well as for diagnostic and predictive applications. Realism in today's video games, their trend towards rendered 3-D imagery (Colony, Hard Driving) also whets the appetite for visual realism, and not just symbolic authenticity, in virtual gaming spaces. Much of the Western world today enjoys material plenty. What is at a premium is experience. Many industries have developed to satisfy the need for new and every more encompassing experiences. The movie industry, the fitness industry, the computer game industry -all these owe their existence to their ability to entertain and stimulate people in a novel fashion. The newly emerging VR industry subsumes all of these, and brings humankind closer to its next step in evolution. VR is a new medium for art and communication, and a new realm of existence.