Haptic Technology

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Haptic- pertaining to the sense of touch. Haptic technology is technology using interfaces with computers to produce the sense of touch by applying different forces. These forces can make virtual images/reality seem real to the touch. The interfaces allow somebody to touch, feel, stimulate, and alter dimensional-objects in the virtual realm.

There are three types of haptic interaction with the computer. There is force feedback which is like the Rumble Pak, joysticks and game controllers. This type of feedback uses movement to feel forces. There is positioning feedback, which is feeling the objects around relative to the body and where things are. The last type of feedback is tactile feedback which uses force that allows feeling temperature, pressure, and other sensations. These interfaces allow computers and virtual reality to be as lifelike as possible.

Haptic technology/systems are used in:

- Medicine
- Engineering
- Entertainment
- Education
- Telerobotics
- Military training
- Assistance for disabled individuals

Medical haptic systems are used in diagnosis such as using virtual endoscopies. Haptic systems are also used in surgery, like training surgeons with virtual reality. They can be used for touch-enabled microsurgery or Telesurgery. Another thing haptic systems are being used for is rehabilitation. By using this touch technology, a person can have exercise simulated and be used to rehabilitate somebody with injury.

There are many ways haptic technology can be used in engineering. Being able to build, test and design things virtually has many possibilities.

There are many haptic systems already in the entertainment world. There are joysticks, controllers, steering wheels, and other types of gaming devices that always the player to feel the bumps on the road or other things.

Education uses hatpic systems to teach. Students get hands on experience in the virtual world on things that otherwise wouldn't be experienced.

Telerobotics is a big area using haptic systems. Telesurgery is when a surgeon is not presence in the room, and can do the surgery from the virtual realm. There are also systems that can remotely control vehicles. Telerobotics also can be used when handling hazardous materials.

An example of a haptic system being used today is the CyberGraspTM. This is a wired glove that covers your fingers and hand. This allows a user to "reach" into the computer and work with objects. The objects being worked will provide force feedback to each finger. This is used for handling of hazardous materials, virtual reality training, computer aided design, and medical applications.

Sources:

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