MASTERS PRESENTATION

DATA GLOVE INTERFACE FOR A VIRTUAL ENVIRONMENT

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ABSTRACT

Peripheral devices such as data gloves and trackers can be utilized to interact with virtual environments in ways that may be more intuitive. A data glove can be programmed to recognize hand gestures, while a tracker can be used to detect positions in three-dimensional space. Each device can be used to interact with a virtual environment, however, when both devices are used together, more control over movement within the virtual environment and manipulation of virtual objects can be achieved. A data glove is a device that resembles a glove and can be worn on the user's hand. The data glove contains sensors that can sense the movements of the hand. It then provides the sensor readings and other data to a software application. Data gloves are commonly used with software applications that create virtual reality environments where the user sees an image of the data glove and can move the image of the data glove to manipulate virtual objects within the virtual environment. A tracker is a device that uses motion capture techniques to determine where an object is in three dimensional space. The calculated position and movements can then also be used to manipulate a virtual environment. Many trackers utilize infrared technology to determine the location of a tracked object. Much research has been done in the area of glove-based input devices and hand-tracking. The end goal would be to take user input directly from a user's hands in order to make interaction with a computer more intuitive. The development and use of glove-based input devices has been one successful step towards that goal. Glove-based input devices and hand-tracking technologies have been applied to many fields, resulting in advanced research and development. In addition, the development of software applications that create virtual objects and virtual environments that can be utilized to interact with a user have also resulted in the development of special techniques and algorithms. This project combines the use of a data glove and two infrared tracker devices to interact with a virtual environment.