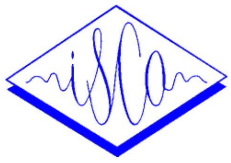

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TEXT COMPOSITION USING VOICE RECOGNITION AND OTHER COMPUTER INPUT DEVICES FOR PEOPLE WITH SPINAL CORD INJURIES

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ABSTRACT

Modern technology and microelectronics in particular have made a considerable impact on the rehabilitation of severely disabled children and adults. These people cannot normally use a computer keyboard directly and alternative input devices have to be used. Keyboard emulators allow the computer to be used to its fullest extent and work through a variety of switches. One type of emulator is an illuminated alphanumeric display. The characters on the display are scanned sequentially and the disabled operator selects the required character by closing a suitable switch. A similar type of emulator, the Photonic Wand, uses a light-pen to select characters from an alphanumeric display on a monitor. The time taken to select a character depends on two factors. The first is the speed at which a scanned display is sequentially illuminated, and the second is the time required by the disabled operator to close the switch when the character required is illuminated. Another type of emulator, CID, does not rely on an auxillary alphanumeric display, and the characters are selected using a sequence of codes. If the severely disabled person can speak clearly or can make reproducible sounds then they could use a computer by talking to it directly. Speech input to the BBC microcomputer has been achieved using an Interstate isolated word recogniser, and a Keymaster emulator. The voice operated BBC computer works normally and its memory is not affected when speech input is used to either simulate keyboard function, or produce whole word input. Voice input to this computer can also be used for education, drawing, environmental control, and programming, as well as for text composition. It takes a considerable time to write a sentence using emulator systems in conjunction with a word processor. This paper will discuss how tetraplegic children and adults have used a voice operated BBC microcomputer, and it will compare the advantages and disadvantages of using voice input for text composition, with the other emulator system.

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