Smart Glove

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Abstract — Our project is designed to help the unfortunate people who cannot speak to communicate with us. The project consists of a glove equipped with flex sensors that will be worn by the person. A portable screen in the form of a badge will also be worn by the person. In case the need arises to communicate, the person will have to just make the signs corresponding to ASL (American Sign Language) symbolizing the various characters to form words and those words will be displayed on a graphical LCD.

The system works by sensing the voltage drop across the flex sensors. This is then fed to the ADC input of the microcontroller. Here sampling is done and the digital values are stored (when unit is used for the first time), corresponding to each character. In this way the microcontroller learns the characters. When the sign is done again, these values are compared against the reference values in order to obtain the characters and pattern matching is done. The characters are transmitted to another microcontroller. These characters or words are sent to the display driver. The display driver then outputs the character or word on the portable screen.

There are added facilities to control the mouse of a computer via an accelerometer mounted on the glove and also to use it to input text to the computer just like a keyboard! The receiver unit is connected to the serial port of the computer and PS2 port. The user just switches between the text and mouse mode to use it as a mouse or keyboard. The right and left click is done by moving the index and middle finger just like an ordinary ‘click’ action!