SMART GLOVE

1) Shawn D'Souza
Flat no XF 8
Sunset Boulevard
Altinho Mapusa
Goa – India

Shree Rayeshwar Institute of engineering and Information Technology
Shiroda – Goa
+91-9158804277
shawnelec@gmail.com

2) Aniruddh Gawade
C-2-D
All India Radio Colony
B.B. Borkar Road country
Porvorim Goa – India

Shree Rayeshwar Institute of engineering and Information Technology
Shiroda – Goa
+91-9423889600
aniruddhgawade@gmail.com

3) Siddesh Gad
R.H.6
Sayyadri Enclave A
Durgabhat Upper Bazar
Ponda Goa – India

Shree Rayeshwar Institute of engineering and Information Technology
Shiroda – Goa
+91-9923247149
sidgad777@gmail.com

Abstract:

Our project is designed to help the unfortunate people who cannot speak to communicate with us. The project consists of a glove (mounted 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.

The Smart Glove is multi-faceted. There are added facilities to control the mouse pointer 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!

When the user changes the mode to wireless control, he/she will be able to control his/her home appliances with only the glove. The glove acts as a master remote control where each character or combination of characters will represent a specific appliance. This too can be changed or set by the user. The slave unit is made up of another microcontroller that is wired to the appliance via a driver IC and relays.

This unit also can act as a control for a robot in the house in robot control mode. The robot can vary from a vacuum cleaner to a robotic wheel chair which the paralyzed or disabled person may sit on! Just by the movement in the hand, the robot is moved forward backward left or right. We have used the accelerometer mounted on the glove as input. In addition to this, the robot is also capable of storing the path traced by the user and following it automatically when told, without the user even controlling it!