

## **Facial expression based computer cursor control system for assisting physically disabled person**

### **Abstract**

Recent years, several researchers are developing different kinds of assistive devices for physically disabled peoples. In this work, movement of illuminant markers through facial expressions is used to control the cursor movement in computer applications. A set of five facial expressions namely left and right cheek movement, eye brow rise and down and mouth open are used for controlling cursor movement in left and right direction, up and down and click, respectively. Four very small luminous stickers are fixed on subject's face and the subject is instructed to perform the above said facial expressions. Conventional web-camera is used for capturing the facial expression and sends the data into BASIC STAMP microcontroller through serial port interfacing. Movements of markers are detected through its x-y coordinate's changes on the video image and each facial expression is uniquely represented by a binary number. As a result of change of x-y co-ordinates, the BASIC STAMP microcontroller sends the binary code to the computer for controlling the mouse actions.

**Keywords** — Facial features, facial expressions, cursor control, BASIC STAMP microcontroller.