**ABSTRACT**

VIRTUAL MOUSE

Human Computer Interaction today greatly emphasizes on developing more spontaneous and natural interfaces. The Graphical User Interface (GUI) on Personal Computers (PCs) is quiet developed, well defined and provides an efficient interface for a user to interact with the computer and access the various applications effortlessly with the help of mice, track pad, etc. In the present day scenario most of the mobile phones uses a touch screen technology to interact with the user. But this technology is still not cheap to be widely used in desktops and laptops. Our objective is to create a virtual mouse system using Web camera to interact with the computer in a more user friendly manner that can be an alternative approach for the touch screen.

In our project, we present an approach for human computer interaction, where we try to control mouse tracking, click(left & right) & scroll events based on colour detection techniques using a cam. The user wears coloured tapes to provide information to the system. Here, real time video has been captured using the web-camera integrated on a laptop. Individual frames of the live video are separately processed. The processing techniques involve an image subtraction algorithm to detect colours. No additional hardware is required by the system other than the standard webcam which is provided with every laptop computer. Once the colours are detected, the system performs various operations to track the pointer and performs control action. Red colour is used to control the mouse pointer movement while the clicking action is based on simultaneous detection of two colours.If red along with green colour is detected, left clicking action is performed and,if red along with blue colour is detected, right clicking action is performed. We try to implement the system in a MATLAB environment using a MATLAB image processing toolbox.