

Keyboard and Mouse Simulation using Head Mouse Technology and Speech Recognition

Shah Rajsee B.

Department of Computer Engineering
SPNVTC

Abstract- Major Community in the world population is of physically handicapped and blind people. Due to their disabilities they can't access computer. So there is a need to develop some technology that provides a way to access computer through virtual mouse and keyboard for those disabled people.

This technology translates real time head movements of user into corresponding cursor movement, also performs clicks accordingly and provides a virtual keyboard that can type words according to head motions as well as according to speech recognition which both are very useful for the armless people. It also provides a way to access computer through giving commands using Speech Recognition technology.

Keywords- Head guided mouse, virtual keyboard

I. INTRODUCTION

According to a recent survey, there are 650 million handicapped people across the globe. Moreover, there are 39 million visually challenged people and 245 million with low sight. Due to these challenges, these people cannot reach up to the basic technologies. In this cyber world computer has become the basic necessity of life. There are 900 million to 1 billion computer users in the world. In this Computer era, due to physical inability such a huge community is deprived of computer usage and internet. There is a need of some technology for these people which will help them access the computers effectively.

The Head mouse translates natural movements of a user's head into directly proportional movements of the computer mouse pointer, so as the user moves their head the mouse pointer on the screen also moves.

Voice recognition is an alternative to typing on a keyboard. Put simply, you talk to the computer and your words appear on the screen. It can provide a fast method of writing onto a computer and can help people with a variety of disabilities. It is useful for people with physical disabilities who often find typing difficult, painful or impossible. Voice recognition software can also help those with spelling

difficulties, including users with dyslexic, because recognized words are always correctly spelled.

Virtual keyboard can be operated through head motion. As head moves, mouse moves on the keys and then key is pressed by some predefined motion of head or eyes. So armless people can write documents without speaking words.

II. BACKGROUND

1) HAND-FREE HEAD MOUSE CONTROL BASED ON MOUTH TRACKING(IEEE-2015)

This paper use human mouth movement tracking in video input to provide mousemotion according to mouth tracking.It first transforms input video frame of human headinto YCbCr colour space, then detect face region. After that detects mouth position using relationship between Cb and Cr cluster of face feature. System use mouth position interval information between front frame and next frame in video frames of head motion to confirm if a mouth tracking is movement information or command information. According to that information, mouse moves and clicks are performed.

2) A REAL TIME INTELLIGENT SHOE SYSTEM FOR WRITING BY FOOT (IEEE 2014)

This paper represents a way to write in computer for armless people.It uses wearable sensor integrated shoe system as writing platform,by sensing and analysing foot movements,so it enables people to write by foot.

3) EYE TRACKING MOUSE FOR HUMAN COMPUTER INTERACTION (IEEE 2013)

This paper covers a reliable, mobile and low cost system based on eye trackingmouse. The eye movement is detected by a head mounted device and consequently the mousecursor is moved.A click event selection is performed if person gazes an image for certaintime on the screen.

4) IMPLEMENTATION OF VIRTUAL MOUSE BASED ON MACHINE VISION (IEEE-2010)

This paper presents a method to implement virtual mouse through Machine vision. It uses an algorithm based on colour to track the movement of fingertips in real time. According to the result of finger tips, some messages are generated including elementary fingertip and simulated mouse message. These messages are used to control windows based application.

5) A SIX-DEGREE-OF-FREEDOM VIRTUAL MOUSE BASED ON HAND GESTURES (IEEE-2010)

This paper covers the hand tracking and gesture recognition framework includes motion, skin colour and finger information of the hand. It is about providing computer access to the disabled people through six-degree-of-freedom virtual mouse implemented using inexpensive usb camera.

6) A FACE AS A MOUSE FOR DISABLED PERSON (IJCSMC-2015)

This paper is used for an application that it's capable of swapping mouse with human face for interaction with PC. In paper there is one web cam. It's an external device, which detect the human face or we can say that tracking and detecting the facial expressions of human being. This is our theory paper and in this we explained – in what way we detect our facial expression. Facial features (eyebrows, nose and eyes) are detected. We are trying to compensate those people who have hands disabilities prevent them from using the mouse.

III. PROBLEM STATEMENT

Existing system which uses eye wink and blink mechanisms to operate mouse does not work properly for the people who have problem of frequently eye blinking.

Another problem is with system that uses only speech recognition mechanism for typing because it needs very clear pronunciations and knowledge of predefined command.

No any existing system has done integration of virtual mouse along with virtual keyboard operated by both head motions and speech recognition.

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