GESTURE CONTROL ALGORITHM FOR CONTROL OF PERSONAL COMPUTERS

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ABSTRACT

As our dependency on computers is increasing every day, these intelligent machines are making inroads in our daily life and society. This requires more friendly methods for interaction between humans and computers (HCI) than the conventionally used interaction devices (mouse & keyboard) because they are unnatural and cumbersome to use at times (by disabled people). Gesture Recognition can be useful under such conditions and provides easy, natural and intuitive interaction. Gestures are natural and intuitive means of communication and mostly occur from hands or face of human beings.

This work introduces a hand gesture recognition system to recognize real time gestures of the user (finger movements) in unstrained environments. This is an effort to adapt computers to our natural means of communication: Speech and Hand Movements. In this work we have presented a technique for extracting the hand movement of the user and then through speech processing clicking a desired icon or folder or any other application of the computer system. All the work has been done using Matlab 2011b and in a real time environment which provides a robust technique for feature extraction and speech processing. A USB 2.0 camera continuously tracks the movement of user's finger which is covered with red marker by filtering out green and blue colors from the RGB color space. Java based commands are used to implement the mouse movement through moving finger and GUI keyboard. Then a microphone is used to make use of the speech processing and instruct the system to click on a particular icon or folder throughout the screen of the system. So it is possible to take control of the whole computer system. Experimental results show that proposed method has high accuracy and outperforms Sub-gesture Modeling based methods [6].

KEYWORDS: Human-Computer Interaction (HCI), Hand Gesture Recognition (HGR), Intuitive Interaction