

# **A GESTURE BASED TOOL FOR STERILE BROWSING OF RADIOLOGY IMAGES**

## **DONE BY:**

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## **INTRODUCTION**

### **Overview of the project:**

In Our project we use gestures to browse images obtained during radiology. Gesture means a movement usually of the body or limbs that expresses or emphasizes an idea, sentiment, or attitude.

A major challenge involved in this process is to provide doctors with efficient, intuitive, accurate and safe means of interaction without affecting the quality of their work. Keyboards and pointing devices, such as a mouse, are today's principal method of human—computer interaction. However, the use of computer keyboards and mice by doctors and **nurses in intensive care units (ICUs) is a common method for spreading infections**. Humans can recognize body and sign language easily. This is possible due to the combination of vision and synaptic interactions that were formed along brain development.

In order to replicate this skill in computers, some problems need to be solved: how to separate objects of interest in images and which image capture technology and classification technique are more appropriate, among others. In this project Gesture based Desktop automation, First the model is trained pre trained on the images of different hand gestures, such as a showing of numbers with fingers as 1,2,3,4. This model uses the integrated webcam to capture the video frame. The image of the gesture captured in the video frame is compared with the Pre-trained model and the gesture is identified. If the gesture predicts is 0 - then images is converted into rectangle, 1 - image is Resized into (200,200), 2 - image is rotated by  $-45^{\circ}$ , 3 - image is blurred, 4 - image is Resized into (400,400), 5 - image is converted into grayscale etc.

## LITERATURE SURVEY:

Gesture-based Tool for Sterile Browsing of Radiology Images - research paper by national library of medicine

The hand gesture control system “*Gestix*” developed by the authors helped the doctor to remain in place during the entire operation, without any need to move to the main control wall since all the commands were performed using hand gestures. The sterile gesture interface consists of a Canon VC-C4 camera, whose pan/tilt/zoom can be initially set using an infrared (IR) remote. This camera is placed just over a large flat screen monitor.

Additionally, an Intel Pentium IV, (600MHz, OS: Windows XP) with a Matrox Standard II video-capturing device is used.

The “**Gibson**” image browser is a 3D visualization medical tool that enables examination of images, such as: MRIs, CT scans and X-rays. The images are arranged over a multiple layer 3D cylinder. The image of interest is found through rotating the cylinder in the four cardinal directions. To interface the gesture recognition routines with the “**Gibson**” system, information such as the centroid of the hand, its size, and orientation are used to enable screen operations in the “**Gibson**” graphical user interface.