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1. **Title:** Computed Tomography Images: 2Dimensional to 3Dimensional Reconstruction and Visualization.

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7. **Keywords :** Computed Tomography, 2D, 3D, median filter, non linear , thresholding, threshold, interpolation, iso-surface, polygon mesh, shading.

SYNOPSIS

Introduction:

Medical imaging is a technique and a process of creating visual representation of the interior of the body, for clinical analysis and medical intervention. Medical imaging is often perceived to designate the set of techniques that non-invasively produce images of the internal aspect of the body. This denotes that it is a procedure where no instrument is introduced into the patient's body. One such technique is computed tomography. CT yields two dimensional (2D) images that are 100 times more sensitive than conventional radiography. The 2D medical images obtained from CT scans are difficult to interpret because they can only show cross sectional views of human body. Interpreting these images require expert or trained professionals. Reconstructing 2D to 3D can help with the interpreting process so that doctors can observe the patient's related information from different views in order to judge the lesion and make corresponding disease treatment. Medical utilities like surgery, plan, design and simulation, defect area inspection, personalised implant design and physical model fabrication can be achieved through 3D model.

Objectives:

The development of computer image processing technology has led 3D visualization become an important method of the medical diagnosis, as it offers abundant and accurate information for medical experts.3D reconstruction of medical images is widely applied to tumor localization, surgical planning and brain electromagnetic field computation etc. Many reconstruction algorithms need to establish the topological relationship between the slices of images. The results of these traditional approaches vary depending on the number of input sections, their positions, the shape of original body and the applied interpolation technique. The project proposes a method to construct and visualize 3D image from 2D images, allowing doctors to properly see the volume and shape of features that may be interested in analyzing, such as brachial tree, a particular tumour or other features of interest.

Methodology:

The basic process to achieve the 3D visualization technology involves several operations as given below: