1.1 PROBLEM STATEMENT

Segmentation and 3D Volume Rendering of Brain MRI Sequence to visualize space occupying lesions. In MRI data lesion is analyzed on the single slices. To analyze the volume and area of the lesion single slice could not be appropriate & exact location of the lesion in the brain couldn't be visualize properly. So the lesion are segmented from the MRI sequence. All the MRI raw data are not be suitable for segmentation. So we need to do the pre-processing on the MRI Sequence before Segmentation.

From pre-process images lesion from the MRI sequence will be extracted using a suitable segmentation technique. The resultant of the segmentation techniques will be in form of binary images.

Three-dimensional (3D) volume rendering has the potential to simplify standard radiological study. 2D series of images allows an enough skill to draw all the necessary conclusions. 3D has a many advantages, it is used to generate an appropriate visuals using all the 2D data available, allowing for a correct diagnosis. 3D Visualization can be achieved in two ways, one is Surface Rendering and other is Volume Rendering.Surface rendering represents 3D objects by surface representations such as triangular patches or polygonal meshes. However, algorithm suffered from a common problem of having to make a binary classification: either a surface passes through the current voxel or it does no. To overcome the disadvantages in surface rendering volume rendering is used, where the internal structures can be seen through the 3D models.

1.2 THE SOLUTION as per the reference

In proposed method we visualize the segmented lesion in a 3D to analyze & to locate it in a Brain Volume which need volume rendering but not Surface Rendering, So Volume rendering can be done by an optical method using volume ray casting, so that it helps to navigate within a 3D Structure. After visualization the clipping is used so that from all the required 8 directions 3D Structure can be clipped.