

Brain Tumor Analysis –An Overview

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Abstract— Brain tumor detection is a serious application of medical image processing. The tumor identification is done by doctors but its give the difficult results which may different from one doctor to another. The physician may also take the risk for identify the tumor. So these problems are solved by using the some image processing tools. The medical image segmentation is difficult process but this software is easily to identify the accurate detection of size and location of brain tumor. Noise removal and enhancement techniques are applied to the MRI scan of brain. After the morphological operation is applied for identify the extract tumor.

Keywords- *Edge detection, MRI images, Noise Removal, Pre-processing*

I. INTRODUCTION

Image processing techniques is recognized the image or object under consideration easy to visual. Input image is processed to get an output also an images or attributes of the images. A magnetic resonance imaging which produces a single that can be detected and its enclosed spatially results in images of the body. The symptoms of brain tumor depend on tumor size, type and location. Brain tumor is very serious and life threatening for invasive and limited space. In medical doctors don't have method for brain tumor detection which leads to varying conclusion between one to another doctor. Edge detection techniques transform images to edge images from the changes of grey tone in images. Image processing consists of image enhancement using histogram equalization. Edge detection process to take patterns of brain tumor so the process making for tumor grading will be easier.

II. REVIEW OF LITERATURE

The Detection of brain tumor in MRI images using image processing techniques. The Medical Image Techniques are used by Medical diagnosis. Brain tumor is a serious life of the threatening disease. Detecting the Brain tumor using Image Processing techniques are involves four stages namely as Image Preprocessing, Image segmentation, Feature Extraction, and Classification. Image processing and neural network techniques are used to improve by performance of detecting and classifying the brain tumor in MRI images. Image processing techniques are reviewed by particularly for the Brain tumor detection in magnetic resonance imaging paper [1]. The Enhancement of brain tumor patterns proposed by the Brain tumor analysis is done by doctors but its grading gives different conclusions which may vary from one physician to another. So for the doctor's use of software as edge detection and segmentation methods, this gave the edge pattern and segment of brain and brain tumor itself paper [2]. Medical image segmentation is a vital point of research, it inherited complex problems for the proper diagnosis of brain disorders. It provides a foundation of segmentation and edge detection, as brain tumor grading paper [3]. the efficient algorithm for

detecting the edges of brain tumor. This paper is providing MRI scan of brain and then digital imaging techniques are applied for getting the exact location of tumor. MRI images consists of gray and white matter and the region containing tumor have more intensity. the first noise filters are used for noise removal and the enhancement techniques are applied to the MRI scan of brain. After the basic morphological operations are applied for extracting the region suffering from the tumor paper [4]. Application of Edge Detection in Brain images it provides to edge detection is a critical element in image processing, since edges contain a major function of image information. Many edge detection algorithms are developed by computation of the intensity gradient vector, which, in general, is sensitive to noise in the image. In Order to suppress the noise, some spatial averaging maybe combined with differentiation such as the Laplacian of Gaussian operator and the detection of zero crossing paper [5].

III. PROPOSED METHODOLOGY

A. Pre - Processing

Pre - processing mainly involves the geometric corrections of the actual image. It is a common name for operations with images at the lowest level of abstraction. The pre - processing stage is an improvement of an image that suppresses unwanted distortions or displaying obvious portions of images. The input image change for grey color and it improves an image quality.

B. Histogram Equalization

Histogram is a graphical representation of the distribution of data. The total of a histogram used for probability density is always normalized to 1. The histogram computes the frequency distribution of the elements in each column of the input. elements of each column into the number of discrete bins are specified by the Number of bins parameter, n. they stretch out the grey levels at the dark end to produce a more uniformly distributed histogram then the image would become much clear.

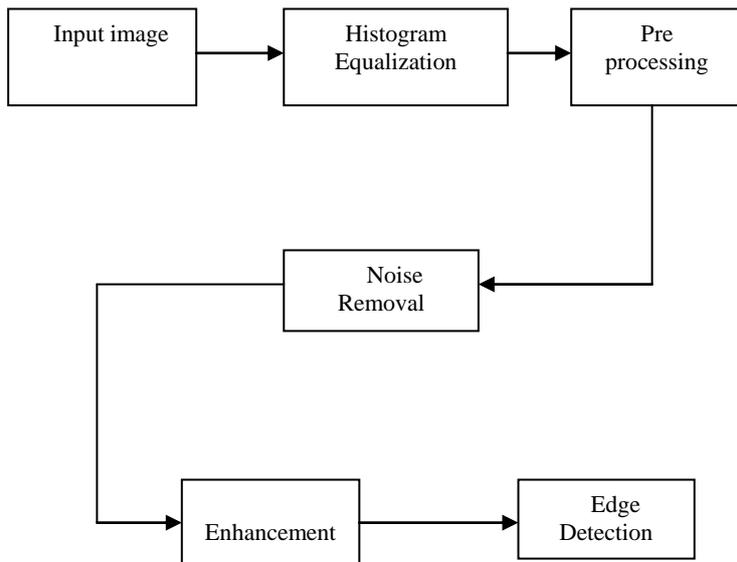


Fig 1. Flow Diagram

C. Noise Removal

The image processing researcher commonly used effective method for removing noise while preserving the edges. There are many filters are used to remove the noise from the images. The average filters are used to remove the salt and pepper noise from the image because the pixel Values are replaces with neighborhood values. Arithmetic and geometric filters are suited for remove noise like Gaussian. Noise will be reduced thus reducing the blurring effect from the images. Mostly used by the enhancement and noise reduction techniques are implemented that can be give the best possible results.

D. Enhancement

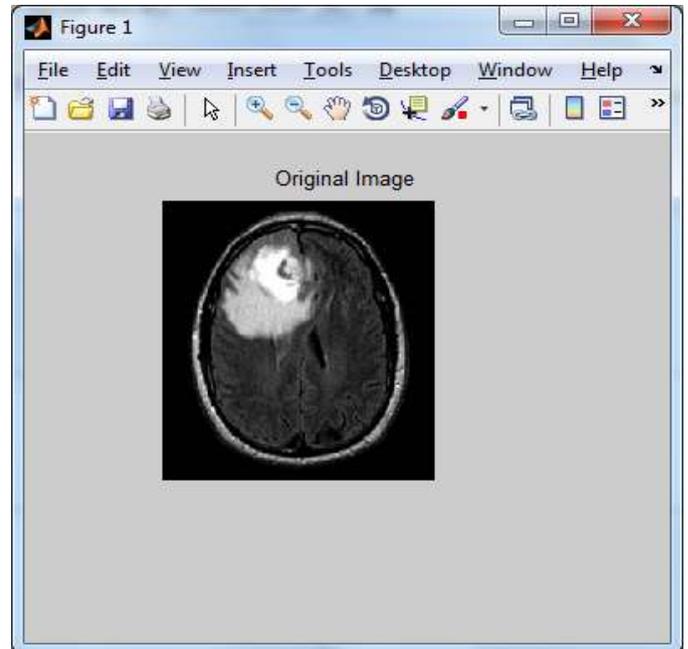
Enhancement is the process of adjusting digital images so that the results are more suitable for display. It is easy to make an image lighter or darker and increase or decrease contrast. Enhanced image will help in detecting the edges and improving the quality of the overall image. Enhancement is achieved successful with range of techniques are combined in order to final result. The enhanced image process detection of exact location of tumor begins. The result in more prominent edges and sharpened image is obtained.

E. Edge Detection

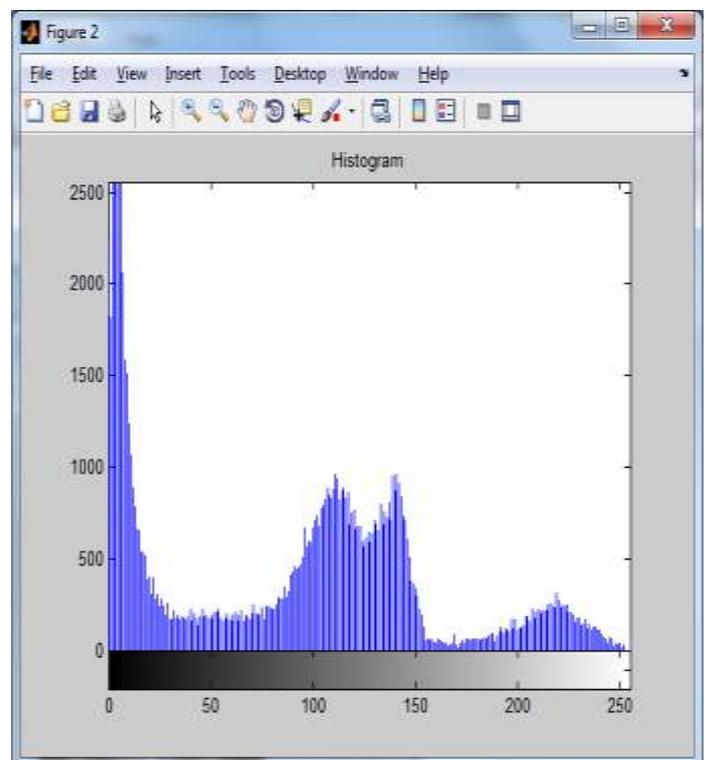
The Edge detection techniques are used to finding the boundaries of object within images. It works done by detecting discontinuities in brightness. Edge detection will lead to finding the exact location of the tumor. The function of edge detection is to identify the boundaries of homogeneous region in an image based on properties such as intensity and texture. The edge detection techniques to detect the edges of the region of interest on the digital images. The edges are calculated by using difference between corresponding pixel intensities of an image. It can be detect both horizontal and vertical edges from an image.

IV. RESULT AND ANALYSIS

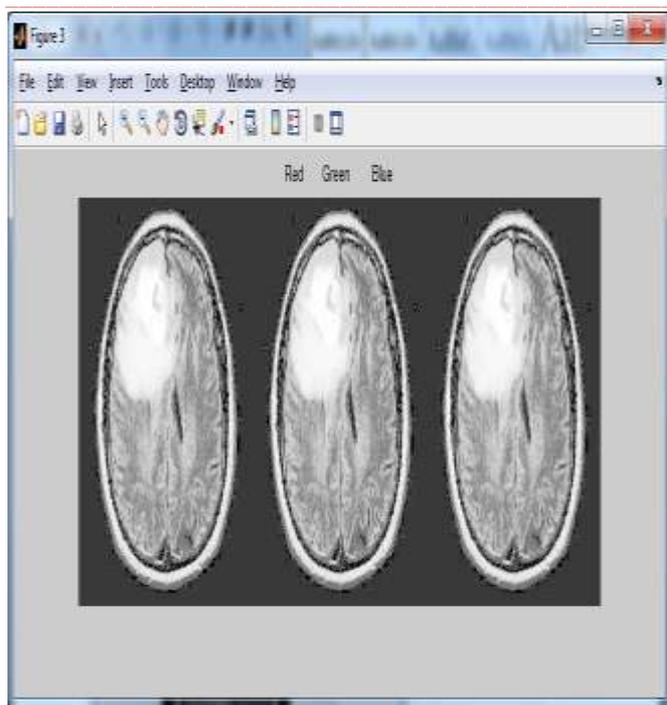
The human brain forms the input images for our system where the grayscale MRI input images are given as the input. The image color value or range is separately defined by the histogram equalization. At the same time the preprocessing functions as process by the images. The preprocessing stage will convert into RGB input image to grayscale.



Original Image

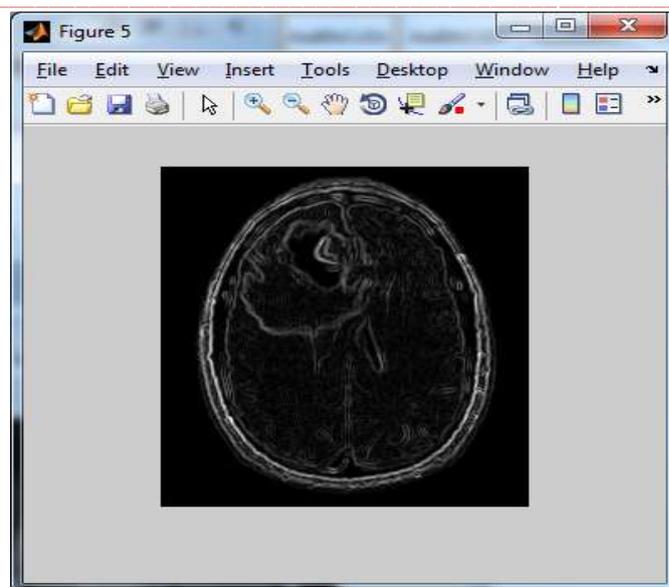


Histogram Equalization



Pre- Processing

After preprocessing the noise are removed from the brain images. They using the filters used by removing the noise because the images are shown clearly. It should be improves the image quality and removes the noise. Finally the detection of edges for extract result is obtained. They finding the accurate location of the tumor easily to identified the tumor location of the images.



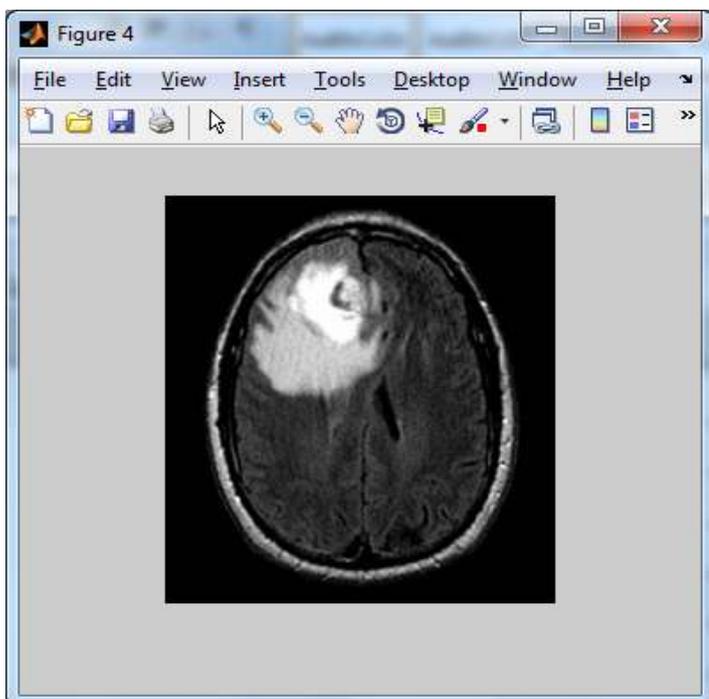
Edge Detection

V. CONCLUSION

The tumor identification is difficult results which may different from the physicians. Doctors may also take the risk for identify the tumor. The problems are solved by using the some image processing tools. The medical image segmentation is difficult process but this software is easily to identify the accurate detection of size and location of brain tumor. Noise removal and enhancement techniques are applied to the MRI scan of brain. The final step is detection of edges from the tumor. In this paper provide the results are obtained were good and efficient. The proposed method can be applied for detection of lung cancer. The method can be applied to the CT scan of the lungs and suffering from cancerous cells can be identified.

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Noise Removal