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Detection of Lung Cancer Tumor in Its Early Stages Using Image Processing Technique

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ABSTRACT

Lung Cancer is a Disease of uncontrolled cell growth in tissues of the lung. Discovery of Lung Cancer in its initial stage is the key of its treatment. Medical problems are often in each person. Cancer is one of the most unpredictable diseases a human can ever had. The Disease like lung cancer is very difficult to detect in its early stages. In numerous parts of the world far reaching screening by MRI is not yet realistic, so that midsection radiology stays in starting and most basic system. Important to discover the abnormality issues in target CT images, particularly in various cancer tumors such as lung cancer, Image quality and accuracy is the core factors of this research, image quality assessment as well as improvement are depending on the amplification stage where low pre-processing techniques, such as Lung Field Segmentation using watershed algorithm, Data Processing, Feature Extraction, Genetic Algorithm Classification utilizing SVMs are discussed in detail. This system provides more accurate results by using various images enhancement and segmentation techniques on CT images.

Keywords:- Lung CT images, Segmentation, SVMs Classifier, Genetic Algorithm, Feature extraction.

I. INTRODUCTION

Lung Cancer is a noteworthy reason for Mortality in the western world as exhibited by the striking factual numbers distributed consistently by the American Lung Cancer Society. They demonstrate that the 5-year survival rate for patients with lung malignancy can be enhanced from a normal of 14 parentage up to 49 parentage if the ailment is analyzed and treated at its initial stage. Medicinal pictures as a vital piece of therapeutic determination and treatment were focusing on these pic- tures for good. These pictures incorporate success of concealed data that misused by doctors in settling on contemplated choices around a patient. Then again, removing this important shrouded data is a basic first stride to their utilization. This reason inspires to utilize informa- tion digging systems abilities for productive learning extraction find concealed lung.

Mining Medical pictures includes numerous procedures. Medicinal Data Mining is a hopeful region of computational insight connected to a consequently break down patients records going for the expose of new information valuable for restorative choice making. Affected in- formation is expected not just to increment exact determination and effective infection treatment, additionally to improve security by di-minishing blunders. The systems in arrange the progressive X-beam midsection movies in two classes: ordinary and strange. The ordinary ones are those portraying a solid patient. The irregular ones incorporate Type of lung tumor; we will utilize a typical arrangement technique specifically SVMs neural systems.

II. PROBLEM STATEMENT

Nowadays cancer is the most serious health problem for any human being in world and detecting lung cancer in its early stages is very difficult time consuming. So this system will take CT images as input and process on them using various technique like images enhancement, segmentation, feature extraction and detect stages of cancer.

III. PROPOSED SYSTEM

In this system some techniques are used related to the image processing. Techniques are crucial to the task of medical image mining, Lung Area Segmentation, Data Processing, Feature Extraction, Classification using SVMs classifier. Different learning experiments were performed on two different data sets, created by means of feature selection and SVMs trained with different parameters; the results are compared and reported.

IV. SYSTEM ANALYSIS

Cancer is one of the most dangerous diseases a human can ever had. Lung cancer is one of them. Lung cancer is a disease that occurs due to the uncontrolled cell appear only in the advanced stages. Medical data mining is one of the major issues in this modern world. Medical problems are often

It is very difficult to detect it in its early stages as its symptoms we will use some techniques are essential to the task of medical image mining, Lung Field SVMs. Different learning experiments were performed on two different data sets, created by means of feature selection and SVMs and genetic algorithm trained with different parameters; the results are compared and reported. Segmentation, Data Processing, Feature Extraction, Genetic algorithm.

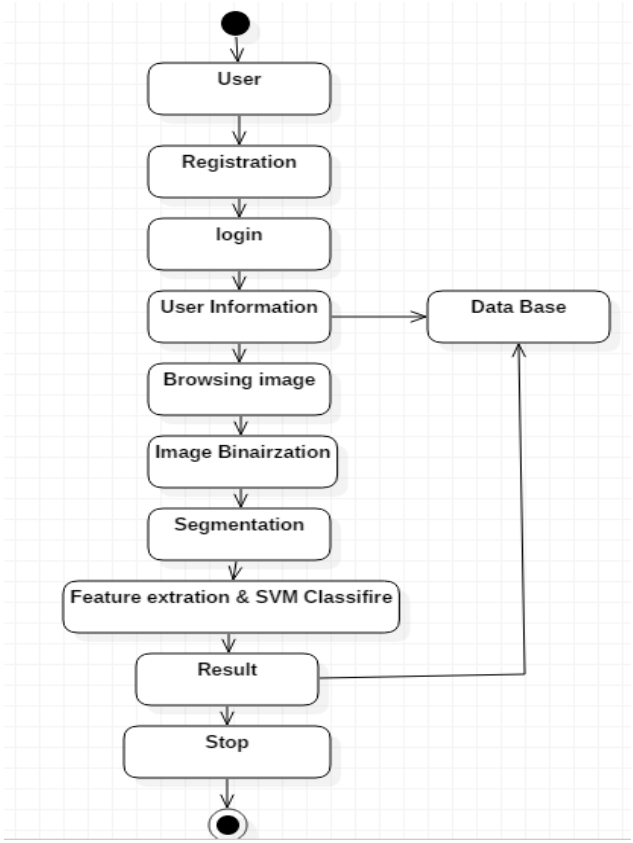

Fig.(a) System flow

V. SYSTEM ARCHITECTURE

In this system lung Image is passed through different phases such as, De-noising with image Segmentation using water shade algorithm, Feature Extraction using GLCM algorithm, and finally classifying data set of images using SVM classifier. Obtained result is Tumor which is Benign or Malignant. Step by step now we study this phases.

The image filter is most commonly used in De-noising technique to filter the input CT-image. In that processing some steps are followed for filtering the image.

Inference logical thinking is main component of inference, which work mainly in 2 modes: forward chaining and backward chaining. Forward chaining starts with the renowned facts and assure new facts. Backward chaining is started with goals, and works backward to work out what evidences should be declared in order that the goals may be reached. The logical thinking engine uses IF-THEN rules. The final format of such rule is that if (logical expression) THEN (logical expression).

After performing Filtration on input image we get image without noise which is shown in the fig Result of de-noising.

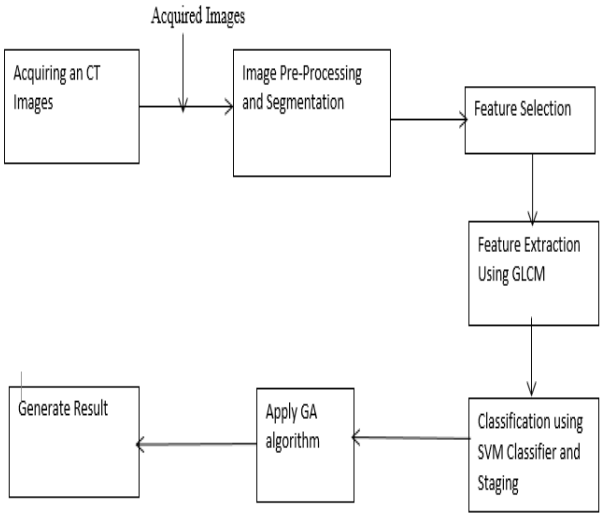

Fig.(b) System Architecture

VI. ADVANTAGES

Helps to the patients to detect the cancer in its early stages.

I. The main advantage of this application is anyone can use it without having much knowledge about system.

II. System can be used in every hospitals for diagnosis of patients.

III. It can be used in hospital management to improve and support doctors work.

VII. ACKNOWLEDGMENT

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VIII. CONCLUSION

The proposed model identifies and detects the stage of disease based on the features extracted. The approach starts by extracting the lung regions from the CT image using several image processing techniques, including binary image, image segmentation, binarization, watershed algorithm, SVMs classifier. This system use the gray level co-occurrence in this system. Initially process is to read the image and need to reprocess because of high resolution and noise occur in the image, the noises are removed using median filter and the image is enhanced and segmented. In the future the reprocessed image will be the input for feature selection and extraction which are used to extract the particular region. The extracted features must be stored for classification. Based on the classification, stages will be identified which is used for a

physician to give some therapy suggestions. Correctness of this system is generate the result up to 65% to 70%.

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