ABSTRACT

Abnormal growth in the breast tissue prompts to the strange cell development in the breast. The researchers typically research for the size of the tumor in a mammogram, because mammograms contain irregular measurements of large scale and smaller scale calcifications. The nearness of these irregular measures of calcium stores in the breast ought to never be ignored as these are indications of early breast malignancy. To decipher this statement in a mammogram precisely, the quality of the pictures ought to be at its incomparable. The proposed research work is conveyed out for examinations of different screening strategies to recognize the unique phases of breast malignancy. In India for every 4 minutes, the women are diagnosed with this disease. And a woman dies with this disease for every 13 minutes. This disease is prominent with the people living in the ruler area while comparing the people in the urban areas. Therefore, it is very important to find and treat this disease as early as possible. The Bit Error Rate (BER),), Peak Signal to Noise Ratio (PSNR) and Mean Square Error (MSE) values are determined for both Abnormal and normal images. These analyses are used to confirm the presence or absence of the disease and to support the evaluation process for finding the disease. This quality assessment is used to understand the reality on Earth for a specific diagnosis that is a specific type of chromatin in a cancerous core that may indicate an abnormal gene.

Additionally, a significant amount of pathology images is important not only for the curriculum but also for science programs. The findings of this combination are important for some of the symptoms. The number of mitotic cell calculation provides clues to evaluate the proliferation and tumor growth, which is a significant move in the assessment of numerous types of cancer. Finally, the aim is to reduce the rate of loss, which in turn, increases the

accuracy of the detection, in that way we can distinguish abnormal cells from non-mitotic cell.

The proposed method in this thesis produces good results while comparing other existing techniques. Here five steps have been followed to identify the abnormal cells. The first step is pre-processing where the unwanted labels, film-artifacts, pectoral muscles have been extracted. And the filtered image is subjected to undergo optimization, which is the second step followed in the proposed work. The technique used in the optimization is independent search krill herd where the pre-processed image is again diminished and made more comfortable for the third step. The third step proposed in this paper is segmentation, where the doubted region gets extracted correctly from the total breast mammogram image. The technique proposed in this thesis to undergo segmentation is Adaptive Fuzzy Clustering Method (AFCM). While comparing, the whole process this third step segmentation is considered to the quite important step, because selecting the correct region is the main thing to identify the abnormal cells.

Therefore more priority has been provided to the segmentation method and the comparative results have been shown between the two techniques, namely Fuzzy clustering method (FCM) and Adaptive Fuzzy clustering AFCM), which shows Adaptive Fuzzy Clustering Method produces better results than Fuzzy clustering method. Then the fourth step in the proposed technique is Feature Extraction, here nine statistical features have been extracted and made the classification method easier. The final step proposed in this thesis is classification, where finally the obtained mammogram image is classified either as abnormal (cancerous) or normal (non-cancerous) cell. This classification is done through Gray Level Co-occurrence Matrix (GLCM) classifier. This classifier identifies the cancerous cells with the help of Subtypes HER2, Luminal-A, Luminal-B, Basal-like)

count. And this classifier provides higher classification accuracy, which in-turn reduces the time complexity. And it’s concluded that the proposed method ends up with the high sensitivity with a reasonable number of image positives.