ABSTRACT

This proposed research work consists of design and system development to identify and classify brain tumors. By using Magnetic Resonance Images (MRI) based brain tumor detection is not as much easier for clinical diagnosis since it provides direct information about anatomical structures along with potentially unusual tissues where the patients are being monitored by the clinicians. The quick improvement of cells in the cerebrum and its neighbouring locales may arrange the tumor cells. These anomalous tumor areas are ordered into two different types such as Glioma and Glioblastoma and they can be classified dependent on the area and morphological boundaries of the tumor locales in the cerebrum. These tumors are framed in the areas where the junction of the brain portion and spinal cord. A cell in this intersection is known as a glial cell and is influenced by the tumor cells. The glial cells in this area are ordered into benign or malignant cells, given the harm of tissues in these areas. These influenced cells become tumor cells between the time-frames of 8 months to one year. The endurance pace of the patient with Glioma cerebrum tumor is around three years in particular.

These tumors can be shaped by a few situations yet by and large tuberous sclerosis and Genetic issues considering as high predicted reasons. The proposed method stated that the detection of Glioma brain MRI image is applied on the set of open access brain image dataset BRATS 2015. In this approach, the cumulative numbers of brain MRI images are divided into two different phases; training and testing. The training phase consists of 24 Glioma brain MRI images and 74 non-Glioma brain MRI images respectively. The testing phase consists of 64 Glioma brain MRI images and 114 non-Glioma brain MRI images respectively. Both training and testing dataset images are relative to each other. The parameter performance of this proposed system is analyzed with respect to the different metrics as sensitivity, specificity, and accuracy. Glioma brain tumor image is being able to detect and segment using the CANFIS classification technique in this work. Initially, the brain image pixels are having a low

resolution that is improved by contrast through the image fusion method. The pixels in the contrast-enhanced image are transformed into multi-scale, multi-frequency, and orientation format through the Gabor transform approach. Then, these features like texture and statistical are extracted from this image, and its features are classified using the CANFIS classification method. The proposed Glioma brain tumor segmentation method obtains 97.8% of sensitivity, 99.4% of specificity, and 98.9% of tumor region segmentation accuracy. The AUC of this proposed Glioma brain tumor detection method is about 0.97.