

DETECTION OF BRAIN TUMOR IN MRI IMAGES USING IMAGE PROCESSING

*A project report submitted in partial fulfillment to the requirements for
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BACHELOR OF TECHNOLOGY
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CERTIFICATE

This is to certify that the project entitled "ONLINE HEALTH CARE PREDICTION" in partial fulfillment for the of degree of Bachelor of Technology in COMPUTER SCIENCE AND ENGINEERING, at AVANTHI INSTITUTE OF ENGINEERING AND TECHNOLOGY, MAKAVARAPALEM, VISAKHAPATNAM is an bonafied work carried out by PILLA BHARGAVI(18811A0549), SEERA SREELAKHA (18811A0555),MARISETTI MEENAKSHI(18811A0543),DUGGINENI UMESH CHANDRA (18811A0510), G.S.K.MEGHANA(18811A0515) under the guidance and supervision during 2021-2022. Project Guide Head of the Department External Examiner


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Detection of Brain Tumor in MRI Images using Image Processing

Abstract:

Image processing techniques play an important role in the diagnostics and detection of diseases and monitoring the patients having these diseases. Digital image processing consists of algorithmic processes that transform one image into another in which certain information of interest is highlighted, and/or the information which is irrelevant to the application is attenuated or eliminated. The majority of hospitals use digital technology system to support their work because the system can bring users many benefits. The diagnosis result is dependent on the medical image because doctors often use the image to find out medical problems for patients. Based on the information from the image, especially object boundaries doctors will build a suitable treatment plan to save their lives. In fact, many patients are died by inaccuracy in diagnosis, which comes from a lack of information in the image because the image has not been processed effectively. And the edge detection is one of the important fundamental tools in image processing, particularly in the areas of feature detection and feature extraction, which aim at identifying points in a digital image at which the image has discontinuities

A brain tumor is a collection of abnormal cells in the brain. A tumor may lead to cancer, which is a major leading cause of death and responsible for around 11% of all deaths worldwide. The cancer incidence rate is growing at an alarming rate in the world. So, detection of the tumor is very important in earlier stages. Diagnosing brain cancer begins with taking a thorough personal and family medical history, including symptoms and risk factors for brain cancer. The diagnostic process also includes completing a thorough physical and neurological exam. A neurological helps to evaluate the brain and nervous system and such functions as reflexes, sensation, movement, balance, alertness, coordination, vision, and hearing. Great knowledge and experience on radiology are required for accurate tumor detection in medical imaging. The brain tumor is a threat level depends upon the combination of factors like the type of tumor, its position, its size and its state of growth.

Magnetic Resonance Imaging (MRI) is an advanced medical imaging technique used to produce high-quality images of the parts contained in the human body MRI imaging is often used when treating brain tumors, ankle, and foot. MRI is an advanced medical imaging technique used to produce high-quality images of the parts contained in the human body MRI imaging is often used when treating brain tumors, ankle, and foot. MRI is attracting more and more attention to the brain tumor diagnosis in the clinical.

The identification, segmentation, and detection of the infected area in brain tumor is a tedious

and a time-consuming task. The different structures of the human body can be visualized by an image processing concept, an MRI. It is very difficult to visualize abnormal structures of the human brain using simple imaging techniques. An MRI technique contains many imaging modalities that scan and capture the internal structure of the human brain. This proposed system concentrates on a noise removal technique, followed by improvement of medical images for a correct diagnosis using a balance contrast enhancement technique (BCET). Then, image segmentation is used. Finally, the Canny edge detection method is applied to detect the fine edges.

Hardware Requirements:

System : windows 8.1 or above
RAM : 4 GB
Processor: Intel i3 or Equivalent/above

Software Requirements:

Python 3.5
Pycharm IDE
Python Required Libraries