**Diagnosis of Alzheimer’s Disease Using Convolutional Neural Network with Select Slices by Landmark on Hippocampus in MRI Images**

**Abstract**

Alzheimer’s disease (AD) is a major public health priority. Hippocampus is one of the most affected areas of the brain and is easily accessible as a biomarker using MRI images in machine learning for diagnosing AD. In machine learning, using entire MRI image slices showed lower accuracy for AD classification. We present the select slices method by landmarks on the hippocampus region in MRI images. This study aims to see which views of MRI images have higher accuracy for AD classification. Then, to get the value of three views and categories, we used multiclass classification with the publicly available Alzheimer’s Disease Neuroimaging Initiative (ADNI) dataset using Resnet50 and LeNet. The models were used in a total dataset of 4,500 MRI slices in three views and categories. Our study demonstrated that the selecting slices performed better than using entire slices in MRI images for AD classification. Our method improves the accuracy of machine learning, and the coronal view showed higher accuracy. This method played a significant role in improving the accuracy of machine learning performance. The results for the coronal view were similar to the medical experts usually used to diagnose AD. We also found that LeNet models became the potential model for AD classification.

**Existing system**

In existing system, many machine and deep learning algorithms were using to predict this disease but all those algorithms were taking entire MRI scan input for prediction which is degrading prediction accuracy as entire image may contains irrelevant features which will be diagnose incorrectly.

**Disadvantages:**

1. Less Accuracy
2. More time taking process

**Proposed system**

In proposed system, employing novel technique to extract affected regions such as Axial, Coronal and Sagittal from MRI scan images and this extracted brain images region will get trained with different deep learning algorithms such as Pre-trained Resnet50, Resnet50 and LENET and in all algorithms LENET is giving better accuracy.

**Advantages:**

1. High Accuracy
2. Takes less time

**HARDWARE & SOFTWARE REQUIREMENTS:**

**HARDWARE REQUIRMENTS:**

* processor :   intel i3(min)
* Hard Disk  :   40 GB.
* Floppy Drive :   1.44 Mb.

**SOFTWARE REQUIRMENTS:**

* Operating system : Windows 10 (min)
* Coding Language  : python with Jupiter notebook