**Alzheimer Disease Prediction Using Machine learning Algorithm**

Alzheimer disease is the one amongst neurodegenerative disorders. Though the symptoms are benign initially, they become more severe over time. Alzheimer's disease is a prevalent sort of dementia. This disease is challenging one because there is no treatment for the disease. Diagnosis of the disease is done but that too at the later stage only. Thus if the disease is predicted earlier, the progression or the symptoms of the disease can be slowed down. This paper uses machine learning algorithms to predict Alzheimer disease using psychological parameters like age, number of visits, MMSE and education .

**EXISTING SYSTEM:**

method of deep learning along with the brain network and clinical significant information like age, ApoE gene and gender of the subjects for earlier examination of Alzheimer’s . Brain network was arranged, calculating functional connections in the brain region by employing the resting-state functional magnetic resonance imaging (R-fMRI) data. To produce a detailed discovery of the early AD, a deep network like autoencoder is used where functional connections of the networks are constructed and are susceptible to AD and MCI. The dataset is taken from the ADNI database. The classification model consists of the early diagnosis, initially preprocessing of raw R-fMRI is done. Then, the time series data (90 ×130matrix) is obtained and that indicates blood oxygen levels in each and every region of the brain and changes over a long period. Then, a brain network is built and transformed to a 90 ×90 time series data correlation matrix. The targeted autoencoder model is used which is a three layered model which gives intellectual growth of the nervous system then extracts brain networks attributes completely When a finite amount of data cases is taken, k-fold cross verification was implemented mainly to avoid the over fitting complication..

**DISADVANTAGES OF EXISTING SYSTEM:**

* The ability to collect, store, manage and process data has been difficult in existing methods.
* The stage of artificial intelligence is also defined as a discipline about knowledge, namely the technology about how to acquire and express the knowledge and convert it into practical applications

**PROPOSED SYSTEM:**

proposed a method called multistage classifier by using machine learning algorithms like Support Vector Machine, Naive Bayes and K-nearest neighbor to classify between different subjects . PSO (particle swarm optimization) which is a technique that best selects the features was enforced to obtain best features. Naturally image retrieving process requires two stages: the first stage involves generating features so that it reproduces the query image and then later step correlate those features with those already gathered in the database . The PSO algorithm is used to select the finest biomarkers that show AD or MCI. The data is Alzheimer's disease Neuroimaging Initiative (ADNI) database. The MRI scans are preprocessed first after taking from the database. The feature selection includes volumetric and thickness measurements. Then the optimum feature lists were obtained from PSO algorithm . The Gaussian Naïve Bayes, K- Nearest Neighbor, Support vector machine was used to distinguish between the subjects. Here a 2 stage classifier was used where in the initial stage GNB classifier was used to classify the objects between AD, MCI and NC and in later stages SVM and KNN were used to analyze the object based on the performance of the initial one . Control Based Image Retrieval was used for retrieving images from the database.

**ADVANTAGES OF PROPOSED SYSTEM:**

SVM is a directed study model that classifies by separating the objects using a hyperplane.

It can be used for both classification and regression. The hyperplanes are drawn with the help of the margins.

The main goal is to maximize the distance between the hyperplane and the margin.

The margins are drawn with the help of support vectors that are belonging to the objects.

The main advantage of SVM is that it can distinguish linear and non-linear objects

**SYSTEM REQUIREMENTS:**

**HARDWARE REQUIREMENTS:**

* System : Pentium Dual Core.
* Hard Disk : 500 GB.
* Monitor : 15’’ LED
* Input Devices : Keyboard, Mouse
* Ram : 1GB.

**SOFTWARE REQUIREMENTS:**

* Operating system : Windows 7.
* Coding Language : Python
* Tool : PyCharm, Visual Studio Code
* Database : sqlite.

**REFERENCE:**

] M. Saravanan and A. Priya (2019). An Algorithm for Security Enhancement in Image Transmission Using Steganography. Journal of the Institute of Electronics and Computer, 1, 1-8. “ **Alzheimer Disease Prediction Using Machine learning Algorithm”**

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