

Team Id	PNT2022TMID38741
Team leader	Dhivya V
Team members	Pasca Mary C
	Sathyapriya S
	Shanmathi M
Project title	Detecting parkinsons diseases using machine learning

Literature survey

Paper 1:

Title	oligodendroglial markers distinguishes Parkinson's disease from multiple system atrophy
Author	suman dutta, Simon hornung, adria kruayatidee, katherinen.maina,irish del rosario
Journal	Springer link
Year	2021
Methodology	electrochemiluminescence ELISA.
Scope	They tested and validated a blood-based diagnostic biomarker in two independent cohorts, which separates two related synucleinopathies, PD, and MSA, with high sensitivity and specificity. The biomarker is based on measurement of α -syn concentrations in putative neuronal and oligodendroglial exosomes isolated from patients serum or plasma. Additional validation in larger cohorts, and eventually in pathologically confirmed sample when those become available, may facilitate the use of this biomarker, potentially in combination with recently discovered ones, such as clusterin and fibrillar α -syn, for routine clinical diagnosis of these diseases.

Paper 2

Title	Profiling novel metabolic biomarkers for Parkinson's disease using in-depth metabolomic analysis
Author	wei han, shraddha sapkota, richard camicoli, roger A Dixon
Journal	Movement disorder
Year	2017
Methodology	Metabolomic profiling using dansylation isotope labeling liquid chromatography massspectrometry
Scope	The significantly altered metabolites can be used to differentiate PD patients from healthy controls with high accuracy and the stable PD with no dementia group from those with incipient dementia

Paper- 3:

Title	Medical record review to differentiate between idiopathic parkinsons disease and parkinsonism
Author	xin cui, naomi greene, eva schernhammer, beate ritz
Journal	hindawi
Methodology	chi-square tests,NHR
Scope	The electronic medical records provide new and unprecedented opportunities for large population-based and clinical studies if valid and reliable diagnoses be obtained, to determine what information is needed to distinguish idiopathic PD from Parkinsonism in electronic medical records.Thus, they Data suggest that electronic data source Need to be developed that provide Information not only on ICD codes but also on cardinal and atypical symptoms, symmetry of onset, comorbidities, and

	treatment modalities for all PD patients. To be most informative in terms of predictive validity for IPD, these data need to be used in combination and patients need to be followed up over at least 5 years into disease to improve diagnostic accuracy in studies that rely solely on record .
Year	2015

Paper-4:

Title	Machine learning for the diagnosis of Parkinson's disease: A systematic
Author	jie sei, johannas fransneli
Journal	Research gate
Year	2020
Methodology	Machine Learning; Diagnosis; Differential Diagnosis
Scope	Diagnosis of Parkinson's disease (PD) is commonly based on medical observations and assessment of clinical signs, these symptoms are often overlooked, making diagnosis of PD at an early stage challenging. To address these difficulties and to refine the diagnosis and assessment procedures of PD, machine learning methods have been implemented for the classification of PD and healthy controls or patients .the first exhaustive review which included results from all studies that applied machine learning methods to the diagnosis of PD

Paper-5

Title	Monitoring Parkinson's Disease in Smart Cities
Author	MUSAED ALHUSSEIN

Journal	IEEE
Year	2017
Methodology	cloud computing,ELM,SVM,GMM,RFT.
Scope	Parkinson's Disease (PD) is one of the most severe neurological diseases prevalent in the world.A neurodegenerative disease, it impairs the body's balance, damages motor skills, and leads to disorder in speech production. These problems also affect decision-making processes and the expression of emotions.

Paper-6:

Title	Machine Learning Approaches for Detecting Parkinson's Disease from EEG Analysis:A Systematic Review
Author	Ana María Maitín Alvaro José García-Tejedor and Juan Pablo Romero Muñoz
Journal	Applied science
Year	2020
Methodology	Parkinson's disease (PD);electroencephalography(EEG) machine learning (ML)
Scope	parkinson's disease (PD) is the second most common neurological Alzheimer's disease,Electroencephalography (EEG) is a non-invasive technique that records the electrical activity of the pyramidal neurons of the brain, giving an indirect insight of the function with a great time resolution.efficiently. These techniques are increasingly being applied to EEG analysis, facilitating the use of this low-cost clinical test to detect or extract information on various neurological diseases.it should be emphasized that ML techniques have experienced significant growth in recent years, incorporating

	more complex models, and thus, this review and the conclusions obtained herein should be considered as a first step in the analysis of the role played by ML techniques and EEG in the study of PD.
--	---

Paper-7:

Title	Automatic Diagnosis of Parkinson's Disease Using Machine Learning
Author	JEANNIE HE
Journal	KTH VETENSKAP OCH KONST
Year	2021
Methodology	Machine learning, Feature Selection, Greedy Search, Genetic Algorithm.
Scope	This system was chosen as the best system for the diagnosis of Parkinson's disease based on its comparative predictive performance on two sets of data - one from drawing exams and one from voice exams.while none of the systems in this thesis have shown a significantly higher performance than all other systems in any metric, it can be stated that, amongst those systems tested in this thesis, the best system for the diagnosis of PD appears to be RFGA+ as a combination of RF, GA and random oversampling.

