A close up of a logo

Description automatically generated

Department of Artificial Intelligence and Data Science

Project Proposal for the mini project in Machine learning lab

|  |  |
| --- | --- |
| Group Number (Check project team file) | 2 |
| Topic or area of the project: | HealthCare |
| Tentative title: | Parkinson’s disease progression prediction. |
| Group member details:  (In ascending order of USN – NAME) | 1. NNM22ADO07 - Anagha Tantry 2. NNM22ADO12 - Anusha Nayak 3. NNM22ADO36 - Nidhi Shetty 4. NNM22AD058 - Swaroop S |
| Abstract.   * **Introduction:** Parkinson’s disease (PD) is a disabling brain disorder that affects movements, cognition, sleep, and other normal functions. Unfortunately, there is no current cure and in most of the cases disease worsens over time. Early prediction of its progression can significantly enhance patient care, allowing for timely interventions and personalized treatment plans. * **Objective:** The objective of this idea is to develop a predictive model that can forecast the progression of Parkinson's disease in individual patients. * **Problem Statement:** There is a lack of precise methods to predict the progression of Parkinson's disease, leading to challenges in providing optimal care and planning interventions for patients. * **Solution Overview:** Our solution involves implementing machine learning algorithms on the patient’s data to develop a predictive model that can forecast the progression of Parkinson's disease based on various clinical markers and biomarkers. * **Key Features:**   1. Machine Learning Algorithms: Once the data is pre-processed apply machine learning algorithms to analyse patient data and identify patterns associated with disease progression.  2. Clinical Markers and Biomarkers: Incorporate a wide range of clinical markers and biomarkers, including motor symptoms, genetic factors, and imaging data, to enhance prediction accuracy.  3. Personalized Predictions: Provide individualized predictions tailored to each patient's specific disease trajectory.  4. User-friendly Interface: Develop a user-friendly interface for healthcare professionals to input patient data and obtain predictions easily.   * **Implementation Plan:**  1. Data Collection: Gathering a dataset of patient records. 2. Model Development: Train machine learning algorithms using the collected data to develop a predictive model for Parkinson's disease progression. 3. Validation and Testing: Validate the model using independent datasets and fine-tune its performance to ensure accuracy and reliability. 4. Deployment: Deploy the predictive model and interface in healthcare settings for real-world use. | |
| Expected output and use of the project.  Expected Output:  The primary output of the project is a sophisticated predictive model capable of forecasting the progression of Parkinson's disease in individual patients. This model will utilize machine learning algorithms to analyze patient data and generate predictions based on various clinical markers and biomarkers.  Use of the Project:  1. Early Intervention: Enable early detection of disease progression, allowing for timely interventions to slow or manage symptoms.  2. Personalized Treatment Plans: Facilitate the development of personalized treatment plans based on individual patient's disease progress.  3. Improved Patient Outcomes: Enhance patient care and quality of life by optimizing treatment strategies and planning. | |