Project Design Phase-I Proposed Solution

|  |  |
| --- | --- |
| Date | 24 September 2022 |
| Team ID | PNT2022TMID36004 |
| Project Name | Detecting Parkinson's Disease using Machine  Learning |
| Team Leader | Pradhicsha M R |
| Team Members | Kathiresh Praveen s  Vasanth M  Divya G  Gokul R |
| Faculty Mentor | Ms. Radha Senthilkumar |
| Maximum Marks | 2 Marks |

**Proposed Solution:**

|  |  |  |
| --- | --- | --- |
| **S.No.** | **Parameter** | **Description** |
| 1. | Problem Statement (Problem to be solved) | Parkinson’s disease is caused by the disruption of brain cells that produce a substance to allow brain cells to communicate with each other called dopamine.It is a progressive disorder of the central nervous system affecting movement and inducing tremors and stiffness.The symptoms usually emerge slowly, and as the disease worsens, non-motor symptoms become more common. The most obvious early symptoms are tremor, rigidity, slowness of movement, and difficulty with walking. |
| 2. | Idea / Solution description | The project aims at presenting a solution for Parkinson’s disease detection using the [Python](https://data-flair.training/blogs/python-libraries/) [libraries](https://data-flair.training/blogs/python-libraries/) scikit-learn, numpy, pandas, and xgboost. We’ll load the data, get the features and labels, scale the features, then split the dataset, build an XGBClassifier, and then calculate the accuracy of our model.  The main idea behind the implementation is to classify a person as Healthy or having Parkinson’s disease by building a model using XGBoost. |
| 3. | Novelty / Uniqueness | The XGBoost algorithm used for detecting Parkinson’s disease incorporates a  sparsity-aware split finding algorithm to handle different types of sparsity patterns in the data. Out-of-core computing feature of the XGBoost algorithm optimizes the available disk space and maximizes its usage. |

|  |  |  |
| --- | --- | --- |
| 4. | Social Impact / Customer Satisfaction | Early diagnosis and treatment of PD are paramount to reducing the risk of disease progression, limiting the effects of PD on QoL, and potentially lowering long-term treatment costs.The proposed solution aims at predicting early Parkinson Disease in people using various factors. |
| 5. | Business Model (Revenue Model) | Key partners:   * Distributors * Academia * Platforms Key activities: * Development of solutions * Data acquisition * Platform operation * Clinical Trials Key Resources: * Data * People Value Propositions: * Uniqueness * Performance * Cost reduction Customer Segments: * Clinics,Hospitals * Software/platform developers |
| 6. | Scalability of the Solution | XGBooster with different calculations the exactness, accuracy, review, and so forth is extremely excellent.XGBooster is not only  able to keep up with all those other algorithms but exceeds them in performance.XGBoost can solve real-world scale problems using a minimal amount of resources. |