

**Project Design Phase-I**  
**Proposed Solution Document**

Date	19 September 2022
Team ID	PNT2022TMID35637
Project Name	Detecting Parkinsons' Disease Using Machine Learning
Maximum Marks	2 Marks

**Proposed Solution:**

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	<p>Parkinson's disease (PD) is a neurological movement disorder in which the symptoms steadily worsen over time, beginning with a mild tremor in one hand and a sense of body stiffness. Over 10 million people are affected globally. Doctors' testing for this illness have not yet produced any solid results, especially in the early stages of the illness when it is exceedingly challenging to identify symptoms. Parkinson's disease is rumored to affect those over 40 who live in rural locations, which itself is a reason for it to manifest erratically. The provision of proper therapy and care for people with Parkinson's disease is hampered by a lack of relevant understanding. The primary goal of this project is to develop a machine learning model that will be able to identify if a person has the disease or not with the help of a web application that lets the user provide inputs to it.</p>
2.	Idea / Solution description	<p>This model processes the handwritten patterns using a neural network that predicts whether the person has Parkinson's disease. Not only does it take in the handwritten patterns, it also takes in voice measurements to get more accurate results. A web application is also provided for the user to act as an interactive interface between themselves and our model. Proper classification of the true and fake samples has to also happen which is key.</p>

3.	Novelty / Uniqueness	<p>The voice dataset of Parkinson's disease from the UCI Machine learning library is used as input along with the handwritten patterns of the user.</p> <p>Also, our proposed system provides accurate results by integrating handwritten drawing inputs of normal and Parkinson's affected patients.</p> <p>We propose a hybrid model and accurate results by analyzing patients using both voice and handwritten patterns.</p>
4.	Social Impact / Customer Satisfaction	<ul style="list-style-type: none"> <li>● It removes the necessity for people to go to the hospital for diagnosis for a quick diagnosis</li> <li>● It will be easy to use for everyone including people of all ages and classes</li> <li>● It will be free of cost for low income people</li> </ul>
5.	Business Model (Revenue Model)	<ul style="list-style-type: none"> <li>● For use by clinics/hospitals: <ul style="list-style-type: none"> <li>○ Package 1: Fixed cost per use</li> <li>○ Package 2: Monthly expense model</li> <li>○ Package 3: Lifetime package</li> </ul> </li> <li>● For use by individuals: Fixed cost per use</li> <li>● For people who can prove low-income levels: Free of cost</li> </ul>
6.	Scalability of the Solution	<ul style="list-style-type: none"> <li>● Model works same irrespective of number of users</li> <li>● Finding the severity of the disease based on the user inputs</li> <li>● Prescribing the required medication based on the severity</li> <li>● More interactive user experience by introducing chatbots</li> </ul>