Project Design Phase-I
Proposed Solution Template

Date	19 September 2022
Team ID	PNT2022TMID26216
Project Name	Project – Detecting Parkinson's disease using Machine learning
Maximum Marks	2 Marks

Proposed Solution :

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	Inaccurate detection and diagnosis of Parkinson 's disease. Due to the lack of specific tests and misconception of other diseases sharing the same symptom , delayed or inaccurate results are obtained.
2.	Idea / Solution description	To detect parkinson's disease with accuracy taking distinctive symptoms into account for larger set of people . It provides a solution for the confusion between other motor(movement) diseases and parkinson's disease. The project aims to build a web application that detects Parkinson's disease when hand-drawn images of spirals and waves of it are given.
3.	Novelty / Uniqueness	It is found that the drawing speed was slower and the pen pressure is lower among Parkinson's patients. One of the indications of Parkinson's is tremors and rigidity in the muscles, making it difficult to draw smooth spirals and waves. It is possible to detect Parkinson's disease using the drawings alone instead of measuring the speed and pressure of the pen on paper. Our goal is to quantify the visual appearance(using HOG method) of these drawings and then train a machine learning model to classify them. In this project, We are using, Histogram of Oriented Gradients (HOG) image descriptor along with a Random Forest classifier to automatically detect Parkinson's disease in hand-drawn images of spirals and waves.
4.	Social Impact / Customer Satisfaction	It becomes easier for the doctors and clinicians to diagnose parkinson's disease among all the other movement diseases with accuracy without much chaos and complications and thus provide the correct report and analytics .

5.	Business Model (Revenue Model)	The project converts the hand drawn patterns into the amount of pressure used by the patient on the pen and paper. This is integrated with other symptoms to get a clear picture of who is affected by Parkinson's disease to what extent
6.	Scalability of the Solution	The web application plays a crucial role in differentiating other motor diseases and Parkinson's diseases. It can be applied for a large dataset which saves time and brings efficiency.