

Project Design Phase-I
Proposed Solution

Date	26 September 2022
Team ID	PNT2022TMID53604
Project Name	Detecting Parkinson's Disease Using Machine Learning
Maximum Marks	2 Marks

Proposed Solution:

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	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. While Parkinson's cannot be cured, early detection along with proper medication can significantly improve symptoms and quality of life.
2.	Idea / Solution description	<ul style="list-style-type: none"><input type="checkbox"/> Our goal is to quantify the visual appearance (using HOG method) of these drawings and then train a machine learning model to classify them.<input type="checkbox"/> 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.
3.	Novelty / Uniqueness	<ul style="list-style-type: none">➤ Our solution should notify the patient accurately and efficiently without hassle.➤ Scanner integration for uploading instant image of the drawing for detection.

4.	Social Impact / CustomerSatisfaction	Our solution will be very user friendly for the patients. More than 10 million people are living with Parkinson's Disease worldwide, according to the Parkinson's Foundation. While Parkinson's cannot be cured, early detection along with proper medication can significantly improve symptoms and quality of life.
5.	Business Model (Revenue Model)	<ul style="list-style-type: none"> ➤ The main target of our solution is early detection of Parkinson's disease. We have planned to visit the nearby hospitals and clinics to create awareness among people. ➤ We can partner with old age homes and help them connect with nearby hospitals for better treatment for Parkinson's. ➤ We can also create awareness with NGOs and team up with public health management.
6.	Scalability of the Solution	Alerting system of the application offers quick response time and sends alert to people in short period of time. We have also planned for an user-friendly and free of cost app along with scanner integration to provide efficient and quick diagnosis results.