

## Project Design Phase-I Proposed Solution Template

Date	06 October 2022
Team ID	PNT2022TMID20847
Project Name	Detecting Parkinson's Disease using Machine Learning.
Maximum Marks	2 Marks

### Proposed Solution Template:

Project team shall fill the following information in proposed solution template.

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	Parkinson's cannot be cured; early detection along with proper medication can significantly improve symptoms and quality of life. We focus on predicting the disease using Random Forest classifier to automatically detect Parkinson's disease in hand-drawn images of spirals and waves.
2.	Idea / Solution description	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.
3.	Novelty / Uniqueness	Histogram of oriented gradients (HOG) is used for feature extraction in the human detection process and hence promises accuracy. Random forest in combination with bagging helps in better tree building. We incorporate HOG in random forest to develop the model.
4.	Social Impact / Customer Satisfaction	From a scientific perspective, "early" is easy to comprehend within the framework of disease pathology and its manifestations. Cost of illness escalates as PD progresses, placing an economic burden on the healthcare system, society and patients themselves. Early detection can reduce that cost burden.
5.	Business Model (Revenue Model)	Our model focuses on reaching out to patients suffering from Parkinson's and doctors treating them.
6.	Scalability of the Solution	No, scaling is not necessary for random forests. The nature of RF is such that convergence and numerical precision issues, which can sometimes trip up the algorithms used in logistic and linear regression, as well as neural networks, aren't so important. Because of this, we don't need to transform variables to a common scale like you might with a NN.