

## Project Design Phase-I

### Solution Architecture

Date	3 Octoberber 2022
Team ID	PNT2022TMID04556
Project Name	Project - Detecting Parkinson's Disease using Machine Learning
Maximum Marks	4 Marks

### Solution Architecture:

The spiral wave test is conducted on patients. The result of the spiral wave test i.e., images of spirals and waves drawn by patients are obtained. These images are analysed by using Histogram of Oriented Gradients (HOG), Machine Learning and OpenCV and a diagnosis is given. Random Forest Classifier is used for the spiral images in the dataset and KNN for Wave images along with Histogram of Oriented Gradients (HOG) for quantifying the images before training. Pre processing of the images includes the following steps:

- ☐ Resizing every image to  $200 \times 200$  pixels from the input images of random sizes
- ☐ Converting each image from RGB to GrayScale to have a single channel
- ☐ Thresholding the image so that it appears as white on a black background for better feature extraction
- ☐ After this, HOG will be used to extract features from the images
- ☐ For Spiral : RandomForestClassifier will be used for fitting &  
For Wave : KNeighborsClassifier will be used.



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