

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

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| Date          | 19 September 2022                                    |
| Team ID       | PNT2022TMID26222                                     |
| 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) | 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.  |
| 2.    | Idea / Solution description              | 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.                              |
| 3.    | Novelty / Uniqueness                     | The entire project has been done with a fresh approach and as a change from regular kind of models. We have also tried in extending the dataset apart from the given dataset.  |
| 4.    | Social Impact / Customer Satisfaction    | The researchers 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. |
| 5.    | Business Model (Revenue Model)           | As this is a medical domain, it would be completely unethical to mint money out of it.   |
| 6.    | Scalability of the Solution              | This solution is completely scalable in all aspects , apart from being agile , simple and blazing fast.  |