Project Design Phase - I
Proposed Solution Document

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Project Name	Detecting Parkinson's Disease Using Machine Learning

Proposed Solution:

S.No.	Parameter	Description
1	Problem Statement (Problem to be solved)	Parkinson's disease (PD) is a neurodegenerative movement disease where the symptoms gradually develop start with a slight tremor in one hand and a feeling of stiffness in the body and it became worse over time. It affects over 6 million people worldwide. At present there is no conclusive result for this disease by non-specialist clinicians, particularly in the early stage of the disease where identification of the symptoms is very difficult in its earlier stages. The disease is majorly is said to be affecting the individuals who are living in village areas with their respective ages over 40 and 50 which outcomes itself as a reason for Parkinson's disease to occur at unexpected times. Lack of adequate knowledge poses a barrier in the provision of appropriate

		treatment and care for individuals with Parkinson's Disease. We had conducted a important survey between rural and urban areas in which we found that 68% of rural people from agricultural field are getting majorly affected by Parkinson's disease whereas 32% of urban people are affected by the disease with the ages over 50. We further researched and analyzed the data that was gathered from all over the network for figuring out the accurate reason for why this disease majorly affects the agricultural life. So, we found that as Parkinson's disease is believed to be caused by a combination of environmental risk factors and genetic susceptibility. As use of pesticides and Parkinson's disease have been associated, but it has not been narrowed down to specific pesticides or how the amount of exposure contributed. So most specifically, farmers are more prone to Parkinson's Disease than the general population people. The main target of this project is to develop an machine learning powered web application model with the strong building of user interface features that helps to identify and predicts the disease by the identification of symptoms.

2	Idea / Solution description	● It processes the breathing signals using a neural network that infer whether the person has Parkinson's disease, and if they are identified then it assesses the severity of their disease in accordance with the Movement Disorder Society Unified Parkinson's Disease using ML algorithms. ● User can place their values and interact with the friendly user assistance bot which guides the person in using the application. ● Great classification of the right variation of true and fake samples of data that is entered by users in the application.

3	Novelty / Uniqueness	Parkinson's Disease is detected at the secondary stage only (Dopamine deficiency) which leads to medical challenges. Also, doctor must manually examine and suggest medical diagnosis in which the symptoms might vary from person to person so suggesting medicine is also a challenge. So hence the disease examination varies at different instances of the medical operations. Here by using machine learning methods, the problem can be addressed with very less error rate. The voice dataset of Parkinson's disease from the UCI Machine learning library isused as input. Also, our proposed system provides accurate results by integrating spiral drawing inputs of normal and Parkinson's affected patients. We propose a hybrid and accurate results analyzing patient both voice and spiral drawing data. This application offers medical advice and solutions as the next step after user is confirmed based on the presence ofParkinson's disease. This can be used direct by medical team for analyzing and offering the solutions at much positive scaling time.
4	Social Impact / Customer Satisfaction	• Increases interaction with the human and application • Personalize the UI experience • Improves accurate result as expected • An automated chatbot controls the user interaction environment • Accurate prediction at good time complexity.
5	Business Model (Revenue Model)	• Solutions prospects of improvement • Suits for better saving of involvements • Economical Development • Easy interface

6	Scalability of the Solution	• Good conversation with ethnicity people. • Saves enough time for performing internal operations. • It does not require for the users to spend some money in offering their basic data into the model. • On the spot result for the users.