Project Design Phase-II
Solution Requirements (Functional & Non-functional)

Date	03 October 2022
Team ID	PNT2022TMID24158
Project Name	Project -Detecting Parkinson's Disease Using Machine Learning
Maximum Marks	4 Marks

Functional Requirements:

Following are the functional requirements of the proposed solution.

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	Home Page	Short description about Parkinson's Disease, its different types, and symptoms along with possible comorbidity management techniques. If the user already has an account, they can log in. Otherwise, they are required to sign up.
FR-2	User Registration (Sign in) Page	User needs to sign up/ register by entering Name, Email address, Phone number and Password.
FR-3	User Confirmation & Verification	Verification will be done via Email or OTP.
FR-4	User Login Page	User can enter their credentials (Email and Password) and log in to their account.
FR-5	User Dashboard	The logged in user is led to a dashboard where the user is asked to upload the image in order to provide the diagnosis. The user is also asked for other parameters such as age, blood type, mobility issues etc for survey purposes. This information is optional and is collected only from willing users.
FR-6	Test input (Copy of hand-drawn image)	The input to the prediction system is uploaded as an image. It can be uploaded either using a live drawing notepad or as the digital copy of an already drawn spiral/wave. Image quality evaluation is done in this step to determine whether the image quality is sufficient for processing.
FR-7	User authentication during login	User authentication is done using PHP via database in XAMPP server.
FR-8	Disease prediction by image processing	Classification is carried out using Digital image processing using Histogram of Oriented Gradients (HOG) image descriptor along with a random forest classifier.
FR-9	Recommendation	The prediction system provides a positive or negative diagnosis. It also suggests the specialization doctors that need to be consulted. The system arrives at the result by analysing the standards defined by Movement Disorder Society Unified Parkinson's Rating Scale and progression of the disease.

Non-functional Requirements:

Following are the non-functional requirements of the proposed solution.

FR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	The website can be easily navigated even by the uninitiated user and the functionality that the website provides is simple and easy to understand.
NFR-2	**Security**	The application is designed to safeguard against threats including unauthorized access and protects the patient's confidentiality by keeping patient details visible only to admin and the patient. Access permissions can only be changed by the system's data administrator.
NFR-3	**Reliability**	The software will work without failure. It does not have any security bugs. The model is trained with different visuals for detecting the disease, which leads to a more accurate assessment of a disease, thereby making the system more reliable for its users.
NFR-4	**Performance**	The system Is very responsive to user interactions with it and can handle a large traffic without getting overloaded. The user wait time is not prolonged, including capturing and uploading to prediction and providing recommendations.
NFR-5	**Availability**	The software is always available to the user irrespective of the any new module development. If any backend work requires that the page be unavailable, then a notification is displayed to the user informing when it will up again for use. The software can also be utilized by anyone, regardless of the customer location or other network capabilities.
NFR-6	**Scalability**	The system has the ability to grow without any negative impact on its performance. The system is designed in a way it can withstand a large number of users at any given moment and if need be, can be scaled up to handle even more users.