Technical Architecture

Project Design Phase-II Technology Stack (Architecture & Stack)

Team ID	PNT2022TMID36004
Title	Detecting Parkinson's Disease using Machine Learning
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Table-1: Components & Technologies:

S. No	Component	Description	Technology
1.	User Interface feature	How user interacts with application e.g. Web UI	HTML, CSS, JavaScript (Web application)
2.	Application Logic-1	Logic for a process in the application	Python
3.	Application Logic-2	Logic for a process in the application	IBM Watson STT service (Cloud)
4.	Application Logic-3	Logic for a process in the application	IBM Watson Assistant (Cloud)
5.	Database	Data Type, Configurations etc.	MySQL
6.	Cloud Database	Database Service on Cloud	IBM DB2

7.	File Storage	File storage requirements	Local Filesystem
8.	External API	Purpose of External API used in the application	Aadhar API
9.	Machine Learning Model	Purpose of Machine Learning Model	Random Forest classifier (ML), Decision tree classifiers, Support Vector Machines (SVM), Label encoding and One-hot encoding, K Nearest Neighbor (KNN) algorithm, XG boost algorithm(Gradient boosting)
10.	Infrastructure (Server / Cloud)	Application Deployment on Local System / Cloud	Local Server Configuration: Local System Cloud Server Configuration: IBM Watson (Cloud)

Table-2: Application Characteristics:

S. No	Characteristics	Description	Technology
1.	Open-Source Frameworks	List the open-source frameworks used	Numpy, Pandas, metrics, XG boost, Python Flask (Web), Scikit-learn(Sklearn), Tensor flow
2.	Security Implementations	List all the security / access controls implemented, use of firewalls etc.	Encryptions, Decryptions
3.	Scalable Architecture	Justify the scalability of architecture (3 – tier, Micro-services)	MySQL – As it can store huge amount of data
4.	Availability	Justify the availability of application (e.g., use of load balancers, distributed servers etc.)	IBM Watson – Can easily be accessed
5.	Performance	Design consideration for the performance of the application (number of requests per sec, use of Cache, use of CDN's) etc.	Flask – Handle multiple requests