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

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

Technical Architecture:

Title: Detecting Parkinson's Disease Using Machine Learning

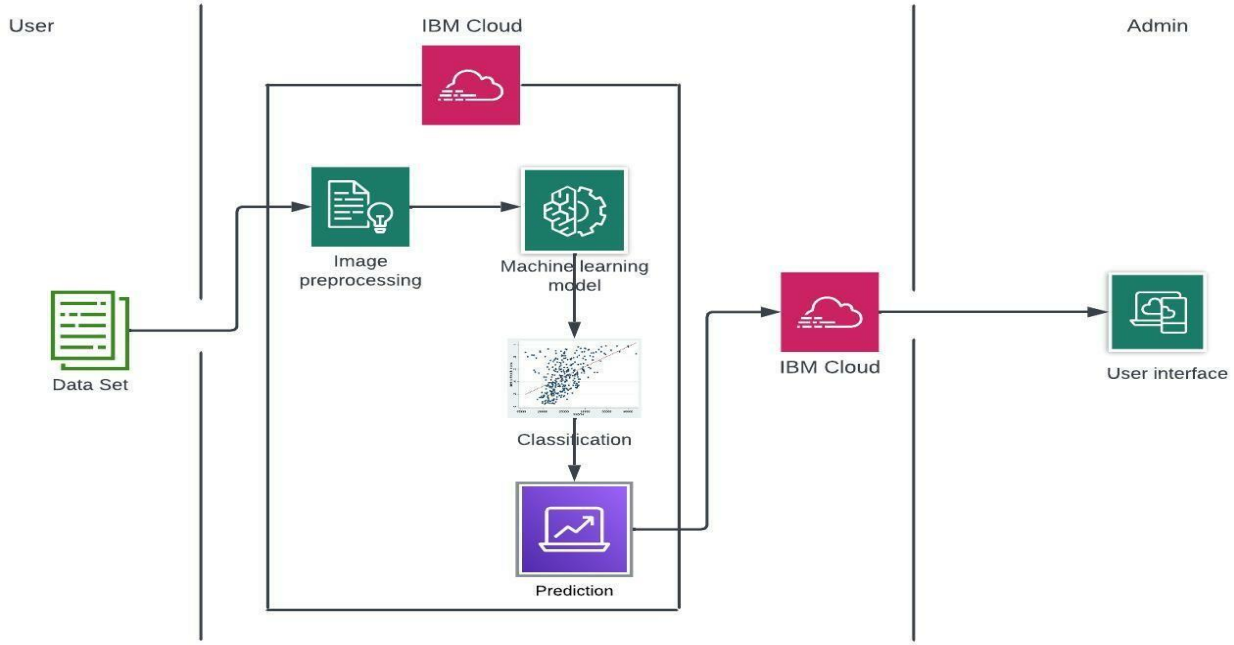

Table-1 : Components & Technologies:

IBM Watson STT service

S.No	Component	Description	Technology
1.	User Interface	The user interacts with application through website	HTML, CSS, JavaScript (Web Application)
2.	Image pre-processing	Image of the spirals and waves drawn by the user is uploaded through the website and resizing and conversion from RGB to Gray scale is carried out on the image.	Python
3.	Machine Learning model	The machine learning model is trained using HOG to quantify the visual appearance of image followed by Random Forest classifier for detection.	Python
4.	Database	Pre labelled datasets and images of spirals and waves are stored	MySQL.
5.	Cloud Database	Database Service on Cloud	IBM DB2
6.	File Storage	Stores the trained machine learning model	Local Filesystem
7.	Machine Learning Model	Machine Learning Model is trained using the training dataset to detect Parkinson's using HOG image quantifier and Random Forest Classifier	Histogram of Oriented Gradients (HOG), Random Forest Classifier
8.	Infrastructure (Server / Cloud)	Application Deployment on Local System / Cloud	Local Server Configuration: Local 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	Python Flask server, Jupyter Notebook
2.	Security Implementations	List all the security / access controls implemented, use of firewalls etc.	Password protected

S.No	Characteristics	Description	Technology
3.	Scalable Architecture	Justify the scalability of architecture (3 – tier, Micro-services)	Python Libraries
4.	Availability	Justify the availability of application (e.g., use of load balancers, distributed servers etc.)	IBM Watson Machine Learning
5.	Performance	Design consideration for the performance of the application (number of requests per sec, use of Cache, use of CDN's) etc.	Flask

References:

https://c4model.com/

https://developer.ibm.com/patterns/online-order-processing-system-during-pandemic/

https://www.ibm.com/cloud/architecture

https://aws.amazon.com/architecture

https://medium.com/the-internal-startup/how-to-draw-useful-technical-architecture-diagrams-2d20c9fda90d