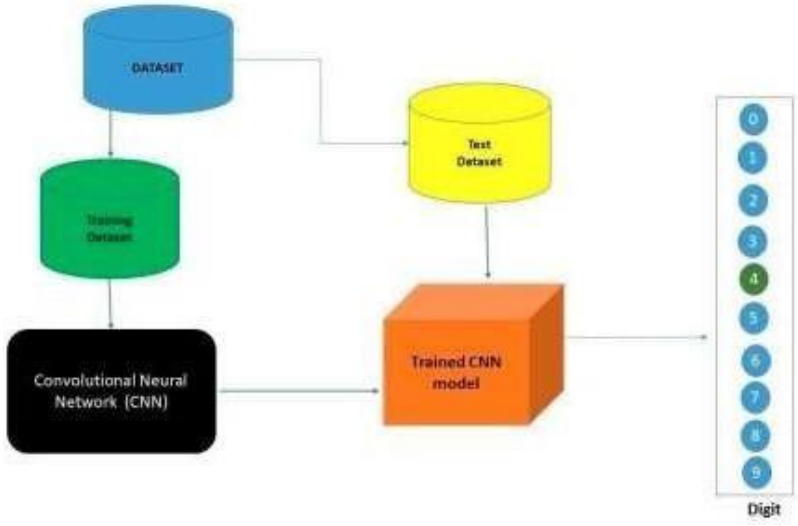
Project Design Phase-II
Technology Stack (Architecture & Stack)

Date	03 October 2022
Team ID	PNT2022TMID36712
Project Name	Project – A Novel Method For Handwritten Digit Recognition System
Maximum Marks	4 Marks

Technical Architecture:

The Deliverable shall include the architectural diagram as below and the information as per the table1 & table 2



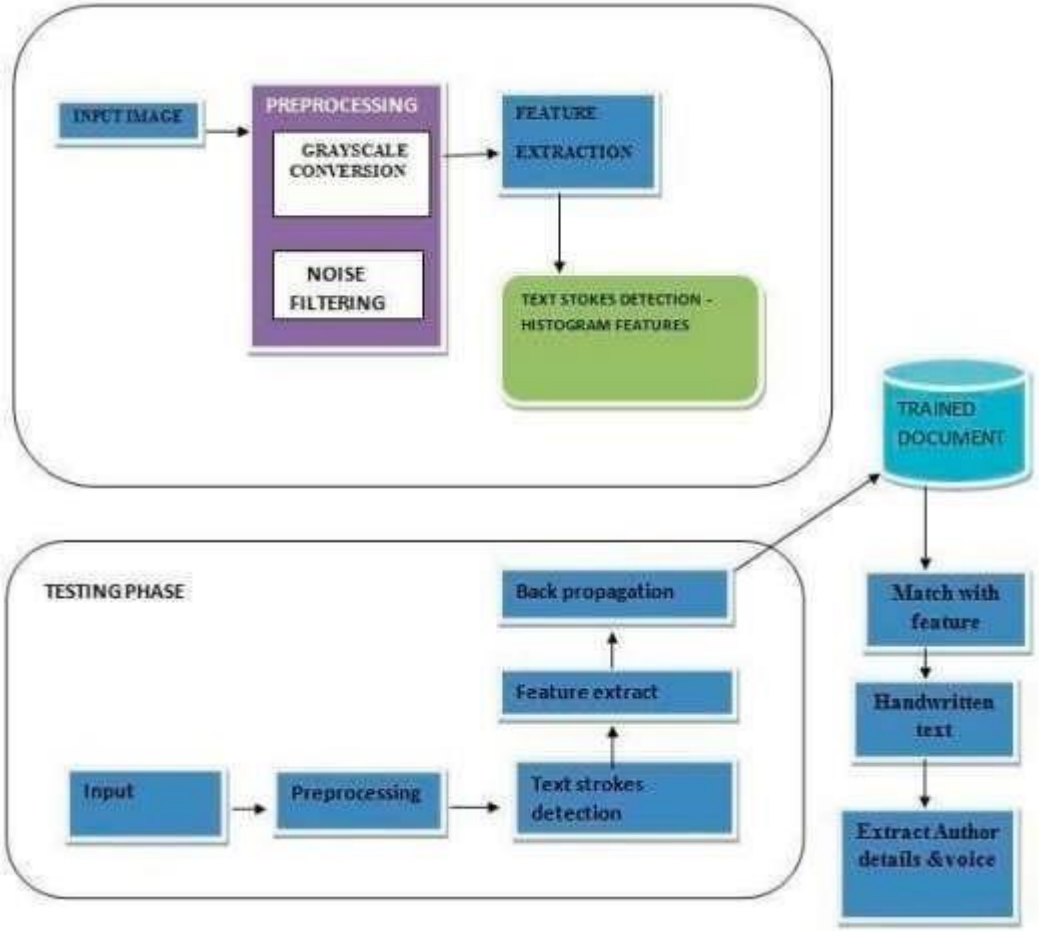

INPUT IMAGE
PREPROCESSING
GRAYSCALE CONVERSION
NOISE FILTERING
FEATURE EXTRACTION
TEXT STOKES DETECTION - HISTOGRAM FEATURES
TRAINED DOCUMENT
TESTING PHASE
Back propagation
Feature extract
Input
Preprocessing
Text strokes detection
Match with feature
Handwritten text
Extract Author details &voice

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	How user interacts with application e.g. Web UI, Mobile App, Chabot etc.	HTML, CSS, JavaScript
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
4.	Application Logic-3	Logic for a process in the application	IBM Watson Assistant
5.	Database	Data Type, Configurations etc.	NoSQL, etc.
6.	Cloud Database	Database Service on Cloud	IBM DB2, IBM Cloudant etc.
7.	File Storage	File storage requirements	IBM Block Storage or Other Storage Service or Local File system
8.	External API-1	Purpose of External API used in the application	IBM Weather API, etc.
9.	External API-2	Purpose of External API used in the application	
10.	Machine Learning Model	Purpose of Machine Learning Model	Image Recognition Model, etc.
11.	Infrastructure (Server / Cloud)	Application Deployment on Local System / Cloud Local Server Configuration:	Local, Cloud Foundry, Kubernetes, etc.

		Cloud Server Configuration :	

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	List the open-source frameworks used	TensorFlow, PyTorch,Flask
2.	Security Implementations	List all the security / access controls implemented, use of firewalls etc.	e.g., SHA-256, Encryptions, IAM Controls, OWASP etc.
3.	Scalable Architecture	Justify the scalability of architecture (3 – tier, Micro-services)	Presentation layer-HTML,CSS,Javascript. Application Layer-Python Data-Tier Layer-Cloudant DB
4.	Availability	Justify the availability of application (e.g., use of load balancers, distributed servers etc.)	Distributed Servers
5.	Performance	Design consideration for the performance of the application (number of requests per sec, use of Cache, use of CDN's) etc.	Google COLAB

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