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

Date	14 October 2022
Team ID	PN2022TMID40505
Project Name	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
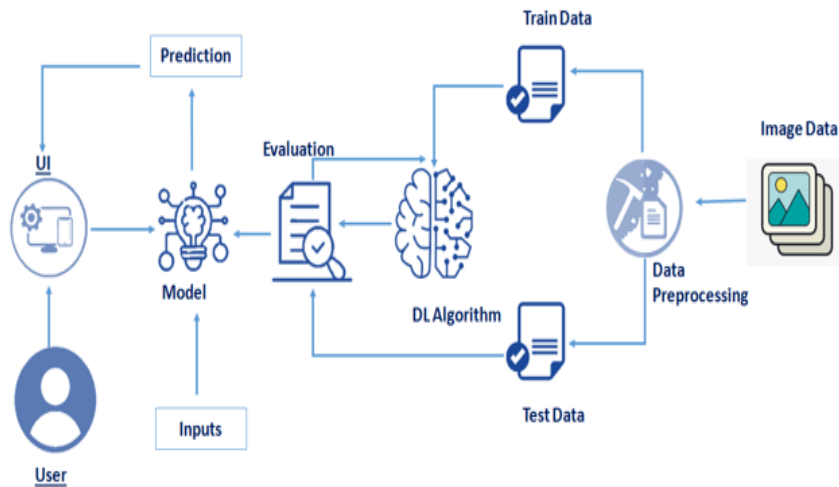
Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	Pre-processing	Noise removal,text detection	HTML, CSS, JavaScript / Angular Js / React Js etc.
2.	Representation	Skeleton, counters, pixels or others	Java / Python
3.	Segmentation	Partitioning Words or sub words in characters, strokes or other units	IBM Watson STT service
4.	Features	Shape attributes, pixels or other information passed through the recognizer	IBM Watson Assistant
5.	Recognizer	Algorithm that identifies letters,words	MySQL, NoSQL, etc.

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Pre-processing	Pre-processing is a series of procedures carried out on the scanned input image. Noise removal, binarization, skew correction, and other operations are performed on the image during pre-processing.	real-time on-line handwritten character recognition system, based on an ensemble of neural networks.
2.	Segmentation	In the segmentation stage, an image is decomposed into sub-images of individual character.That is line segmentation,Word segmentation, Character segmentation.	Pattern matching technology
3.	Feature extraction.	In this phase, the features of the characters that are essential for classifying them at recognition stage are extracted.Features like binary features, directional features etc .	Geometric-Based Artificial Neural Network technology
4.	Training and recognition	It is training stage of process	Technology used

S.No	Characteristics	Description	Technology
5.	Post processing	The accuracy of recognition is further increased by connecting dictionary to the system in order to perform Syntax analysis, semantic analysis kind of higher level concepts, which is applied to check the recognized character.	Technology used