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

Date	03 October 2022
Team ID	PNT2022TMID41079
Project Name	Project - A Novel Method for Handwritten Digit Recognition System
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	**User Registration**	• Registration through Form • Registration through Gmail • Registration through LinkedIn • Registration through Google or any • registered mails
FR-2	**User Confirmation**	• Confirmation via email • Confirmation via OTP
FR-3	**Image data**	Handwritten digit recognition is the ability of a computer to recognize the human handwritten digits from different sources like images, papers, touch screens, etc
FR-4	**Website**	Web hosting makes the code, graphics, and other items that make up a website accessible online. A server hosts every website you've ever visited
FR-5	**MNIST Dataset**	It was created from the two special datasets of National Institute of Standards and Technology (NIST) which holds binary images of handwritten digits. The training set contains handwritten digits from 250 people, among them 50% training dataset was employees from the Census Bureau and the rest of it was from high school students. It is often attributed as the first datasets among other datasets to prove the effectiveness of the neural networks.
FR-6	**Digit Classifier Model**	To train a convolutional network to predict the digit from an image, use the MNIST database of handwritten digits. get the training and validation data first.

Non-functional Requirements:

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

FR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	One of the very significant problems in pattern recognition applications is the recognition of handwritten characters. Applications for digit recognition include filling out forms, processing bank checks, and sorting mail.
NFR-2	**Reliability**	The system not only produces a classification of the digit but also a rich description of the instantiation parameters which can yield information such as the writing style.
NFR-3	**Performance**	The neural network uses the examples to automatically infer rules for recognizing handwritten digits. There are a number of ways and algorithms to recognize handwritten digits, including Deep Learning/CNN, SVM, Gaussian Naive Bayes, KNN, Decision Trees, Random Forests, etc.
NFR-4	**Accuracy**	Optical Character Recognition (OCR) technology provides higher than 99% accuracy with typed characters in high-quality images. However, the diversity in human writing types, spacing differences, and irregularities of handwriting causes less accurate character recognition.