

Project Design Phase-II

Solution Requirements (Functional & Non-functional)

Team ID	PNT2022TMID53039
Project Name	A Novel Method for Handwritten Digit Recognition System

Functional Requirements:

Following are the functional requirements of the proposed solution.

FR No.	Sub Requirement (Story / Sub-Task)
FR-1	Handwritten digit recognition - identify human handwritten digits from a variety of sources, such as photographs, documents, touch screens, etc., and categorize them into ten established classifications (0-9).
FR-2	Website - It should be easily accessible through a web application and should be convenient to use. Web hosting makes the code, graphics, and other items that make up a website accessible online.
FR-3	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.
FR-4	Cloud: The cloud offers a range of IT services, including virtual storage, networking, servers, databases, and applications. It is a virtual platform that enables unlimited storage and access to your data over the internet.
FR-5	Dataset: MNIST dataset is a collection of 60,000 tiny square grayscale photographs, each measuring 28 by 28, comprising handwritten single digits between 0 and 9.

Non-functional Requirements:

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

FR No.	Non-Functional Requirement	Description
NFR-1	Usability	Applications for digit recognition include filling out forms, processing bank checks, and sorting mail. Also can be used in the documentation of large numbers of old bank documents etc.
NFR-2	Security	The system generates a thorough description of the instantiation parameters, which might reveal information like the writing style, in addition to a categorization of the digit.

NFR-3	Reliability	Numerous techniques and algorithms, such as Deep Learning/CNN, SVM, Gaussian Naive Bayes, KNN, Decision Trees, etc., can be used to recognise handwritten numbers. The samples are used by the neural network to automatically deduce rules for reading handwritten digits. Furthermore, the network may learn more about handwriting and hence enhance its accuracy by increasing the quantity of training instances.
NFR-4	Accuracy	With typed text in high-quality photos, optical character recognition (OCR) technology offers accuracy rates of greater than 99%. However, variances in spacing, abnormalities in handwriting, and the variety of human writing styles result in less precise character identification.
NFR-5	Availability	The website should be available 24/7 in android or iOS or windows. It should be easily accessible by the user at all times.