

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

Date	30 October 2022
Team ID	PNT2022TMID36983
Project Name	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	Getting input from the user.	The handwritten digit is obtained as input from the user as an image uploading or writing on the canvas.
FR-2	Data preprocessing.	Upgrades the image to make it ready for the segmentation by performing some tasks on the input image.
FR-3	Segmentation and data feature extraction.	Segment the MNIST dataset images using the edge detection technique and remove the redundancy from the data.
FR-4	Classification and Recognition.	Passing the feature vectors as individual input to the classifiers or the neural networks such as the CNN model.
FR-5	Prediction.	The deep learning model is trained and tested using the MNIST dataset with the accuracy greater than 90%
FR-6	Evaluation.	Ensure that the digit is correctly recognised by the model and produces accurate output.

Non-functional Requirements:

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

FR No.	Non-Functional Requirement	Description
NFR-1	Usability	To identify and understand handwritten digits automatically with high accuracy.
NFR-2	Security	Ensures security, since uploaded images are not stored in any database.
NFR-3	Reliability	User-friendly web interface for the system. Process confidential information without data leakage.
NFR-4	Performance	High, since artificial neural networks are used to train the images and build deep learning model. Fast prediction using CNN algorithm.
NFR-5	Availability	Using web application, anyone can easily access the system, making it highly available for web and mobile browsers.
NFR-6	Scalability	Performs well even if the count of input handwriting increased, since MNIST dataset is used for the recognition process. Low time consumption.

