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

Date	17 October 2022
Team ID	PNT2022TMID52735
Project Name	Project - A Novel Method for Hand Written Digit Recognition
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	GUI	Allows the user to insert the handwritten image and get the digitalized form of the digits. Created for easy virtualization.
FR-2	Image Data	The ability of a computer to recognise human handwritten digits from a variety of sources, such as pictures, documents, touch screens, etc., and classify them into ten predetermined categories (0-9) is known as handwritten digit recognition. This has been the focus of innumerable studies in the field of deep learning.
FR-3	MNIST Dataset	Modified National Institute of Standards and Technology dataset: The abbreviation MNIST stands for the MNIST dataset. It consists of 60,000 little square
FR-4	Data Classifier Model	Utilize the MNIST collection of handwritten digits to train a convolutional network to predict a digit from an image. First, gather the training and validation data and create the model.

Non-functional Requirements:

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

FR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	The recognition of handwritten characters is one of the major issues with pattern recognition applications. Filling out forms, processing bank checks, and sorting mail are examples of applications using digit recognition.
NFR-2	**Security**	• The segmentation capabilities of the generative models are powered by recognition. • The method makes use of a relatively.
NFR-3	**Reliability**	• The neural network uses the data to automatically determine rules for reading handwritten numerals. By increasing the number of training

		instances, the network may also learn more about handwriting and hence improve its accuracy.
		• To recognise handwritten numbers, a wide range of approaches and algorithms can be employed, including Deep Learning/CNN, SVM, Gaussian Naive Bayes, KNN, Decision Trees, Random Forests, etc.
NFR-4	**Performance**	Optical character recognition (OCR) technology gives accuracy rates of more than 99% for typed text in high-quality pictures.
NFR-5	**Availability**	
NFR-6	**Scalability**	The task of handwritten digit recognition using a classifier is of great importance and use in a variety of applications, including online handwriting recognition on computer tablets, the processing of bank check amounts, numeric entries in forms filled out by hand and more.