

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

Date	15 October 2022
Team ID	PNT2022TMID39478
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	User Registration	Registration is neither needed nor necessary.
FR-2	Input image	Input images must be given by the user. The inputs are handwritten digits from 0 to 9. The model classifies them and convert them into digitalized form.
FR-3	Algorithm	Convolution Neural Network is used to implement handwritten digit recognition.
FR-4	Dataset	Import MNIST dataset. It is a dataset of 60,000 small square 28×28 pixel grayscale images of handwritten single digits between 0 and 9.
FR-5	Website	Build a GUI in which we can draw the digit and recognize it in a straight away.
FR-6	Cloud	Access to files on any device is made possible through the cloud for employees. Anyone wishing to develop memory-demanding, complex Machine Learning/Deep Learning models should consider using cloud services. A cost-effective solution is offered by cloud services.

**Non-functional Requirements:**

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

FR No.	Non-Functional Requirement	Description
NFR-1	<b>Usability</b>	It is user-friendly and it is used in the detection of car numbers, reading of checks at banks, post offices and other tasks.
NFR-2	<b>Security</b>	Authentication can be used to verify the user. It also provides security by ensuring that once recognition is complete, the images uploaded for it will not be stored.
NFR-3	<b>Reliability</b>	This system will work reliably for low resolution images.
NFR-4	<b>Performance</b>	Handwritten digits in the input image will be recognized with an accuracy of 99.99% .

NFR-5	<b>Availability</b>	The website will be made public for everyone.
NFR-6	<b>Scalability</b>	Further accuracy can be achieved by automatically storing and updating all of the user's handwritten digits in the dataset.