

**PROJECT DESIGN PHASE-II**  
**FUNCTIONAL & NON-FUNCTIONAL REQUIREMENTS**

<b>Date</b>	<b>15 OCT 2022</b>
<b>Team ID</b>	<b>PNT2022TMID02158</b>
<b>Project Name</b>	<b>A Novel Method for Handwritten Digit Recognition System</b>
<b>Maximum Marks</b>	<b>4 Marks</b>

**Functional Requirements:**

<b>FR No:</b>	<b>Functional Requirement and description</b>
FR-1	<b>Image Data:</b> Handwritten digit recognition is the ability of a computer to recognize the human handwritten digits from different sources like images, papers, touch screens, etc, and classify them into 10 predefined classes (0-9). This has been a topic of boundless-research in the field of deep learning. In the realm of deep learning, this has been the subject of countless studies.
FR-2	<b>Website:</b> 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. The type of hosting determines how much space is allotted to a website on a server. Shared, dedicated, VPS, and reseller hosting are the four basic varieties.
FR-3	<b>Digit_Classifier_Model:</b> 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	<b>MNIST dataset:</b> The MNIST dataset is an acronym that stands for the Modified National Institute of Standards and Technology dataset. It is a collection of 60,000 tiny square grayscale photographs, each measuring 28 by 28, comprising handwritten single digits between 0 and 9.
FR-5	databases, software, virtual storage, and networking, among others. In layman's terms, Cloud Computing is defined as a virtual platform that <b>allows you to store and access your data over the internet without any limitations.</b>

## Non-functional Requirements:

NFR No.	Non-Functional Requirement
NFR-1	<b>Usability:</b> Handwritten character recognition is one of the practically important issues in pattern recognition applications. The applications of digit recognition include postal mail sorting, bank check processing, form data entry, etc. 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	<b>Reliability:</b> 1) 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. 2)The generative models can perform recognition driven segmentation. 3) The method involves a relative.
NFR-3	<b>Performance:</b> The neural network uses the examples to automatically infer rules for recognizing handwritten digits. Furthermore, by increasing the number of training examples, the network can learn more about handwriting, and so improve its accuracy. 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	<b>Accuracy:</b> 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 characterrecognition.