Project Design Phase-II

Solution Requirements (Functional & Non-functional)

Date	25/10/2022
Team ID	PNT2022TMID30139
Project Name	**Project - 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	Image Data: Handwritten digit recognition is the ability of a computer to recognise human handwritten digits from a number of sources, including pictures, papers, touch screens, etc., and classify them into ten predetermined categories (0-9). This has been the focus of innumerable studies in the field of deep learning.
FR-2	Website: Web hosting enables online access to the HTML, graphics, and other components of a website. Every website you've ever visited is hosted by a server. The amount of server space provided to a website depends on the hosting type. The four primary types of hosting are shared, dedicated, VPS, and reseller.
FR-3	Use the MNIST database of handwritten digits to train a neural network to predict the digit from a picture. assemble the data for training and validation first.
FR-4	Cloud: The cloud provides a variety of IT services, such as server, database, virtual storage, networking, and servers. Cloud computing is defined as an internet-based virtual platform that allows for limitless data storage and access.
FR-5	modified dataset from the National Institute of Standards and Technology The shorthand for The MNIST dataset is referred to as MNIST. The images are 60,000 minuscule square grayscale photos, each measuring 28 by 28, with scrawled single digits from 0 to 9.

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. The processing of bank checks, filling out forms, and sorting mail are a few uses for digit recognition.
NFR-2	Security	1) In addition to classifying the digit, the system also gives a full description of the instantiation parameters, which could reveal details like the writing style. 2) Segmentation powered by recognition is a capability of the generative models. 3) A relatively is used in the process.
NFR-3	Reliability	The neural network applies the samples to automatically determine handwritten digit reading rules. Increasing the number of training cases will also help the network understand more about handwriting and improve its accuracy. Handwritten numbers can be recognised using a variety of methods and algorithms, including Deep Learning/CNN, SVM, Gaussian Naive Bayes, KNN, Decision Trees, Random Forests, etc.
NFR-4	Accuracy	Optical character recognition (OCR) technology provides accuracy rates of more than 99% for typed text in high-quality pictures. Less accurate character identification is caused by spacing variations, handwriting anomalies, and the diversity of human writing styles.
NFR-5	Availability	The availability of this function will be highly dependable upon the features requirement