Project Design Phase-I
Proposed Solution Template

Date	11 October 2022
Team ID	PNT2022TMID17273
Project Name	A Novel Method for Handwritten Digit Recognition System
Maximum Marks	2 Marks

Proposed Solution Template:

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	The challenge is getting a computer system to read human-written digits. The objective is to accurately identify the digit after uploading a photograph of the handwritten digit.
2.	Idea / Solution description	The Convolution Neural Network algorithm (CNN). By doing this, the trained model will be ready to be used to categorise the digits found in the test data. As a result, the digits in the photos can be categorised as Class 0,1,2,3,4,5,6,7,8,9. A dataset that is frequently used for handwritten digit recognition is MNIST. 10,000 test photos and 60,000 training images make up the dataset.
3.	Novelty / Uniqueness	With written characters in high-quality photos, OCR technology offers greater than 99% accuracy. But unlike OCR, it only recognises only the digits, not all the characters. With the aid of a neural network, handwritten digit recognition is performed using the MNIST dataset. It recognises the scanned copies of handwritten numbers. In further step, the handwritten digit recognition system allows users to write their own digits on the screen with the aid of an integrated GUI for recognition in addition to detecting scanned images of handwritten digits.
4.	Social Impact / Customer Satisfaction	Handwritten Digit Recognition has various uses such as less time consumption. It is used in the detection of vehicle numbers, banks for reading cheques, post offices for arranging letters, and other tasks.

5.	Business Model (Revenue Model)	For efficient traffic control, this technology can be connected with traffic surveillance cameras to read licence plates. To quickly identify and recognise the pin-code details, it can be integrated with the postal system.
6.	Scalability of the Solution	The maximum accuracy in the performance was found 99.64% and the total lowest test loss is 0.0239 approximately. This technology will also extend to recognizing the characters in the future. There is no limit in the number of digits that can be recognized.

A Novel Method For Handwritten Digit Recognition System
Handwriting recognition is one of the compelling research works going on because every individual in this world has their own style of writing. It is the capability of the computer to identify and understand handwritten digits or characters automatically. Because of the progress in the field of science and technology, everything is being digitalized to reduce human effort. Hence, there comes a need for handwritten digit recognition in many real-time applications. MNIST data set is widely used for this recognition process and it has 70000 handwritten digits. We use Artificial neural networks to train these images and build a deep learning model. Web application is created where the user can upload an image of a handwritten digit. this image is analyzed by the model and the detected result is returned on to UI