Project Design Phase-I
Proposed Solution

Date	19 September 2022
Team ID	PNT2022TMID07022
Project Name	A Novel Method for Handwritten Digit Recognition System
Maximum Marks	2 Marks

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	Handwritten digit recognition is the ability of computer system to recognize the handwritten characters from wide variety of sources like emails, papers, images, etc. Manually written digits are of different sizes, styles, orientation, thickness and position. The model should be able to identify them and predict the output correctly.
2.	Idea / Solution description	To solve this problem, we are going to use Convolutional neural network. It is a type of Neural Networks and it is mainly used to identifying the image and speech recognition. It reduces the high dimensionality of image without losing of information. That's why CNNs are especially suited for this use case.
3.	Novelty / Uniqueness	• Training dataset contains more than 40,000 records. • CNN is the model we have chosen. • It recognises the digits with good accuracy.
4.	Social Impact / Customer Satisfaction	The main impact of this work is to reduce the errors that occurs in banking sectors. Due to the incorrect recognition of handwritten digits that are written in cheques and credit cards. So that this digit recognition will greatly improve the goodwill of the organization and customer satisfaction.

5.	Business Model (Revenue Model)	Every one of us have different styles of writing and perception. Manually recognizing the handwritten digits are error prone due to various factors. So, if this digit recognition is done manually in business organizations, even if a single error occurs, it may cause severe damage to the organization. So here, we have proposed a solution to automate the digit recognition process. A deep learning model is trained with images of different styles, sizes, orientation and then the model is based to predict based on previous learning.
6.	Scalability of the Solution	We can extend this project into providing solutions to various other problems like solving handwritten mathematical equation by making some changes with the training data and final code. Organizations such as banks, revenue departments, accounting sectors are facing issues in recognizing written digits such as in cheques. This can be handled by our handwritten digit recognition project as they expand into different business domains without impacting performance. Our proposed solution is thus scalable and can fit into different domains and solve different problems.