

**Project Design Phase-I**  
**Proposed Solution**

Date	19 September 2022
Team ID	<b>PNT2022TMID41196</b>
Project Name	<b>A Novel Method for Handwritten Digit Recognition System</b>
Maximum Marks	2 Marks

**Proposed Solution:**

The main objective of this project is to convert handwritten digits into machine-readable formats and make banking operations, vehicle number detection, form data entry easier and error free.

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	<ol style="list-style-type: none"><li>1. Huge variability and ambiguity of strokes from person to person</li><li>2. Handwriting style of an individual person also varies time to time and is inconsistent</li><li>3. Poor quality of the source document/image due to degradation over time</li><li>4. Text in printed documents sit in a straight line whereas humans need not write a line of text in a straight line on white paper</li><li>5. Cursive handwriting makes separation and recognition of characters challenging</li><li>6. Text in handwriting can have variable rotation to the right which is in contrast to printed text where all the text sits up straight</li><li>7. Collecting a good labelled dataset to learn is not cheap compared to synthetic data</li></ol>
2.	Idea / Solution description	Using MNIST dataset over the neural network algorithms, it is possible to recognize the digits which is useful for banks sectors, data entry etc.
3.	Novelty / Uniqueness	Using Convolutional Neural Network(CNN) gives greater accuracy and it can detect automatically without any human supervision.
4.	Social Impact / Customer Satisfaction	working hard on machines to make them more smart and intelligent by using machine learning and deep learning techniques so that they can perform tasks similar to humans. With the help of these techniques <i>human effort can be reduced and much time can be saved in recognizing, learning, predictions and many other areas.</i>
5.	Business Model (Revenue Model)	Collaboration with bank sectors, government sectors and individual app for non-readable person.
6.	Scalability of the Solution	The handwriting will be detected by any of the formats such as image,documents , etc.. so that it can be user friendly and flexible where there willbe a growth for the users.