

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

Date	17 October 2022
Team ID	PNT2022TMID09888
Project Name	Project – A Novel Method For Handwritten Digit Recognition System.
Maximum Marks	2 Marks

**Proposed Solution Template:**

Project team shall fill the following information in proposed solution template.

S.NO.	Parameter	Description
1.	Problem Statement (Problem to be solved)	It is easy for the human to perform a task accurately by practicing it repeatedly and memorizing it for the next time. Human brain can process and analyze images easily. Also, recognize the different elements present in the images. In this project, the goal is to correctly identify digits from a dataset of tens of thousands of handwritten images and experiment with different algorithms to learn first-hand what works well and how techniques compare.
2.	Idea / Solution description	The task of HDR is accomplished by using the CNN, incorporating a sequential CNN framework, with rectified linear units (RELU) activations that have never been reported. The goal is achieved by establishing a model that can recognize and determine the handwritten digits from its image with high accuracy and low computation time. We aim to complete this by using the concepts of convolutional neural network. The proposed CNN framework is well equipped with suitable parameters for high accuracy of MNIST digit classification.
3.	Novelty / Uniqueness	The Handwritten digits are not always of the same size, width, orientation and justified to margins as they differ from writing of person to person. There is similarity between numbers. So, classifying between these numbers is also a major problem for computers. The uniqueness and variety in the handwriting of different individuals also influence the formation and appearance of the digits.
4.	Social Impact / Customer Satisfaction	Character recognition plays an important role in the modern world. It can solve more complex problems and makes humans' job easier. An

		<p>example is handwritten character recognition. This is a system widely used in the world to recognize zip code or postal code for mail sorting. There are different techniques that can be used to recognize handwritten characters. Two techniques researched in this paper are Pattern Recognition and Artificial Neural Network (ANN). Both techniques are defined and different methods for each technique is also discussed.</p>
5.	Business Model (Revenue Model)	<p>In recent days, Artificial Neural Network (ANN) can be applied to a vast majority of fields including business, medicine, engineering, etc. The most popular areas where ANN is employed nowadays are pattern and sequence recognition, novelty detection, character recognition, regression analysis, speech recognition, image compression, stock market prediction, Electronic nose, security, loan applications, data processing, robotics, and control.</p>
6.	Scalability of the Solution	<p>It is flexible and suitable for text and document format. It has high speed ,robustness ,etc.</p>