Project Design Phase-I
Proposed Solution

Date	25 September 2022
Team ID	PNT2022TMID42195
Project Name	A Novel Method For Handwritten Digit Recognition System
Maximum Marks	2 Marks

Proposed Solution :

S. No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	1. It can solve more complex problems and makes humans' job easier. 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. 2. The handwritten digit recognition is the capability of computer applications to recognize the human handwritten digits. It is a hard task for the machine because handwritten digits are not perfect and can be made with many different shapes and sizes
2.	Idea / Solution description	1. To design and implement a system using artificial intelligence, image processing and data mining concepts to take input as hand gestures. 2. A handwriting digit recognition system is to convert handwritten digits into machine readable formats. The main objective of this work is to ensure effective and reliable approaches for recognition of handwritten digits and make banking operations easier and error free
3.	Novelty / Uniqueness	There are different techniques that can be used to recognize handwritten characters. Two techniques researched in our project are Pattern Recognition and Artificial Neural Network (ANN)

4.	Social Impact / Customer Satisfaction	1. This is a system widely used in the world to recognize zip code or postal code for mail sorting. 2. The main objective of this work is to ensure effective and reliable approaches for recognition of handwritten digits and make banking operations easier and error free.
5.	Business Model (Revenue Model)	Business process outsourcing Business smartization enhances automated AI Optical Recognition Protocols (ORPs) for OHR, thereby improving insight into customers and thus enabling them to make better decisions: 1. To promote business growth and innovation strategy. 2. To enhance customer experience and value proposition. 3. To increase through OHR business adaptability, alignment and agility. 4. To create data strategy, thereby influencing growth potential for knowledge intelligence.
6.	Scalability of the Solution	1. Datasets of images contain 1,000 handwritten digits with 100 images of each digit that are used to train and test in Neural Network. 2. For image processing, captured images are converted into 16 x 16 pixels and transformed into a gray scale image. 3. Their work used a logistic regression algorithm to get the best probability of scanned images and got approximately 90% accuracy in the results. 4. This system gave the best recognition accuracy of 94% and the worst recognition accuracy of 64%. 5. The average accuracy of this system is 82.5%. Therefore, this system needs a lot of training epochs to get higher accuracy. 6. The accuracy point was mainly focused in related works.