Project Design Phase-I
Proposed Solution

Date	19 September 2022
Team ID	PNT2022TMID18363
Project Name	Project-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)	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. Our aim in the proposed work is to recognizing written character on cash deposit/ withdrawal/ and other transaction, we are proposing to develop an automatic banking deposit number recognition system which is able to recognize the handwritten account number and amount number on the cash deposit slip and thus automate the cash deposit process at bank counter.
2.	Idea / Solution description	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. Linear Classification is a useful method to recognize handwritten characters. The background basis of Artificial Neural Network (ANN) can be implemented as a classification function. the ANN is a two-layer network, which is consisting of an input and an output layer, it can act as a

		linear classifier. It is proven that Deep Learning algorithms such as multilayer CNN, the use of Keras with Tensorflow grant the absolute best accuracy.
3.	Novelty / Uniqueness	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. It has been used widely by researchers as experiments for theories of machine learning algorithms for many years. In recent years, neural networks and conventional neural network currently provide the best solutions to many problems in handwritten digit recognition. A novel hybrid CNNSVM model for handwritten digit recognition.
4.	Social Impact / Customer Satisfaction	Can ensure road safety by identifying the owner of the speeding vehicle by using the registration number of that vehicle. Can able to ensure that the signature belongs to the authorized user. Can automate data entry jobs and speed up cheque approval process.
5.	Business Model (Revenue Model)	Digit recognition is the tedious processes. we can implement it in banking sector and industries where the signature and writtings plays a major role.
6.	Scalability of the Solution	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.