Project Design Phase-I
Proposed Solution
Template

Date	13 October 2022
Team ID	PNT2022TMID00698
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)	To identify and understand handwritten digits or characters automatically. 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.
2.	Idea / Solution description	● **Convolutional Neural Networks (CNNs)** which is used to train and test our handwritten digits. ● Dataset is used for training **CNN**. **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. ● The Handwritten digit recognition is implemented using deep learning methods.
3.	Novelty / Uniqueness	It may be unique in providing low error rates on handwritten digit recognition tasks.CNN is used for better accuracy.
4.	Social Impact / Customer Satisfaction	● This is a system widely used in the world to recognize zip code or postal code for mail sorting. ● The main applications are vehicle license-plate recognition, postal letter-sorting services, Cheque truncation system (CTS) scanning and historical document preservation in archaeology departments, old documents automation in libraries and banks, etc.
5.	Business Model (Revenue Model)	● The performances have been observed on the basis of their training accuracy,test images accuracy and training time. ● The productivity is gained and at the same time, **leads to improved speed of business**.

6.	Scalability of the Solution	A convolutional neural network can be scaled in three dimensions: *depth, width, resolution*. ● **Depth** of the network corresponds to the number of layers in a network. ● **Width** is associated with the number of neurons in a layer. ● **Resolution** is the image resolution that is being passed to CNN. **Increasing the depth**, by stacking more convolutional layers, allows the network to learn **more complex features**.