Project Design Phase-I
Proposed Solution

Date	October 2022
Team ID	PNT2022TMID22022
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)	The handwritten digit recognition is the capability of computer applications to recognize 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. The handwritten digit recognition system is a way to tackle this problem which uses the image of a digit and recognizes the digit present in the image. In this competition, the goal is to correctly identify digits from a dataset of tens of thousands of handwritten images and experiment with different algorithms to learn what works well and how techniques compare.
2.	Idea / Solution description	The proposed solution is to classify the digits which are in handwritten format by using CNN based model and this model can be trained by using the MNIST database which contains 60,000 training samples and 10,000 test samples.
3.	Novelty / Uniqueness	To classify the image datasets by using CNN, which provides an efficient solution compared to other methods. Here ANN algorithm is used for voice recognition which helps blind people.
4.	Social Impact / Customer Satisfaction	Users no need to use external dependencies or devices to recognize the digits, this process can be done through our mobile phones.
5.	Business Model (Revenue Model)	The applications where these handwritten digit recognition can be used are the Banking sector where it can be used to maintain the security pin numbers, it can be also used for blind people by using sound output. Some of the research areas include signature verification, bank check processing, postal address interpretation from envelopes etc.

6.	Scalability of the Solution	One of the approaches to make the handwritten digit recognition system scalable is to make use of cloud-native methods. For example, one of the cloud solutions for making AI scalable is IBM Cloud. IBM Cloud Build helps run and manage AI models and optimize decisions at scale across any cloud. The advantage of using the cloud to make solutions scalable is that we can deploy our AI application on the specific cloud environment that best supports our business needs. We can take advantage of built-in security capabilities and AI model monitoring. We can Automate AI lifecycles with Model Ops pipelines, deploy and run models through one-click integration and also prepare and build models visually and programmatically. Looking at these advantages, we can drive better business outcomes by optimizing our decisions and also make our solution scalable using cloud.