Project Design Phase-I

Proposed Solution

Date	29 September 2022
Team ID	PNT2022TMID10088
Project Name	A NOVEL METHOD FOR HANDWRITTEN DIGIT RECOGNITION SYSTEM
Maximum Marks	2 Marks

Proposed Solution:

S.No.	Parameter	Description
1.	Proposed Statement (Problem to be solved)	In this world, digit recognition is more important. It is capable of solving increasingly difficult problems and making humans jobs easier. Handwritten digit recognition is one example. This is a worldwide system for recognizing zip codes or postal codes for mail sorting. Handwritten digit recognition can be accomplished using a variety of approaches. The solution to this issue is handwritten digit recognition, which uses an image of a digit and identifies the digit represented in the image.
2.	Idea / Solution Description	Handwritten digit recognition is performed using the MNIST dataset which contains 60,000 training images of handwritten digits from zero to nine and 10,000 images for testing. So, the MNIST dataset has 10 different classes. In this project, we are going to implement a handwritten digit recognition application trained using the Convolutional Neural Networks model. where the user gives the handwritten digit as input, where it is recognized and the result is displayed immediately
3.	Novelty / Uniqueness	This project introduces an operative strategy for dealing with novelty in the handwritten visual recognition domain. A perfect transcription agent would be able to distinguish known and unknown characters in a picture, as well as determine any aesthetic variations that may occur inside or between texts. The existence of novelty has shown to be a major stumbling block

		for even the most robust machine learning-based algorithms for these activities. Novelty in handwritten papers might include, among other things, a change in the writer, character properties, writing attributes, or overall document appearance. Instead of examining each element separately, we believe that an integrated agent capable of processing known characters and novelties concurrently is a superior technique. The handwritten digit recognition problem can be seen as a subtask of the optical character recognition (OCR) problem
4.	Social Impact / Customer Satisfaction	There are many benefits associated with the handwriting recognition system. In addition to reading postal addresses and bank check amounts, it is also useful for reading forms. Furthermore, it's used in fraud detection because it makes it easy to compare two texts and determine which one is a copy. As a result, this system fulfills customers' expectations, as it is a novel method for recognizing handwritten digits, ensuring high accuracy for the model and meeting all customer expectations. Users will save a lot of time and effort if the system provides various synonyms for the words recognized. Due to the fact that the users in rural areas will be using their own regional language, this proposed system should be able to detect those digits as well. As the system is being used in socially crowded places such as banks to check amounts, it should be fast and reliable. As it is designed to solve real-world problems, it should be highly reliable and trustworthy in every way, and users throughout the world should be able to use it effectively
5.	Business Model (Revenue Model)	A revenue model means understanding how a startup can make money. Our major revenue sources consist of sales, government funds, and public donations. The introduction of novel ideas increases revenue streams, such as introducing gesture or touch features , voice read out of recognised digits, 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, optimize decisions at scale across any cloud. The advantage of using cloud to make solutions scalable is that we can deploy our AI application on