Ideation Phase
Literature Survey

Team ID	PNT2022TMID48141
Project Name	Personal Assistance For Senirs Who Are Self-Reliant

Paper 1: Handwritten Digit Recognition using Machine Learning Algorithms

Year: March 2018

Authors: S M Shamim, Mohammad Badrul Alam Miah, Angona Sarker, Masud Rana and Abdullah Al Jobair.

Handwritten character recognition is one of the practically important issues in pattern recognition applications. The applications of digit recognition includes in postal mail sorting, bank check processing, form data entry, etc. The heart of the problem lies within the ability to develop an efficient algorithm that can recognize hand written digits and which is submitted by users by the way of a scanner, tablet, and other digital devices. This paper presents an approach to off-line handwritten digit recognition based on different machine learning technique. The main objective of this paper is to ensure effective and reliable approaches for recognition of handwritten digits. Several machines learning algorithm namely, Multilayer Perceptron, Support Vector Machine, Naïve Bayes, Bayes Net, Random Forest, J48 and Random Tree has been used for the recognition of digits using WEKA.

Paper 2: Hand-written digits recognition using miscellaneous machine learning and deep learning algorithms

Year: May 2022

Authors: Sarfraz Nawaz, Muhammad Arfan Jaffar, Syed Pervez, Hamza Afzal, Zaheer Udeen Babar

Identification of Hand-written digits is a rational key point in pattern identification applications. There are many uses of hand-written digits identification like mail sorting in postal, cheques processing in the banks, data entry through forms, etc. The key to the issue lies in the expertise to grow a well-organized algorithm that can accept hand-written numbers and which are submitted by end-users by the scanners, tablets, and other digital devices. This paper gives a viewpoint to handwritten numbers recognition constructed on machine learning models, and deep learning models and shows the outcomes in the shape of accuracy.

The primary objective of this paper is to guarantee powerful and dependable methodologies for the acknowledgment of handwritten numbers using machine learning and deep learning algorithms. Several machine learning algorithms such as Decision Tree (DT), Naïve Bayesian (NB) classifier, Multilayer Perceptron (MLP), Support Vector Machine (SVM), Random Forest (RF), and deep learning algorithms such as Convolutional Neural Network (CNN), AlexNet, and Multilayer Perceptron (MLP) have been used for recognition of hand-written digits in Jupyter Notebook and Matlab. Through some features extraction, and different experiments and analysis of Machine Learning Algorithms (MLA) and Deep Learning Algorithms (DLA), the accuracy of deep learning algorithms is better than the machine learning algorithms.
Keywords: Hand-written, Digits Recognition, MNIST Dataset, Machine Learning Models, Deep Learning Models, Algorithms, AlexNet, Features Extraction, fc6, fc7, and fc8. , Classification, Pattern Recognition, Supervised, Unsupervised Learning.

Paper 3: Digit Recognition Using MNIST Dataset

Year: Sep 2022

Authors: Anirudh Mhaske, Atharv Joshi, Dattaram Kajrekar, Ruturaj Jugdar, Prof. Ajita Mahapadi

In this paper, we have performed handwritten digit recognition using MNIST datasets using Support Vector Machines (SVM), Multi-Layer Perceptron (MLP) and Convolution Neural Network (CNN) models. Our main goal is to compare the accuracy of the above models along with their execution time to obtain the best possible model for digit recognition. Reliability of humans over machines has never been so high that from classifying objects in photographs to adding sound to silent movies can all be done using deep learning and machine learning algorithms. Similarly, handwriting recognition is one of the important areas research and development with a range of possibilities that could be achieved. Handwriting recognition (HWR), also known as handwritten text recognition (HTR), is a capability computers to receive and interpret comprehensible handwritten input from sources such as paper documents, photos, touch screen.

Paper 4: Digital Recognition of Handwritten Digits Using Convolutional Neural Networks

Year: August 2022

Authors: Anusha Nayak, Shrutha Jain, Tanya Shetty, K. Srikanth Bhat

Convolutional neural networks are widely used in vast scopes, and the number of sectors in which profound learning may be used is growing all the time in fields due to their different scope of uses like example pattern reputation, sentence classification, speech popularity, face reputation, textual content categorization, file evaluation, visual image evaluation, etc.

In the current time of digitization, penmanship acknowledgment assumes a significant part in data handling by changing overwritten by hand characters into machine-decipherable organizations. The postal framework assumes a significant part in the improvement of mail transportation. The target of the task is to give an elective means to the customary arranging framework, which devours lesser time for handling and arranging the postcards in view of their individual regions. It likewise targets killing any conceivable human blunders which might happen during the manual arranging process.

Paper 5: Recognition of Handwritten Digit using Convolutional Neural Network (CNN)

Year: May 2019

Authors: Md. Anwar Hossain, Md. Mohon Ali

Humans can see and visually sense the world around them by using their eyes and brains. Computer vision works on enabling computers to see and process images in the same way that human vision does. Several algorithms developed in the area of computer vision to recognize images. The goal of our work will be to create a model that will be able to identify and determine the handwritten digit from its image with better accuracy. We aim to complete this by using the concepts of Convolutional Neural Network and MNIST dataset. We will also show how MatConvNet can be used to implement our model with CPU training as well as less training time. Though the goal is to create a model which can recognize the digits, we can extend it for letters and then a person's handwriting. Through this work, we aim to learn and practically apply the concepts of Convolutional Neural Networks.