LITERATURE SURVEY

Project Title : A Novel Method For Handwritten digit Recognition System

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S.NO	TITLE	PROPOSED WORK	TOOLS USED/ ALGORITHM	TECHNOLOGY	ADVANTAGES/DISADVANTAGES
1	A Novel Method for Handwritten Digit Recognition Using Image Processing and Neural Networks	Handwriting recognition is one of the compelling research works going on because every individual in this world has their own style of writing. 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.	- Random Forest, - J48 - Random Tree - Naive Bayes, - Support vector Machine, - Bayesian Network - Multilayer Perceptions	- Optical Character Recognition (OCR) - Deep Learning, - Machine Learning - Artificial Neural Networks	The system not only produces a classification of the digit but also a rich description of the instantiation parameters which can yield information such as the writing style The generative models can perform recognition driven segmentation

| 2 | Handwritten Digit Recognition Using Image Processing and Neural Networks | It can detect handwritten digits from a scanned image of an input form by using Neural network technique.several data has been trained to neural network based AI engines to detect the image . handwritten digit will be given as sample input in to the system , the output array will automatically give the digit whose corresponding match value is detected. | ● Fourier transformation
● Support Vector Machine (SVM) ● Histogram | ● Artificial Neural network | It only requires one time training of the neural network whereas in cited methodologies whenever there is an image to process all steps are repeated again and again for image pre-processing |

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3	Comparison of learning algorithms for handwritten digit recognition	Designing a practical recognition system for comparing shape recognition methods.	- Database - Different types of classifiers used - Radial basis function network, Large fully connected multi- layer neural network)	Machine Learning	Performance depends on many factors including high accuracy, low runtime and low memory requirements. Larger recognizers in turn require larger training sets.
4	Effective Handwritten Digit Recognition using deep convolution Neural Networks	MNIST as a primary dataset consist of 70,000 handwritten rastro images from 250 different sources out of which 60,000 are used for training and rest used for training validation .MINST data represented in the IDX file format .	- SOM Clustering - Support Vector Machine	Deep Convolution, Neural networks Artificial Intelligence	By using the Deep convolution, it works on the patterns in low Dimension Space where Scaling is 2000 times lesser results with 99.25 % accuracy The proposed system was surprisingly higher when compared to many other approaches with 97% Accuracy.

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5	Intelligent handwritten digit recognition using artificial neural network	It was developed by using the method called Neural Network and Gradient descent back propagation algorithm. Neural Network consists of an input layer, hidden layer and an output layer. The input layer and the hidden layer are connected using weights. Gradient descent back propagation algorithm, it contains 4000 training samples and 1000 testing samples.	• Feed-forward Algorithm • Gradient descent back propagation algorithm • Neural Network • Optical Character Recognition(OCR) • pen	MultiLayer Perceptron (MLP) Neural Network	The proposed system was proved efficient with an overall training accuracy of 99.32% and testing accuracy of 100%. Larger number of datasets to be trained in this process, it takes large amount of time to train the whole datasets.
6	A novel method for handwritten digit recognition using deep learning	The MNIST database has been used for that which is already divided into training set of 60,000 examples and test of 10,000 example.The training algorithm used is Convolution Neural Network. This will prepare the trained model which will be used to classify the digits present in the test data.	• Convolution Neural Network • Multi-Layer Perceptron • Tensorflow	• Deep Learning • Machine Learning	By using the Convolution Neural Network we can able to get an accuracy of 95.72%. Sometimes it doesn't provide the appropriate solution based on input

THANK YOU