INTRODUCTION

Recognition of handwritten characters is one of the most challenging areas of pattern recognition. It is useful while dealing with practical problems, signature verification, mailing bank check processing, interpretation of address, the documentation analysis, also document verification and many others. Neural networks consist of elements working in parallel and are inspired by biological nervous systems. The regarding network function is determined by the connections between elements. We can train a neural net to perform a specific function by adjusting the values of the connections i.e., weights between elements. Neural networks are trained such that a particular input leads to a desired target output. For many of the document input tasks, character recognition supposed to be the cost effective and fast method available. In this paper, to identify handwritten characters we have constructed a suitable neural network which is able to extract the characters one by one and able to map the target output for training purpose.

LITERATURE SURVEY

Hand writing recognition of characters has been around since the 1980s.The task of handwritten digit recognition, using a classifier, has great importance and use such as – online handwriting recognition on computer tablets, recognize zip codes on mail for postal mail sorting, processing bank check amounts, numeric entries in forms filled up by hand (for example tax forms) and so on. There are different challenges faced while attempting to solve this problem. The handwritten digits are not always of the same size, thickness, or orientation and position relative to the margins. Our goal was to implement a pattern classification method to recognize the handwritten digits provided in the MINIST data set of images of hand written digits (0 to 9). The data set used for our application is composed of 300 training images and 300 testing images, and is a subset of the MNIST data set (originally composed of 60,000 training images and 10,000 testing images). Each image is a 28 x 28 grayscale (0 to 255) labelled representation of an individual digit. The general problem we predicted we would face in this digit classification problem was the similarity between the digits like 1 and 7, 5 and 6, 3 and 8, 9 and 8 etc. Also, people write the same digit in many different ways the digit ‘1’ is written as ‘1’, ‘1’, ‘1’ or ‘1’. Similarly, 7 may be written as 7, 7, or 7. Finally the uniqueness and variety in the handwriting of different individuals also influences the formation and appearance of the digits.

In the year of 2013 Yang Zong-chang., In this study, to the main problem of establishing structure for the Artificial Neural Networks (ANN), from a microscopical perspective, two ideas called the fractal measurement of association multifaceted nature (FDCC) and the fractal measurement of the desire many-sided

quality (FDEC) are presented. At that point a paradigm reference for setting up ANN structure taking into account the two proposed ideas are displayed that, the FDCC won't not be lower than its (FDEC), and when FDCC is equivalent or surmised to FDEC, the ANN structure may be an ideal one. The proposed measure is inspected with great results.

In the year of 2013 Selvi, P.P.; Meyyappan, T.,In the Study of the authors propose a method to recognize Arabic numerals using back propagation neural system. Arabic digit are the ten digits that were descended from the Indian numeral system. The recognition phase recognizes the numerals precisely. The prospect technique is implemented with Matlab coding. Model and written descriptions are tested with the proposed method and the results are plotted.
In the year of 2013 Sahu, N.; Raman, N.K.,In the Study of Character recognition systems for various languages and script has gain importance in recent decades and is the area of deep interest for a lot of researchers. Their growth is strongly integerated with Neural Networks.

In the year of 2012 Nguang Sing Ping; Yusoff, M.A.,Investigated on describes the application of 13-point feature of skeleton for an image-to-character credit. The representation can be a scanned handwritten character or drawn character from any graphic designing tool like Windows Paint clash. The representation is processed through conventional and 13-point feature of skeleton methods to extract the raw data.

In the year of 2012 Pradeep, J.; Srinivasan, E.; Himavathi, S.,In the Study of, an off-line handwritten English character recognition system using hybrid feature extraction technique and neural network classifiers are proposed. Neural Network (NN) topologies, namely, rear spread neural network and radial basis function network are built to classify the font. The k-nearest neighbour network is also built for evaluation. The nosh onward NN topology exhibits the highest recognition accuracy and is identified to be the most suitable classifier.

In the year of 2011 Budiwati, S.D.; Haryatno, J.; Dharma, E.M., Investigated on Japanese language has complex writing systems, Kanji and Kana (Katakana and Hiragana). Each one has different style of writing. One simple way to differentiate is Kanji have more strokes than Kana. Meanwhile, it needs a lot of effort to remember characters of Katakana and Hiragana, thus it will be very difficult to distinguish handwritten Katakana and Hiragana, since there are a lot of similar characters. This is the reason why we need pattern recognition.

CONCLUSION

This paper describes the various steps involved in the digit recognition network. It also reviews various digit recognition network like online and offline recognition function. It is describing the various applications of the digit recognition function. Last section reviews the various classifiers that can be used for digit recognition.

Artificial neural network is a well-known intelligence field that composed of an interconnected group of simple artificial neurons computational model, tries to simulate some properties of biological neural networks with the aim of a wide variety of fields. In the artificial solving particular tasks, artificial neural networks have been applied successfully. However, how to determine the number of neurons in hidden layers is a very important part of deciding overall neural network architecture for many neural networks practical problems employing.

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