A Novel Method For Handwritten Digit Recognition System

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Introduction

Character recognition is a fundamental, but most challenging in the field of pattern recognition with large number of useful applications. It has been an intense field of research since the early days of computer science due to it being a natural way of interactions between computers and humans. More precisely Character recognition is the process of detecting and recognizing characters from the input image and converts it into ASCII or other equivalent machine.

The technique by which a computer system can recognize characters and other symbols written by hand in natural handwriting is called handwriting recognition system.

Literature Review

[1] Handwritten digit recognition has recently been of very interest among the researchers because of the evolution of various Machine Learning, Deep Learning and Computer Vision algorithms. MNIST is a dataset which is widely used for handwritten digit recognition. The dataset consist of 60,000 training images and 10,000 test images

Advantages : Each hidden layer is made up of a set of neurons, where each neuron is fully connected to all neurons in the previous layer.

Disadvantage : 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

Algorithm used: CNN (cable news network)

[2] The uniqueness and assortment in the composition styles of various individuals additionally influence the example and presence of the digits. It is the strategy for perceiving and arranging transcribed digits. It is the strategy for perceiving and arranging transcribed digits. It has a wide range of applications, for example, programmed bank checks, postal locations and tax documents and so on.

Advantages : After the completion of pre-processing stage and segmentation stage, the pre-processed images are represented in the form of a matrix which contains pixels of the images that are of very large size.

Disadvantage : The generative models can perform recognition driven segmentation. The method involves a relatively.

[3] Handwriting recognition has gained a lot of attention in the field of pattern recognition and machine learning due to its application in various fields. Optical Character Recognition (OCR) and Handwritten Character Recognition (HCR) hasspecific domain to apply. Various techniques have been proposed to for character recognition in handwriting recognitionsystem. Even though, sufficient studies and papers describes the techniques for converting textual content from a paper document into machine readable form.

Advantages : The main aim of feature extraction phase is to extract that pattern which is most pertinent for classification.

Disadvantage : As it is noisy to hear someone sitting next to us and talking to his machine. Moreover, anyone who wants to input confidential data to computer is not willing to do it in public places.

[4] Optical Character Recognition (OCR) and Handwritten Character Recognition (HCR) has specific domain to apply. Various techniques have been proposed to for character recognition in handwriting recognition system might serve as a key factor to create a paperless environment by digitizing and processing existing paper documents. This paper presents a detailed review in the field of Handwritten Character Recognition.

Advantages : The main aim of feature extraction phase is to extract that pattern which is most pertinent for classification.

Disadvantage : Most importantly, it is not possible to speak to a machine in a natural way due to constraints such as out of vocabulary wards.

Algorithm used: SVM (support vector machine)

[5] Character recognition plays an important role in the modern world. It can solve more complex problems and makes humans' job easier. An example is handwritten character recognition. This is a system widely used in the world to recognize zip code or postal code for mail sorting. There are different techniques that can be used to recognize handwritten characters. Two techniques researched in this paper are Pattern Recognition and Artificial Neural Network (ANN).

Advantages : The difficult task is there are some handwritten digits that often run together or not fully connected. Numeral 5 is an example.But once these tasks have been carried out, the digits are available as individual items. But the digits are still indifferent sizes.

Disadvantage : Background noise, cross-talk, accented speech and so on.

Algorithm used: RFC (Remote Function Call)

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