Novel Feature Extraction Technique for the Recognition of Segmented Character

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Abstract: High accuracy character recognition techniques can provide useful information for segmentation-based word recognition systems. This research describes neural network-based techniques for segmented character recognition that may be applied to the segmentation and recognition components of an off-line word recognition system. Two neural architectures along with two different feature extraction techniques were investigated. A novel technique for character feature extraction is discussed and compared with others in the literature. Recognition results above 80% are reported using characters automatically segmented from the CEDAR benchmark database as well as standard CEDAR alphanumeric. Although a difficult problem, the accurate recognition of segmented characters is important in the context of segmentationbased,word recognition [4]. In this research, various neural architectures for character recognition are investigated. Two feature extraction techniques are tested including a novel technique that extracts features based on the direction of line segments within a character image.

Introduction

In the various application like number plates identification of vehicles allover the nations. Vehicles are identifying either manually or automatically. Automatic vehicle identification is an image processing technique of identify vehicles by their number plates. Automatic vehicle identification systems are used for the purpose of effective traffic control and security applications such as access control to restricted areas and tracking of wanted vehicles. Number plate recognition (NPR) is easier method for Vehicle identification. NPR system for Indian license plate is difficult compared to the foreign license plate as there is no standard followed for the aspect ratio of licence plate. The identification task is challenging because of the nature of the light. Experimentation of number plate detection has been conducted from many years, it is still a challenging task .Number plate detection system investigates an input image to identify some local patches containing license plates. Since a plate can exist anywhere in an image with various sizes, it is infeasible to check every pixel of the image to locate it. In parking, number plates are used to calculate duration of the parking. When a vehicle enters an input gate, number plate is automatically recognized and stored in database.

Problem Statement

- Provide a cheap yet.
- In many cases, it is desirable to provide differentiated access services such that.
- Also using various sequritypurpose in government sectors.
- For identifing various data character by digital methods it will save much time.

Literature Survey

Paper1. A Novel Feature Extraction Technique for the Recognition of Segmented
Handwritten Characters .
Observation : High accuracy character recognition techniques can provide useful information for segmentation-based handwritten word recognition systems. This research
describes neural network-based techniques for segmented character recognition that may be applied to the segmentation and recognition components of an off-line handwritten word recognition system. Two neural architectures along with two different feature extraction techniques were investigated. A novel technique for character feature extraction is discussed and compared with others in the literature. Recognition results above 80% are reported using characters automatically segmented from the CEDAR benchmark database as well as standard CEDAR alphanumerics.

Paper 2. Invariant Moments Based Feature Extraction for Handwritten Devanagari Vowels Recognition.
Observation: In this paper, a system based Handwritten Devanagari Character Recognition (HDCR) is proposed. The paper presents an experimental assessment of the efficiency of various methods based on Invariant Moments for handwritten devanagari vowels recognition. The technique is independent of size, slant, orientation, translation and other variations in handwritten vowels. For segmentation of the devanagari words, the header line (Shirorekha), plays vital role. The same tool with vertical and horizontal

projection has been adapted to isolate the 13 vowels in five different groups. In order to enhance the performance of the system, an attempt has been made to compute invariant moments by small perturbation in image and information is extracted from the perturbation. But it was found that, another local feature descriptor, image partition in different zoning is better representation of the features than perturbation. The other method of image partition with different ways found better. 10 samples of each vowel from 25 people have been sampled and a database was prepared. Individual image is normalized to 40X40 pixel size. The Fuzzy Gaussian Membership function has been adopted for classification. The success rate of the method is found to be 94.56.

Proposed Work

The process of extraction was only employed for those characters obtained from handwritten words. To summarise the character extraction process, our technique first proceeded to sequentially locate all noncursive/ printed character components through the use of character component analysis. Next, x-coordinate (vertical segmentations) for each connected character component (identified by a heuristic segmenter , were used to define the vertical boundaries of each character matrix .The first character data set used for training and testing was extracted from words in the training and test directories (CITIES/BD) of the CEDAR CD-ROM. This will be referred to as the CEDAR Automatically Segmented (CAS) data set. To obtain input vectors of uniform size, the extracted characters were either rescaled, padded or alternatively local averaging was performed on the feature vector. The second data set was comprised of pre-segmented, Binary Alphanumeric Characters (BAC) from the CEDAR CD-ROM found in the BINANUMS/BD & BL directories.

1. Fixed-font character recognition: It refers to the recognition of typewritten characters like pica, courier and so on.

2. On-line recognition: It is the method of hand-written character recognition where both the character image and the timing information of each trace are taken into account.

3. Hand-written character recognition: It refers to the recognition of typed hand-written characters.

4. Script recognition: It refers to those unrestricted handwritten characters that are cursive and may be connected. The hardest and most complex of the classes is
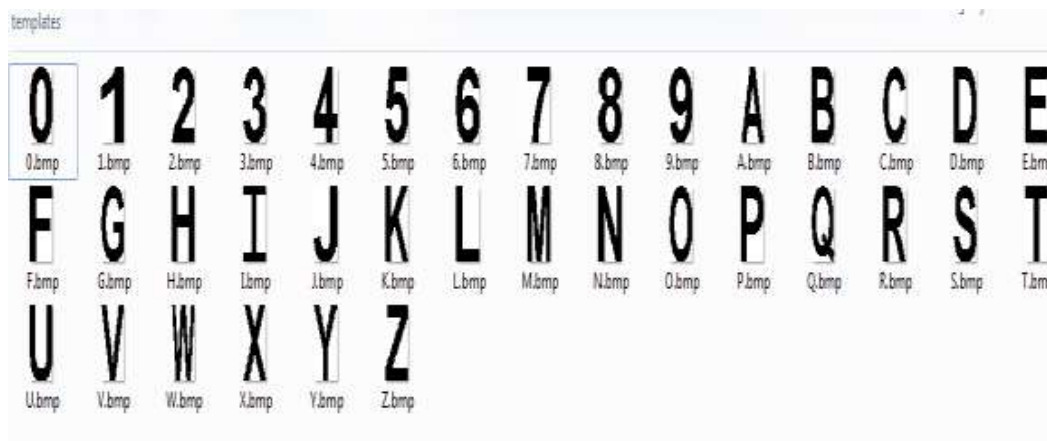
Hardware / Software

Software
- Matlab2014
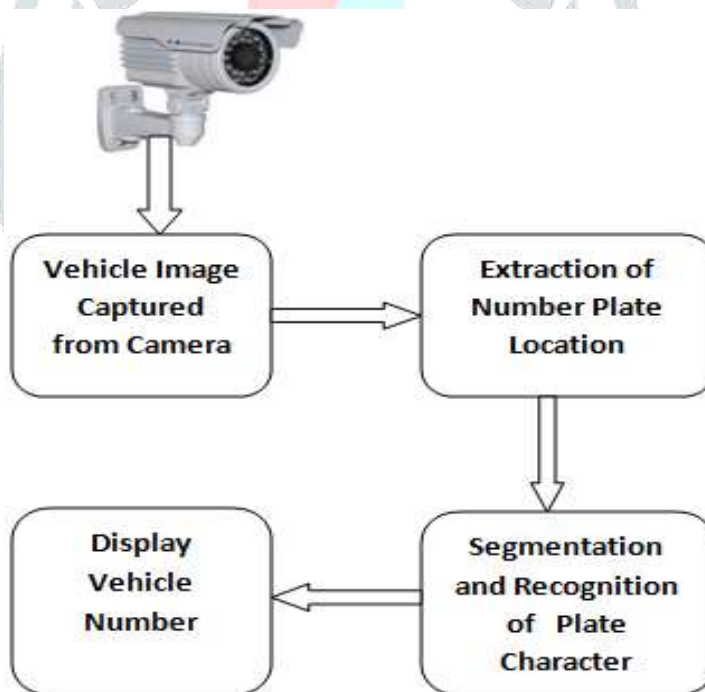
Fig.1. Templates Used for Template Matching

Methodology

- High accuracy character recognition techniques can provide useful information for segmentation-based handwritten word recognition systems. This research describes neural network-based techniques for segmented character recognition that may be applied to the segmentation and recognition components of an off-line handwritten word recognition system. Two neural architectures along with two different feature extraction techniques were investigated.

- A novel technique for character feature extraction is discussed and compared with others in the literature. Recognition results above 80% are reported using characters automatically segmented from the CEDAR benchmark database as well as standard CEDAR alphanumerics.The key issuing protocol generates and issues user secret keys by performinga secure two-party computation (2PC) protocol among the key authorities with their own master secrets. The 2PC protocol deters the key authorities from obtaining any master secret information of each other such that none of them could generate the whole set of user keys alone.

REFRENCES

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