ANALYSIS AND IMPLEMENTATION OF RECOGNITION OF VISUAL OPS USING DISTRIBUTED CLUSTERING

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ABSTRACT: The presence of the text data in images containing information that is useful for clearing automatically, indexing, and structuring an image. In the extraction of this information involves the detection, localization, tracking, extraction, enhancement, and recognition of text from the image provided. Nevertheless, because of differences change the text size, style, orientation, and alignment, and low image contrast and complex background to the problem of automatic text extraction extremely challenging [1]. Although a comprehensive survey of related problems such as face detection, analysis, documents, and indexing of images & videos can be found, the problem of extracting the text information is not well explored. In this research, we present a generic framework and methodology for automatically extract the text content of the image. In particular, we use the different images. The proposed system automatically detect the text of images if the text of image match from database image, to display the target image if the match not found, user can add the text to the image and store the image to the database.

Keywords: localization, tracking, extraction, enhancement, text data.

1. INTRODUCTION

In this project we combine the best ideas from the text extraction with the help of character description and stroke configuration, web context search and web mining with the help of semantic web and synaptic web at low entropy. First, we design a discriminative character descriptor. Second, we model character structure at each character class by designing stroke configuration maps. With the help of web context search, the extracted text is searched over the net. In the proposed approach we have extended the context of user's interest and developed an unsupervised algorithm to find the items of interest for the user. Web mining is the application of data mining technique to automatically discover and gathered information from web documents. It is used to find out the relevant and efficient results from the web. Semantic-Synaptic web mining interlinks the web of data to different data sources at low entropy.

2. RELATED WORK

Nitin Sharma et. al. [1] text extraction and recognition from the normal images using MSER feature extraction and text segmentation methods has been developed to detect the text regions and the system is based on efficient optical character recognition process. Text extraction and recognition from the normal images is important for content based image analysis. This problem is challenging due to the complex background of images, reflection of light in images and shadow portion presented in images. The proposed technique in this work develops a well-organized text extraction and recognition methods that utilizes the concept of morphological operations using digital image processing. Existing text extraction method, namely, region based method produces enhanced results when applied on the normal images. The advantage of segmentation for the feature extraction of text region is proposed in the system.

Satish Kumar et. al. [2] Images and videos on webs and in databases are increasing g. It is a pressing task to develop effective methods to manage and retrieve these multimedia resources by their content. Text, which carries high - level semantic information, is a kind of important object that is useful for this task. When a machine generated text is printed against clean backgrounds, it can be converted to a computer readable form (ASCII) using current optical character recognition (OCR) technology. However, text is often printed against shaded or textured backgrounds or is embedded in images. Examples include maps, photographs, advertisements, videos, etc. Current document segmentation and recognition technologies cannot handle these situations well. Our system takes advantage of the distinctive characteristics of text that make it stand out from other image material i.e. text possesses certain frequency and orientation information ; text shows spatial cohesion characters of the same text string (a word, or words in the same line) are of similar heights, orientation, and spacing.

Chowdhury Md Mizan et. al. [3] Text Recognition is to recognize the text from printed hardcopy document to desired format (like .docx). The process of Text Recognition involves several steps including pre-processing, segmentation, feature extraction, classification, post processing. Pre-processing is for done the basic operation on input image like binarization which convert gray Scale image into Binary Image, noise reduction which remove the noisy signal from image. Segmentation stage for segment the given image into line by line and segment each character from segmented line. Future extraction calculates the characteristics of

character. A classification contains the database and does the comparison. Nowadays it plays an important role in office, colleges etc.

Abhinav kumar [4] an effective methodology for text extraction images and video frames using Gabor filter is proposed. The proposed approach is completed by Gabor Filter, morphological and Heuristic filtering process methods is used to localize the text region better. The proposed technique is completed by text extraction utilizing Gabor filter method which is utilized for text identification within complex images and video frames. Diverse experiments were led to assess the execution of the proposed calculation and algorithm and compare with other methods. Experimental results tested from a large dataset and demonstrated that the proposed method is effective and practical. Various parameters like a precision and recall rates are analyzed for both existing and proposed method to determine the success and limitation of our method. Experiment results show that our method can obtain 99.11 % recall rate and precision rate 94.67% with average computational time 5.28 second /frames.

Tsung-Hung Tsai et. al. [5] Camera-enabled mobile devices are commonly used as interaction platforms for linking the user's virtual and physical worlds in numerous research and commercial applications, such as serving an augmented reality interface for mobile information retrieval. The various application scenarios give rise to a key technique of daily life visual object recognition. On-premise signs (OPSs), a popular form of commercial advertising, are widely used in our living life. The OPSs often exhibit great visual diversity (e.g., appearing in arbitrary size), accompanied with complex environmental conditions (e.g., foreground and background clutter). Observing that such real-world characteristics are lacking in most of the existing image data sets, in this paper, we first proposed an OPS data set, namely OPS-62, in which totally 4649 OPS images of 62 different businesses are collected from Google's Street View. Further, for addressing the problem of real-world OPS learning and recognition, we developed a probabilistic framework based on the distributional clustering, in which we proposed to exploit the distributional information of each visual feature (the distribution of its associated OPS labels) as a reliable selection criterion for building discriminative OPS models. Experiments on the OPS-62 data set demonstrated the outperformance of our approach over the state-of-the-art probabilistic latent semantic analysis models for more accurate recognitions and less false alarms, with a significant 151.28% relative improvement in the average recognition rate. Meanwhile, our approach is simple, linear, and can be executed in a parallel fashion, making it practical and scalable for large-scale multimedia applications.

3. PROPOSED METHODOLOGY

3.1 Proposed Algorithm

3.1.1 Text Extraction:

In text extraction feature text is being extracted from the natural scene or an image. Here text extraction is done with the help of character description and stroke configuration [1]. Firstly the text will be detected, understood and then recognized.

3.1.2 Searching:

In searching process extracted text is being searched in database. Here searching is done with the help of item ranking according to the item of interest. It basically derives Meta data information about the item of interest by extending the user's given interest.

3.1.3 Web Mining:

In this mining process required information is retrieved from the database in an efficient manner. After retrieving the information successfully.

3.1.4 SWT: Computes per pixel, width of the most likely stroke containing pixel. (Stroke Width Transform)

1. Initially set SWT = ∞

2. Find edge by canny edge detector.

3. Follow the ray $r = p + n'dp, n > 0$ until another edge is found.

4. If $dq = -dp \pm$ dq = -dp Π/6 then SWT= |p - q| and dp++ else discard the ray.

5. If SWT ratio <= 3 then group neighbouring pixels.

6. If two letters are having similar stroke width, they can be grouped.

7. The output is a set of rectangles designating bounding boxes for detected words.

8. Search the text on web or in database.

9. Match the word, and retrieve the related information.

10. Display retrieved information

4. FLOWCHART OF PROPOSED SYSTEM

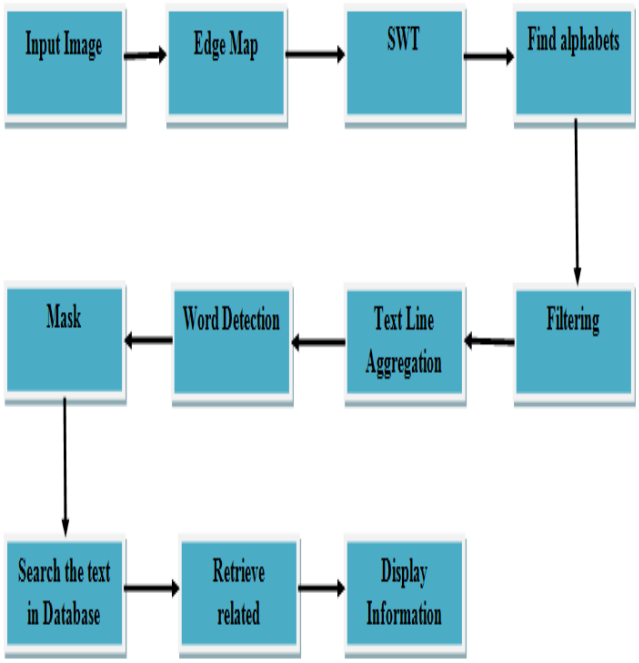

Figure 1: flowchart of proposed system

5. METHODOLOGY

To check the effectiveness and accuracy of proposed text extraction and recognition from the normal images using OCR feature extraction with text SWT technique, the proposed work is simulated. The methodology with algorithms of proposed work is given below:

Step 1: Design and develop a proper GUI of proposed text extraction and recognition from the normal images.

Step 2: Develop a code to upload test normal image for the text extraction and recognition.

Step 3: Apply pre-processing on uploaded image for testing. In pre-processing step, we apply some basic process like, edge map, word detection, text aggregation, filtering, recognition etc. to make the uploaded image useful in simulation.

Step 4: Develop a code for the region detection using the morphological operations and find only text region.

Step 5: Develop a code for the feature extraction from the extracted region of pre-processed image using SWT technique.

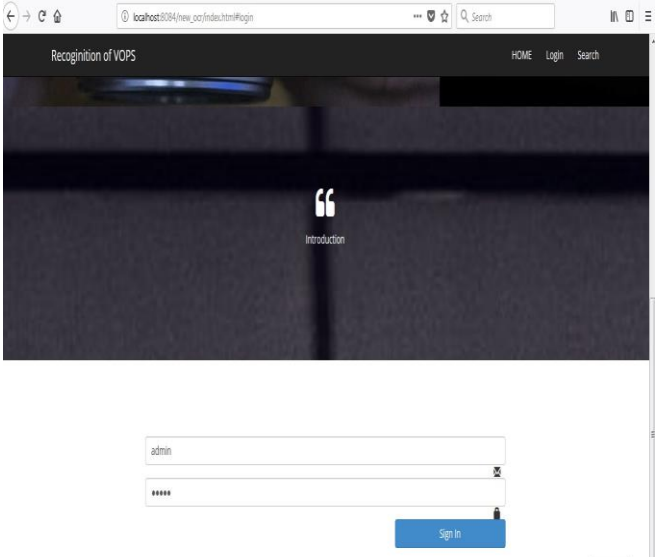

Figure 2: Login page

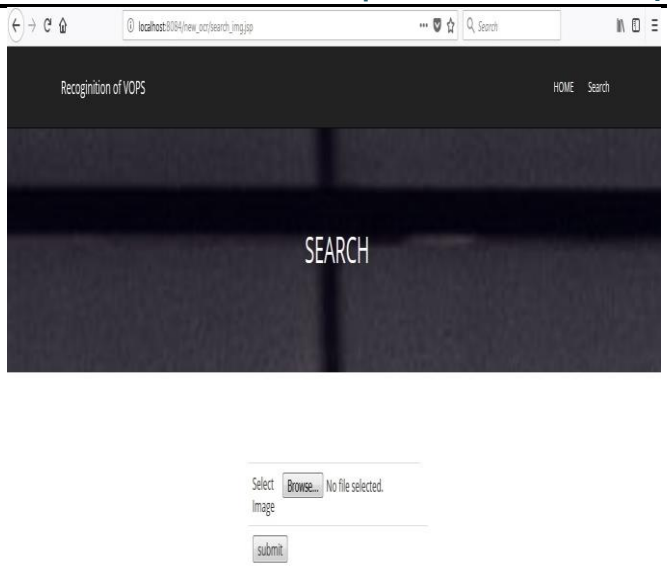

Figure 3: To search the Image

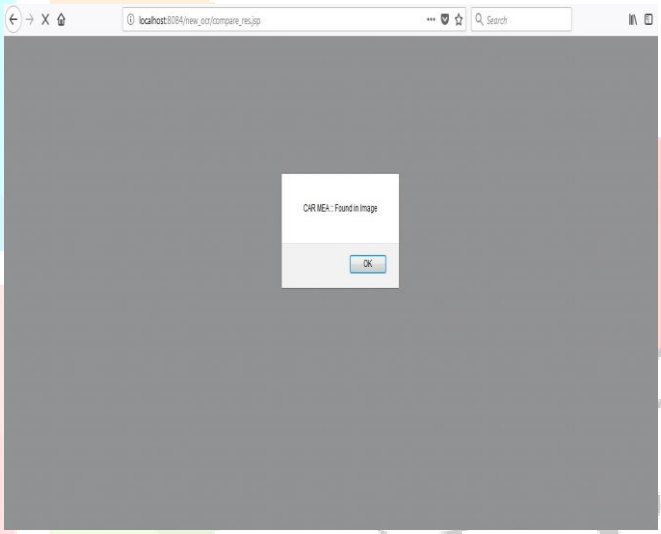

Figure 4: Search Result

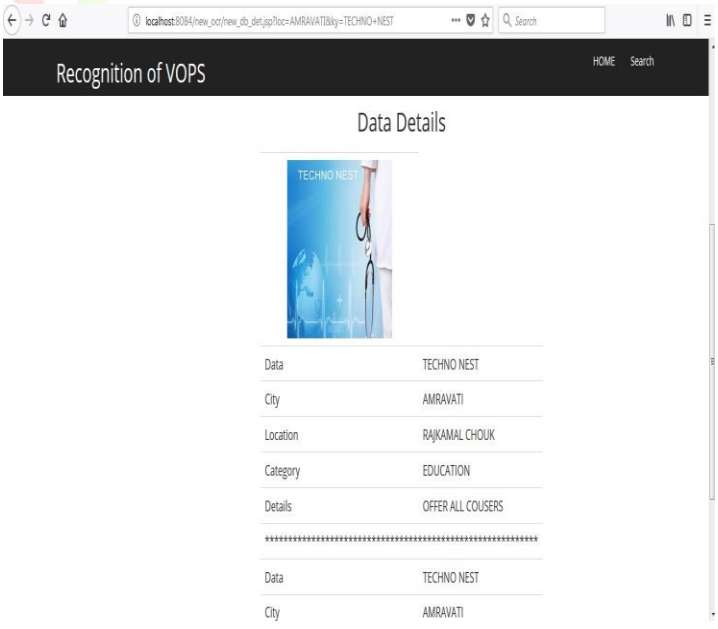

Figure 5: Details of image search

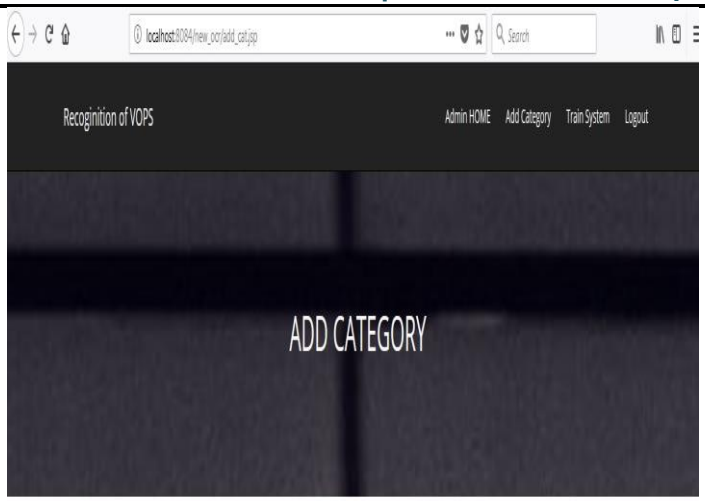

Figure 6: Admin can add the category of image

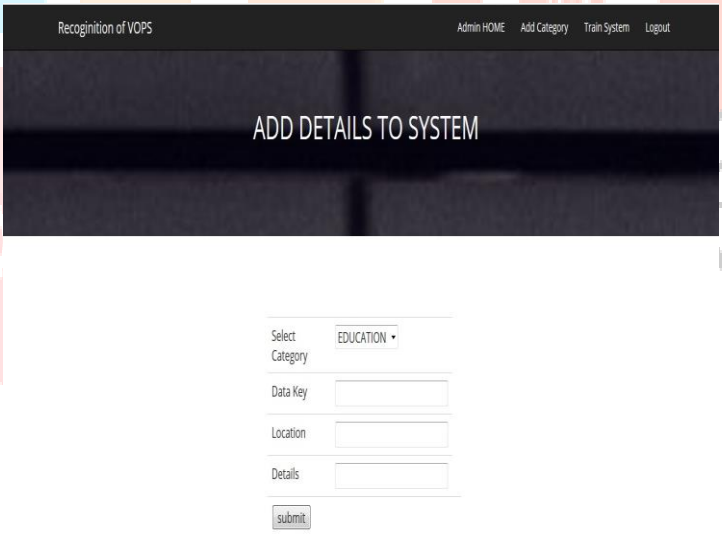

Figure 7: Add the image details into the system

6. RESULT AND DISCUSSION

This is a system which is implemented generic framework and methodology for automatically extract the text content of the image. In particular, we use the different images. The proposed system automatically detect the text of images if the text of image match from database image, to display the target image if the match not found, user can add the text to the image and store the image to the database.

7. CONCLUSION AND FUTURE SCOPE

Image Segmentation is an important task and requires careful scrutiny. We have presented an innovative and novel framework for the extraction of information in an image. This research, which aims to obtain text information from image, has focused on the input the images. While proposed system enables us to search image words in the database, the proposed system will be able to produce fast and accurate retrieval. However, the results are very dependent on the quality of images.

In general, the proposed algorithm can give a reliable results. This allows keyword searching for the retrieval to be implemented. However, for low-resolution images, we propose a new algorithm taken from textual information. In the future, we intend to develop Content-Based Indexing and Retrieval (CBIR) system using the obtained feature vector. We believe that through proper indexing, the proposed CBIR system is able to address the problem of low resolution image. In this research, our focus on to detect the text form image.

8. REFERENCES

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