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A Survey on Poster Recognition with Calendar Integration

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ABSTRACT: Textual information is very much important as far as concerned with today's era of developing technologies. Text that is residing in the pictures can convey important information. Extracting that text from natural images or images of posters is a challenging concept, because the background of the image can be complex or the image can contain the text which is in diverse pattern. Students in colleges have many events. So it is difficult for them to remember the dates and events. This paper proposes a method of extracting the text from the images and utilizing the extracted text information to set a reminder of a day before the scheduled event.

KEYWORDS: Text detection, Text Recognition, Character Descriptor, Stroke Configuration.

I. INTRODUCTION

Text from camera of devices gives information which serves as effective tags or clues for many mobile applications associated with media analysis, content retrieval, scene understanding, and assistant navigation. Natural scene images and videos or strings that are appearing on various hand held objects provides significant knowledge about the environment and the objects. Now-a-days text-based tags are much more applicable than barcode, because the latter techniques contain limited information and require pre-installed marks for checking of information.

In our proposed idea, basically the text is being extracted from the images of posters that serve the input to the application. The extracted text from the poster's image would contain title of the event, date and venue of the same. After the extraction of text, the date information is used to set the reminder of a day before the scheduled event. Therefore the main task of the application is to get an image of the poster as an input and process it for the extraction so as to get full information about the event.

The processing of image mainly includes text extraction. To extract text by mobile devices from the images of posters, efficient text detection and recognition algorithms are essential. However, extracting text from the images is quite challenging task due to two main factors:

- 1) Cluttered backgrounds with noise and non-text outliers.
- 2) Diverse text patterns such as character fonts, size, etc.

A limited number of characters are embedded in complex background. Also sometimes the text is not in proportion with respect to fonts and size. Text consists of different fonts, size, style which gives large varieties of text patterns. To overcome this problem, we divide the text extraction process into two parts, viz. Text detection and Text recognition. Text detection basically means localizing the regions in the image where text character and strings are present. The main aim of text detection process is remove non-textual background from the image. Text recognition means to transform the pixel-based text in the image to readable code.

For text detection and recognition we are going to use the proposed algorithm by Chucai Yi and Yingli Tian. In text detection we have pixel based layout analysis which is used to extract the text region and separate out the characters in poster image. Now, the extraction is based on color uniformity and horizontal alignment of text characters. In text



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recognition process we will use two schemes of text recognition. The first one is to order the character recognizer to predict the category of a character in an image patch. The second one is training a binary character classifier that will take each character class to predict the existence of the same category in an image patch. Basically these two things come under text understanding and text retrieving. Text understanding means to detect whether the image actually contains text information and text retrieval means to verify whether a piece of text information exists in natural scene. In text recognition process, we have character descriptor and stroke configuration that are designed to model character structure and compute discriminative character features. A character descriptor is used to compare the structure of text characters to extract discriminative features from character patches. The proposed method combines text detection and text recognition algorithm for processing of the image for text extraction. The main aim of this proposed idea is the image processing work and then followed by integration with the calendar for setting up the reminder. As the method is being designed for android application, setting up for reminder part would be integrated with the system application of the device.

II. RELATED WORK

Text recognition is still an open topic for the developers and researchers. In the Robust Reading Competition of International Conference on Document Analysis and Recognition (ICDAR) 2011, the best word recognition rate for images was only about 41.2%.

In natural images the text composed of cross cuttings, stroke variation which are in same colors and multiple orientations, but they are effected by some color distortion, complex background, etc. The text characters from various categories are distinguished by the shape of boundary and the skeleton structure, which helps in designing the recognition algorithm. Currently Optical Character Recognition (OCR) system is more accurate for recognizing the text from the scan or printed document, but cannot recognize the text from the natural images with different text fonts and complex backgrounds.

III. QUANTITATIVE EXPERIMENTAL ANALYSIS

Poster text extraction consists of text detection and text recognition. However, the main technical contributions of this paper are the two scene character recognition schemes compatible with mobile applications. We perform experiments to evaluate the two schemes over benchmark datasets.

Datasets:

To evaluate the proposed character descriptor and the character stroke configuration, we employ three public datasets of scene text characters, in which we conduct scene character recognition. The first one is Chars 74K Image Dataset. It contains all the 62 character classes with the approximately balanced number of samples. It captures 96 camera-based signs with 1209 scene characters. Most of the characters appear in regular font and style consistent with documents. ICDAR-2003 Dataset is very challenging because large amounts of non-text background outliers interfere with the roped character samples, and many character samples have a small size that does not have enough resolution for recognition. In Sign Dataset and ICDAR-2003 Dataset, the number of character samples from different categories is unbalanced.

Poster character recognition for text understanding:

Text Recognition means recognizing the text from any natural images .Text in the images may be in different languages due to this recognizer may assign different labels to identical characters. Instead of comparing characters directly to a model, directly comparing characters to each other, helps ensure that similar instances receive the same label. The undertaking of character acknowledgment in normal scenes is identified with issues considered in camera-based report examination and acknowledgment. A large portion of the work in this field depends on finding and amending the content zone.

Scene character recognition for text retrieval:

The proposed character structure modelling is applied to extract structure features from stroke configuration of the characters to learn a binary classifier for each character class. We evaluate these binary classifiers by queried character classification in the above three datasets. After the understanding of text, characters of text are compared to the datasets available in the system. Text characters are then extracted with the help of datasets.

Reminder of extracted date:



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After the extraction of text information, reminder of a day before is set in the smart phone. In our proposed system, we will integrate the reminder application of the smart phone with the application that is going to develop. With the help of extracted date, reminder of a day before is set in the system application.

IV. CONCLUSION AND FUTURE WORK

This paper presents fast and accurate algorithm that enables us to detect most characters from the images of posters with simple as well as complex backgrounds and set reminder of a day before the event date which is compatible with mobile application. It detects text regions from the images and extracts text from the detected regions by using efficient algorithms. This paper proposes algorithms that we are going to use to develop the application and the mechanism of setting the reminder with the extracted information. Demo system of text extraction has been developed. The demo system demonstrates the effectiveness of our proposed method in blind-assistant applications, and it also proves that the assumptions of color uniformity and aligned arrangement are suitable for the captured text information from natural scene. In future work, we can improve the accuracy of the system by developing much efficient algorithms.

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