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Text Based Video Indexing and Retrieval Using DLER Technique

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Abstract: This project extract the text in video that means it extract the text in image. Because video comprises of various images. In order to extract and search important information in huge video clip we are focussing on extracting text from video. Here first we convert the video into frame or images then we choose area of interest in which we extract the text called region of interest and then continue with algorithm for localization and recognition.

Keywords: Text Extracting, Text Recognition, Text Localization, Text Segmentation, Video text.

I. INTRODUCTION

Due to increase of available network, many users use the videos from large video site like YouTube etc. For example, in YouTube, over one day, new videos are uploaded to the site in every minute or second. So it is difficult to manually index and retrieve the large video. It is also difficult to search a small portion or text in large video. So we extract the video in form of images and then in this image we can retrieve text.
Text appearing in image and videos can be categorised into two main groups.

1.1 Artificial Text: Artificial text can be laid over the image. It is also called as caption or superimposed text. It is added mechanically in text.

1.2 Scene Text: Scene texts are the video text observes in real word object. Scene text exists naturally and appears accidentally which is captured by the recording device e.g. street sign, text on vehicles, logos and text on shirts of players, banners in the playing field, name on a uniform, writing on a billboard etc.

Fig.1 Scene Text

The video contain the text, including scrolling text or caption text (superimposed text) and scene text embedded in background. In the first part we introduce the concept of text extraction from image or video as well as text based image or video retrieval. In second part we discuss the text extraction from image and video by using process such as text detection, text localization, text extraction and optical character recognition (OCR).

Fig.2 Superimposed Text

1.3 Text Detection**:**
In this text detection stage, the text of input image need to be identified as a input image contain any text, the existence or non existence of text among the image. However in case of video, the amount of frame containing text is far smaller than amount of frame while not in text. The text detection stage detects the text in image.

1.4 Text Localization**:**
Text localization stage included localizing the text in image after detection. In other words, text present in frame was tracked by identifying boxes or region of smaller pixel intensity value and returning them to the next stage for further processing.

1.5 Text Extraction:
In this text extraction stage discusses the tracking and extraction. After the text was localized, text tracking step deals with separation of text pixels from background pixels. The output of this step is a binary image where

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black text character appears on a white background. This stage included extraction of actual text region by dividing pixels with similar properties into segment.

1.6 Text Recognition**:**
Text recognition performing OCR on the binaries text in image

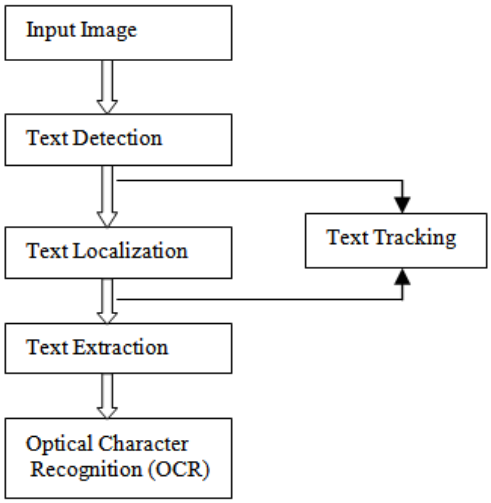

Fig.1 Text Extraction from images/videos Architecture

II. PROPOSED METHOD: A PRACTICAL IMPLEMENTATION OF DLER TOOL:

The primary aim of this paper is to propose the techniques for video text detection, localization, extraction and recognition. The text extraction in video frames is difficult because of complex background, unknown text character color and various stroke widths. Although many method have been proposed for pre-processing, we propose a fully automatic method, a simple approach for pre-processing, which integrates all the steps involved in detection, localization, extraction, and recognition as a simple and single tool as shown in fig. The DLER tool is costumer friendly and integrates all preliminary steps in to asingle tool. The frame work as shown in fig.

1. Image extracting from video object.
2. Identifying the candidate region.
3. Converting into gray scale image.
4. Separation of alphabets or letters.
5. Applying brightness and contrast.
6. Quantised the image.

2.1 Threshold:
An expression for brightness and contrast modification of image is

$$G(x, y) = a + (x, y) + b \qquad (1)$$

Where a is gain and b is bias image quality can be improved using linear mapping where we map a particular range of gray levels [f1, f2] onto a new range [g1, g2], this is increased the gain factor until two adjacent levels greater than f1 are mapped on to 255 where f1 acts as a threshold. And the mapping operator is termed as thresholding.

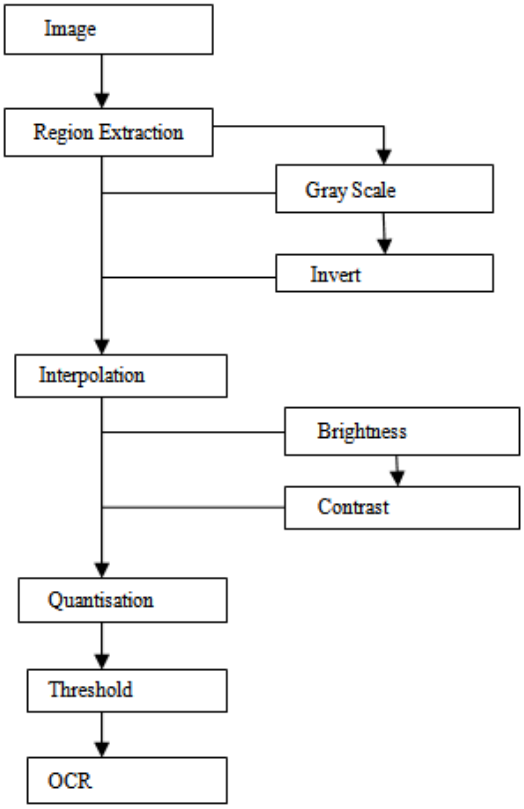

Fig.2 Image Processing and OCR Process

$$G(x, y) = g1 + \left(\frac{g2-g1}{f2-f1}\right) f[f(x, y) - f1] \qquad (2)$$

Image thresholding is a segmentation technique because it classify the pixels into two categories, those at which that property measures from image falls below a threshold and those at which that equal to exceed the threshold. Because there are two possible output values, thresholding create a binary image. The most common form of image thresholding makes the use of pixel gray level. Gray level thresholding applies to every pixel the rule is

$$G(x, y) = 0, \quad f(x, y) < T$$
$$= 1, \quad f(x, y) > T$$

2.2 Interpolation:
After inversion or quantised, we have to used interpolation where T is threshold. This equation specifies 0 and 1 as output values giving true binary image.

2.3 Experimental Result:

1) Input image:

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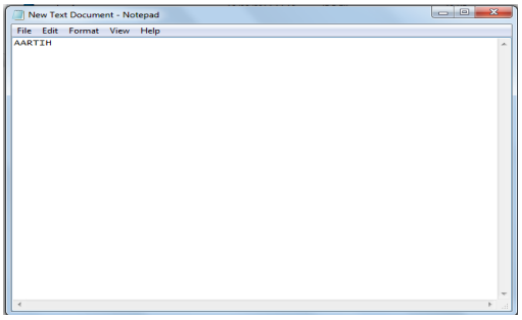
Region of Interest:

Output Text:



III. CONCLUSION

In this paper we are provided the comprehensive literature of text extraction involves detection, localization, tracking, extraction and recognition from the given image. We can concluded that the text appearing in video can be extracted using this software.

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REFERENCES

[1] C.V. Jawahar, Balakrishna Chennupati, Balamanohar Paluri, Nataraj Jammalamadaka, "Video Retrieval Based on Textual Queries", IEEE Transaction on circuits and System For Video Technology, Vol. 9, No. 8, December 1999.

[2] Rainer Lienhart and Axel Wernicke, "Localizing and Segmenting Text in Images and Videos", IEEE Transaction on circuits and System For Video Technology, Vol. 12, No. 4, April 1999.

[3] Jayshree Ghorpade, Raviraj Palvankar, Ajinkya Patankar and Snehal Rathi, "Extracting Text from Video", Signal & Image Processing: An International Journal (SIPIJ) Vol.2, No.2, June 2011.

[4] Dr. Sunitha Abburu, "Multi Level Semantic Extraction for Cricket Video by Text Processing", International Journal of Engineering Science and Technology, Vol. 2(10), 2010.

[5] Michael R. Lyu, Jiqiang Song and Min Cai, "A Comprehensive Method for Multilingual Video Text Detection, Localization, and Extraction", IEEE Transaction on circuits and System For Video Technology, Vol. 15, No. 2, February 2005.

[6] Er. Navdeep Kaur and Dr. Mandeep Singh, "Content Based Video Retrieval Using Color, Texture and Time Based", International Journal of Applied Engineering and Technology , Vol. 4 (2), April-June 2014.

[7] H. Tran, A lux, H.L. Nguyen T. and A. Boucher, "A novel approach for text detection in images using structural features", The 3rd International Conference on Advances in Pattern Recognition, LNCS Vol. 3686, pp. 627-635, 2005.

[8] X. Liu, H. Fu and Y. Jia, "Gaussian Mixture Modeling and learning of Neighbor Characters for Multilingual Text Extraction in Images", Pattern Recognition, Vol. 41, pp. 484-493, 2008.

[9] P. Dubey, "Edge Based Text Detection for Multi-purpose Application", Proceedings of International Conference Signal Processing, IEEE, Vol. 4, 2006.

[10] D. Crandall, S. Antani, R. Kasturi, " Extraction of special effects caption text events from digital video", International Journal on Document Analysis and Recognition, Vol. 5, pp. 138-157, 2003.