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Accurate Text Line Recognization Using Captured Image

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ABSTRACT—

On the device text line recognition framework that is designed for mobile or embedded systems. We consider per-character segmentation as a language independent problem and individual character recognition as a language-dependent one. Thus, the proposed solution is based on two separate artificial neural networks (ANN) and dynamic programming instead of employing image processing methods for the segmentation step or end-to-end ANN. To satisfy the tight constraints on memory size imposed by embedded systems and to avoid overfitting, we employ ANNs with a small number of trainable parameters. The primary purpose of our framework is the recognition of low-quality images of identity documents with complex backgrounds and a variety of languages and fonts.

Keywords— Text recognition, artificial neural networks, character recognition, machine learning

I. Introduction

Smartphones, tablet computers, and other mobile devices gain more and more popularity each day. Applications for such devices include government and commercial services that often require entering data from printed documents. Yet the text entry on modern touch-based keyboards is error prone and time-consuming. Thus, several solutions appeared in recent years for optical text recognition in images that are captured using mobile devices. These systems can be classified into two groups: client-server solutions, which transfer images to a ‘‘cloud’’ and require internet connection, and ‘‘on the device” methods that perform the recognition process without data transmission. Recognition of identity documents is a specific case since they contain sensitive personal information, and any application should guarantee the security of personal data.

PURPOSE

OCR is the core part of any text recognition framework.Device is using to any software should be satisfy the tight constraints on computational power and memory.The primary purpose of our framework is the recognition of low-quality images of identity documents with complex backgrounds and a variety of languages and fonts. We demonstrate that our solution shows high recognition accuracy on natural datasets.

II. RELATED WORK

Per-character line segmentation is a process of finding bounding rectangles of characters and is one of the essential problems of text recognition. Segmentation can be applied to binarized or grayscale images. However, in the case of camera-captured images, binarization can have a drastic effect of introducing background noise and camera specific distortions. Most methods include various heuristics about possible glyphs, which allow cutting or merging components of specific shapes. To overcome all the difficulties, over segmentation methods are developed. After the segmentation is performed, a classifier is used for OCR.

III. EXISTING WORK

On the device text line recognition framework that is designed for mobile or embedded systems. We consider per-character segmentation as a language-independent problem and individual character recognition as a language-dependent one.

LIMITATIONS OF EXISTING WORK

1) ERROR-PRONE

Not 100% accurate, there are likely to be some mistakes made during the process even though we use most advanced methods

2) MANUAL CORRECTION NEEDED

All documents need to be checked over carefully and then manually corrected

3) DIFFICULT FOR HAND-WRITTEN IMAGES

Might be result another text

4) WORK-AROUNDS

IV. PROPOSED WORK

The proposed solution is based on two separate artificial neural networks (ANN) and dynamic programming instead of employing image processing methods for the segmentation step or end-to-end ANN.

CONTRIBUTIONAL WORK

1) QUICK WORK DONE

Cheaper and much faster than paying someone to manually enter large amounts of text.

2) SUPERIOR DATA SECURITY AND AVAILABILITY

It is available on mobile handy and our data is secure because of its “ON THE DEVICE” ocr method.

3) BACKUPS AND TRANSLATIONS

4) 100% TEXT-SEARCHABLE DOCUUMENT

Extracted text can be editable and searchable

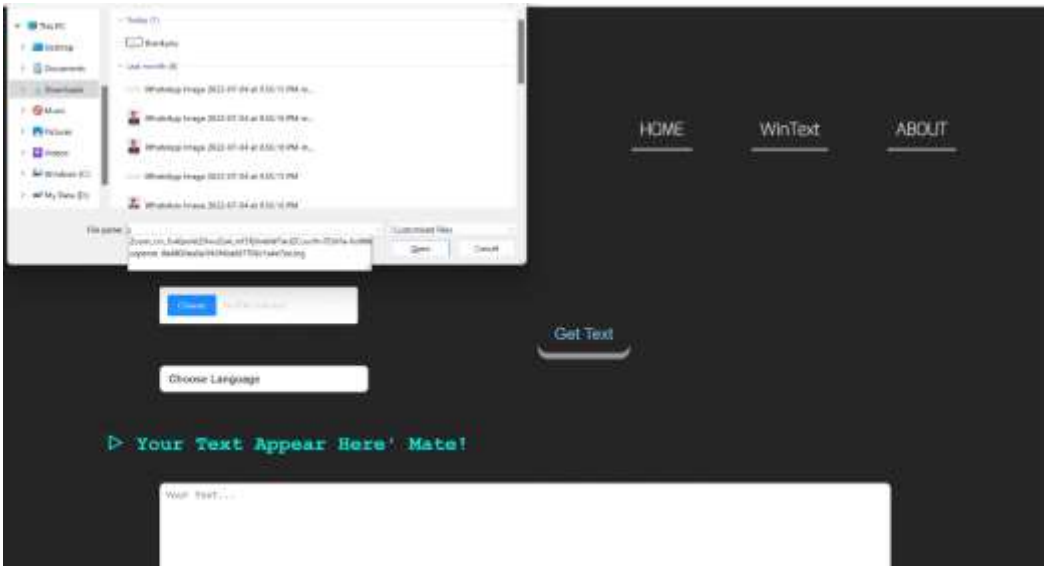
5) GOOD ALIGNMENT FOR TEXT LINES

6) PLATFORM INDEPENDENT FOR BYTE CODE

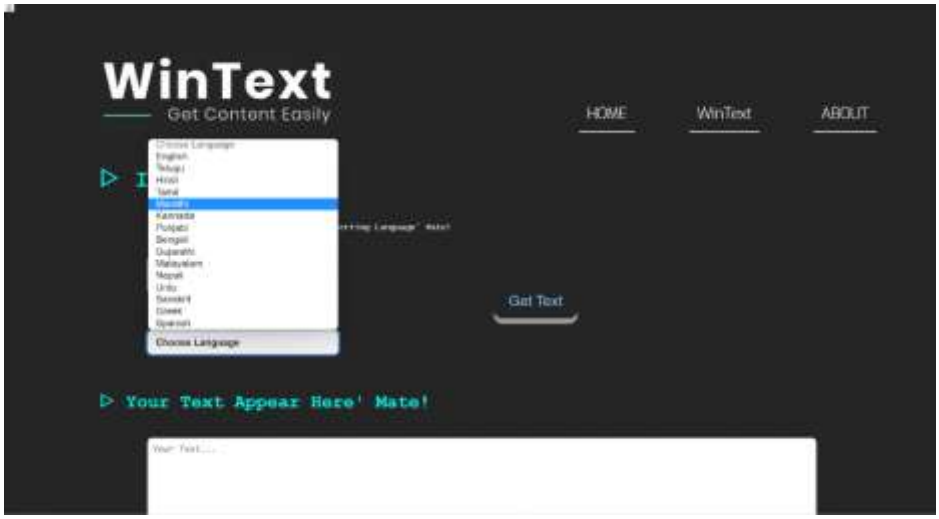
V. RESULTS

Screen 1: In above screen click on ‘WIN TEXT!’ button to upload dataset.

Screen 2: In above screen click on we get extract page. Click on 'CHOOSE FILE' to upload file files for extract date text.



Screen 3: In the above screen describes the extraction formation and select a file for extract data text by using ANN and CNN



Screen 4: In the above screen We are selecting the Familiar Language for translating the text formation. Single click for selection.

Screen 5: In the above click on 'GET TEXT' button ,then we will get out put of the text file in the 'Your Text Appear Here' Mate !' text area out put section.

VI. CONCLUSION

Provide a comparison of the recognition accuracy results of our method,LSTM-based Tesseract 4.00, the algorithmic method from Tesseract 3.05, and ABBYY FineReader 15 on the public dataset for the camera-captured ID recognition MIDV-500.The acquired results show that our framework is essentially better than ABBYY FineReader 15 and both versions of Tesseract OCR. Also, we provide the results of our method on the 1961 Census of England and Wales Project dataset.To conclude, our framework demonstrates the powerful capabilities of employing the FCNs for text line segmentation and of using extremely light-weight ANNs for camera captured image recognition and extended to hand-written images.

VII. FUTURE WORK

OCR is the core part of any text recognition framework. the OCR task is usually solved with various ANNs that demonstrate state-of-the-art results on public datasets. However, to be usable, ANNs employed in ''on the device'' software should satisfy the tight constraints on computational power and memory.So, we must employed a light-weight neural network for both optical font recognition and OCR.

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