

Character Recognition and Processing On Identity Card Using Image Processing Techniques

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Abstract: Due to the rapid development of digital technology and high usage of gadgets in the daily activities on Global Network. Identification card (ID cards) becomes the primary reference to each individual citizens. In some sectors and fields need the information which was contained in the ID card to perform registration process. To overcome their challenges and to make the process more efficient manner. To retrieve data from there document text extraction tools are necessary. There are many methods to extract text from such scanned documents. OCR has an Open source library to extract text from the scanned document. This process includes three main steps as namely Pre-processing, Layout Analysis, and Character Recognition. This proposed system will give results of more than 92% accuracy of documents which do not have any impurities such as noise and not distorted due to old [4].

Keywords: Pre-processing, MODI, OCR, Character Recognition Module, Image File, ID Card.

I. INTRODUCTION

The idea of OCR is to convert scanned of the photographic image of typewritten or printed text into computer-readable text. With the increase in the use of the digital image capturing devices. The captured image is a big challenge in day-to-day life. Due to this increasing demand to create a paperless environment. The large amount of research work is carried out in the Text Recognition and there is a wide range of application of OCR in many domains such as Invoice Imaging, Legal Industry, Banking, Healthcare, Captcha Institutional Repositories And Digital Libraries, Optical Music Recognition etc. [1]

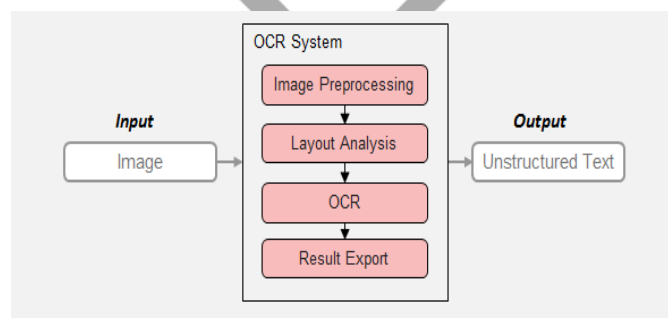
II. LITERATURE SURVEY

Since ID card is the primary reference to every individual. Several methods and the Algorithms to detect text in an image are reviewed as well as the performance. In camera-based Analysis of text documents, there are some challenges of capturing a picture from a camera which includes uneven lighting, perspective distortion, low resolution etc.[4]. There are many methods to scan an image based on some limitations and constraints but using OCR is the best way. This decision was taken since OCRs require a large collection of pixel library of different fonts along with their attributes like 'italics, bold, capital, size variation, etc.' Using an existing pixel library reduces the effort to be put into the development of an OCR and more efforts can be put into the development of pre-processing methods and fine-tuning the OCR

III. PROBLEM STATEMENT

The aim of this paper is to evaluate the character from given image which is text written image and print on the document or word file.

IV. MECHANISM



V. ALGORITHM

1. Start
2. Scan the textual image.
3. Do preprocess like Image Cleaning Routines, skew correction, Binarization etc.
4. Layout Analysis like finding texts, tables, lines, single characters etc.

5. Character Recognition.

6. Load the DATABASE.

VI. METHODOLOGIES

OCR is the ability of a system to convert scanned or photographic images of typewritten or printed text into computer-readable text. A remarkable early attempt in the area of Character Recognition was done by Grimsdale it [1] in 1958. In open source object models, two such libraries were available one was from Microsoft called the Microsoft Object Document Imaging (MODI). This library was available in C# the other. Open source library was from Google called Tesseract. This was available in C++ [2]. In this proposed system we develop the OCR tool using the MODI object model.

VII. MAJOR STEPS OF OCR

A. Pre-processing

Skew Correction

Initially, the image is scanned at some arbitrary angle known as skew angle. Later the image should be transformed into the de-Skew angle by using various geometric transformation methods. to correct the skew angle before using the OCR, a skew correction algorithm was necessary. The algorithms studied were Projection Profile algorithm, Hough Transform algorithm, Radon Transform, Fourier Transform and many variants [2].

Binarization

OCR has to segment the file into pages. Binarization technique to be used in various document analysis, processing and retrieval tasks. A review of many binarization methods for OCR can be found in Ref.[5].

B. Page Layout Analysis

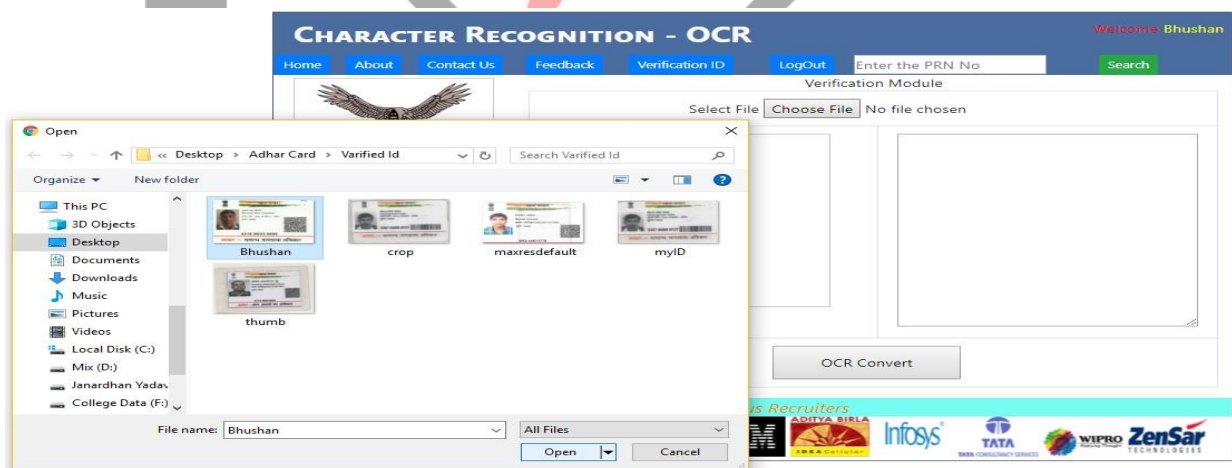
It is the next major phase where the finding of page elements like blocks of text, tables, lines, single characters are to be done. Due to imperfection in the segment, most of the recognition system produces poor recognition rate. So, segmentation of line word and character are one of the critical phases of OCR [3].

C. In Character Recognition

In this step, either a feature extraction routine or matrix matching routine compares the characters in the scanned image file to the characters in the library. The library should support different fonts, styles, sizes. Due to such constraints, It was decided to use MODI(Microsoft Object Document Imaging). It is a script engine using ASP.NET.

VIII. IMAGES FROM APPLICATION'S SCREENSHOT

1. Start with Uploading an image.



2. Process of OCR.



3. Process of Character by Character Verification Status.



4. Problems Occurred.



IX. CONCLUSION

Thus the proposed system consists of 3 main step: Pre-process, layout analysis, character recognition. On developing this project, it was found that OCR tool with MODI library .extracts documents with 90°, 180° skew perfectly but has some difficulty with lesser skew. Due to some limitations and constraints, it can be concluded that the ability to read a text by machines to mimic human remain unachieved goal, though a wide range of research and development expended on the subject.

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