

#### Text Recognizer Android Application

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#### Abstract

Text recognition in images is a research area which attempts to develop a computer system with the ability to automatically read the text from images. Optical character recognition (also optical character reader, OCR) is the electronic conversion of images of typed or printed text into machine-encoded text, whether from a scanned document, a photo of a document or a scene-photo. There is a very high demand in storing the information in the devices, and finding the information from the device where the information is stored is a very big task to find. And the text which is present in the paper document can be easily stored using this system device in a image document, it is very difficult to read the individual contents and searching the contents form these documents line-by-line and word-by-word. There are many challenges involved in this the font characteristics of paper and quality of images. So, computer is unable to recognize the characters while reading them. .so the character recognizer is used to perform Document Image Analysis (DIA) which transforms documents in paper format in to device editable text. this paper is used for recognition of text from image for better understanding of the reader using sequence of different processing module.

**Keywords:** OCR, Document, Recognition.

## Introduction

### *Text Search*

All hard-copy content is linked to a preferred text reader (such as Word, Pages, or Notepad). This allows users to search through content instantly, highlighting specific words or phrases. It is especially useful for documents that contain more than a few pages.

### *Text Editing*

Hard-copy materials aren't inserted into the system. They're instead turned into files which enables users to edit, delete, and add new information directly on the pages.

### *Text Access*

Storing documents is no simple task, with countless files. Chaos reigns supreme, and all too often, information is lost (with folders misplaced and papers accidentally thrown away). OCR resolves this issue, letting users store their files on their computers, laptops, and other devices. This ensures constant access to every scrap of paper.

### *Time Management*

Manual data entry demands hours, effort, and sanity—with users dedicating their days to document creations and endless forms. This software spares them the need transcription and ensures more efficient time management.

### *Stress Reduction*

The monotony and stress of data entry disappears, with Zonal OCR redefining how users insert, display, and convert text.

## EXISTING WORK

***ScanDoc Document Reader***- is a good scanner that can funnel text into many of the apps on your phone with one click. However, many of the apps failed to work for us—sending text to Gmail or SMS worked fine, but choosing Flick Note, Dropbox, and Google Docs all failed, kind of defeating the purpose of the "send to any app" feature.

Once if the user has scanned a document he can save the scanned image as a file on your device. He can share this file with different kinds of software. The resulting document or image can also transfer the resulting file easily, such as by putting it on a pen drive or sending it to others by email.

The main drawback of this scanner is that it cannot be shared with the third-party apps and this scanned text is been stored in the form of pdf or paper document, but it cannot be able to change the text in to editable text .so its becomes very tough to share only required information. the text which is scanned from this scanner cannot be editable individually.

So, this scan dogs is failed to share through the flick note that means a notes user is looking for a them to get their notes onto their Android phones so that they can use Flick Note to get the job done. The app syncs automatically and allows the users to quickly view notes we have saved, edit tags, or delete notes from your account.

So, this scan docs cannot be applicable and this cannot access this flick note.

Notes which is displayed in Flick Note have clickable URLs, phone numbers, and check-boxes so that we can check can check, and we can edit notes on our phones. flick note is free, but the developer also offers a paid version that removes ads.

**Google Docs** - If you use Google Docs to scan stuff, you best believe it's going to go into Google Docs, and if you want it elsewhere, you'll have to copy and paste it yourself (and then delete that document).

**CamScanner** - Instead of turning that image into editable text, most of them turn it into a PDF document, which isn't exactly what we're looking for in this category.

CamScanner is an app through which our smartphone scans the document with our device. It uses the camera on the smartphone to take a snap of a document and then provides additional options like: Image adjustments.

*Image adjustment*-it is a form that adjust the image in a proper form, suppose if the picture is clicked in some angle so that pick can be adjustable to our requirement.

*Multi-page PDF conversion.*

So, this multi-page converter what it does is, if the pictures are takes or snaps are taken of few documents that will only be converted into pdf format and can be saved. Document sharing options. The document which is been saved in the form of image or in the form of pdf that can be shared to the other persons via using related sharable apps. Cloud storage integration.

This CamScanner app is used to capture a lot of documents like newspaper articles, agreements, whiteboard sketches, book excerpts, business cards, tickets, coupons, and so many.

**Google Keep** - you need import the document you need to perform OCR on and save it as a note, the image can be from the gallery or the camera, it takes more time to recognize and uses internet for converting the text.

Google Keep is a syncing notepad that which connects to Google Drive. It also supports photo notes, voice notes, and checklists. Google Keep allows us to take and save those notes, photos,

voice memos, and checklists to Google Drive, and we can access them again on any other devices we use. anyone who appreciates simple to-do apps, or for saving notes on the desktop that we know we will need on our Android phone, like shopping lists, addresses, phone numbers, or conference call codes. so, you can use it with our own account.

This google keep has the interface that is colorful and easy to use. Those colors are organization tools that make it easy to tell our personal notes apart from our work-related notes or our family-related ones, and so on.

Between voice notes, image notes, and text, Google Keep has many features to help you stay organized

Google Keep is fast Adding quick-notes is as simple as tapping the text box at the top of the Keep window and typing in this google keep.

Google Keep's voice notes are better than the competition.

Adding voice notes in Google Keep is as simple as tapping the microphone and speaking. Once you're finished speaking, the app converts your speech to text.

But the main drawback is that if the user is too lazy to type the text or to speak the text from the Paper that cannot be scanned in the text form.

### **Improvements through the developing application:**

The application which is being developed overcomes the drawbacks of already available OCR applications in the market.

The major drawbacks are as follows:

- Creation of text file automatically
- Sharing of the saved file
- Ability to modify text

## **PROBLEM DEFINATION**

The problem here is for the software systems to recognise characters in computer system when information is scanned through paper documents as we know that we have number of newspapers and books which are in printed format related to different subjects. Whenever we scan the documents through the scanner, the documents are stored as images such as jpeg in the computer system. These images cannot be edited by the user. But to reuse this information is very difficult to read the individual contents and searching the contents from these documents

line by line and word by word. These days there is a huge demand in “storing the information available in these paper documents into a computer storage disk and then later editing or reusing this information by searching process.”

## **PROPOSED SYSTEM**

The basic idea of the application is to scan the text from a printed document and can modify the scanned text. The scanned text will be stored as a text file automatically and can be shared to third party apps. An image containing text can be uploaded from the gallery and can be scanned. The saved files will be stored in the internal memory of the device and can be easily accessed through the app.

The main purpose of Optical Character Recognition (OCR) system based on a grid infrastructure is to perform Document Image Analysis, document processing of electronic document formats converted from paper formats more effectively and efficiently. This improves the accuracy of recognizing the characters during document processing compared to various existing available character recognition methods. Here OCR technique derives the meaning of the characters, their font properties from their bit-mapped images.

The primary objective is to speed up the process of character recognition in document processing. As a result, the system can process huge number of documents with-in less time and hence saves the time.

Since our character recognition is based on a grid. infrastructure, it aims to recognize multiple heterogeneous characters that belong to different universal languages with different font properties and alignments.

## **SYSTEM OVERVIEW**

### *A.IMAGE TO TEXT*

In this module, the text is scanned from an image containing text. Using the function ACTION\_PIC, the gallery related apps are waken up in the device. After the image is chosen, a detector scans the text and forms them into blocks of text. These blocks are converted into lines of string with the help of “Sparse Arrays” or “Array Lists”. As a result, the text is scanned accurately from the image and stored in the memory.

### *B.CAMERA SCANNER*

In this module, text is scanned directly through the camera. With the help of ACTION\_IMAGE\_CAPTURE function, the camera related apps are wakened up in the device. There are three main methods for the app to wake up and work.

CameraSource- which fetches the hardware from the device.

CameraSourcePreview- which gives a preview of the text to be scanned through the camera.

GraphicOverlay- displays the scanned text in desired layout.

After the methods are executed successfully, the scanned text is stored in the memory of the device.

### C.SAVED MESSAGES

In this module, the scanned results stored in the memory of the device are displayed. These results can be reused by the user at any point of time. The internal memory of the device will be utilized by the application. OCR technology is efficient in such a manner that the scanned result occupies minimal memory which results in minimal increase in the size of the app. SQLite will be used as the database in the application.

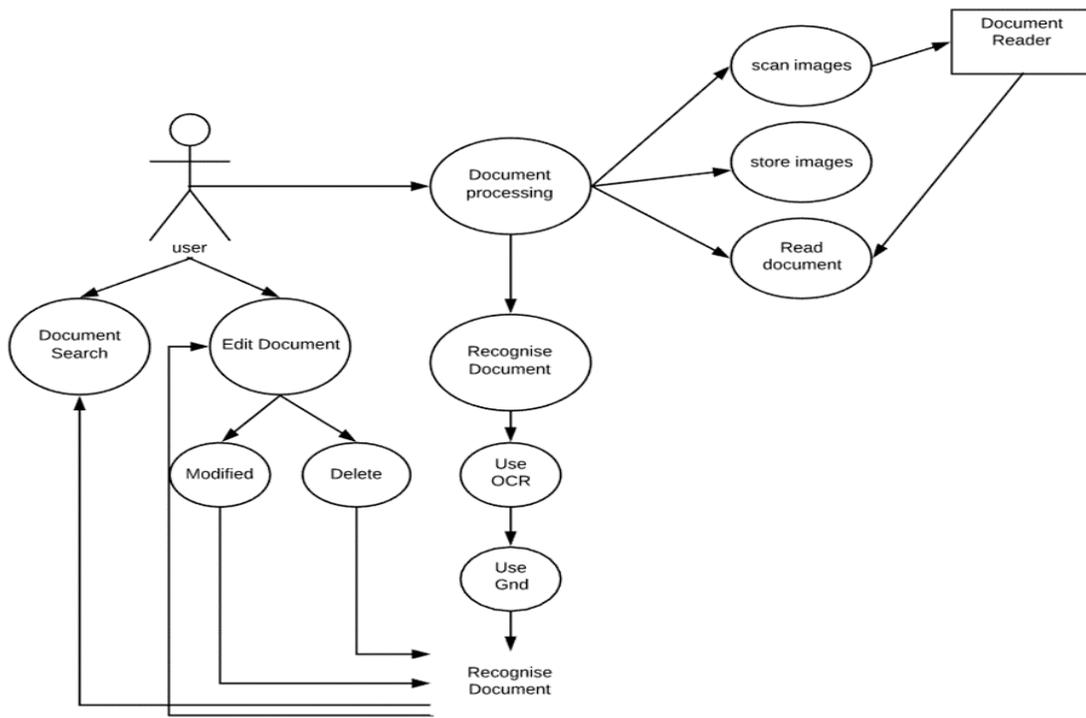


Figure 1. System Architecture

## ALGORITHM DESIGN

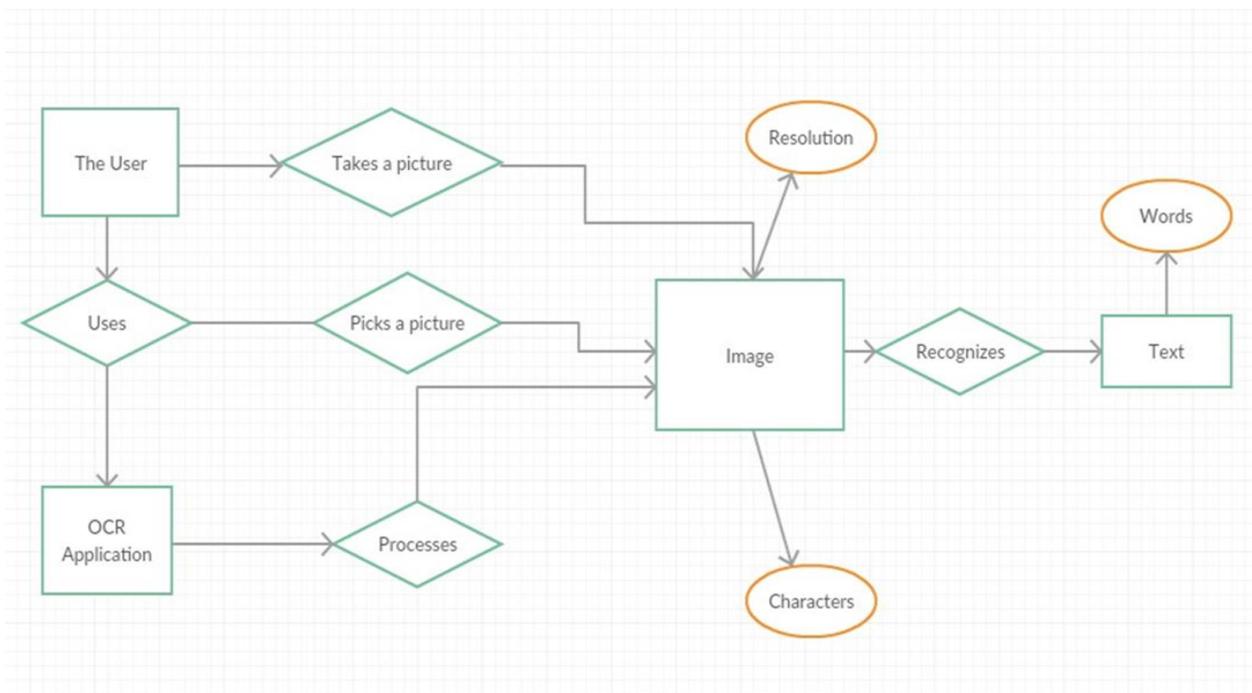


Figure 2. Algorithm Design

## METHODOLOGY



Letter A = two angled lines + one horizontal line

This is a sophisticated way of spotting characters. It decomposes characters into “features” like lines, closed loops, line directions and intersections. Let’s take letter A as an example. If the computer sees two angled lines joined with a horizontal line in between, then it recognizes as letter A. By using rules like these, the program can identify most capital ‘A’s, regardless of the font that it is written in.

## COMPARISON

In the following table, the existing and proposed system is compared.

Existing Work	Proposed Work
1. Existing systems have many drawbacks like lack of option to modify or edit the scanned text, share via third part apps, etc.	1.It is an integration of all the drawbacks from the existing systems.
2.Some existing systems are not available for free of cost.	2.It is available for free of cost.

3. Some existing systems need the support of internet to work.	3.It does not need the support of internet and works offline.
4.They do not have the option of translating to desired language.	4.It has the option of translating scanned text into desired language.

## CONCLUSION

After a detailed survey and analysis of existing systems, the drawbacks of those systems could be listed out. These systems could not give satisfactory experience to the users as they were falling short of desired options for the user. With the help of the proposed system, users can access and reuse the scanned text. They can make use of operations which are not available in the existing systems. The proposed system will come handy at any time when needed by the user. It takes lesser effort and time when compared to any other available application.

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