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Visiting Cards Collector System using Text Recognition on Android

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ABSTRACT: Visiting card is the most common medium in business field for communication each other. Old-fashioned paper cards take bulk of space when number becomes hundred or more. When the person wants to find a card, he/she has to search in the bulk of visiting cards. This can take a lot of time and efforts. This paper solves this problem that the user will have to scan the visiting cards using scanner. This paper aims to recognize the image of visiting cards and translate it into an editable text using Optical Character Recognition (OCR) method through an android application. Then, user will be able to make phone calling, send sms and email and browse website. In this system, user will be able to manage their cards by more easily and effortlessly without taking much memory space in their phones. Moreover, they can import existing cards into the system and export cards from the database. This paper will help the user to easily recognize the text from their visiting cards and store data directly into their phones. In this system, the SQLite Database will be used to store visiting cards data. Then, Android Studio will be used as IDE for this development.

KEYWORDS: OCR, Text Recognition, Cropping, SQLite Database, Android Studio

I. INTRODUCTION

Nowadays many organizations are depending on OCR systems to eliminate the human interactions for better performance and efficiency. People can learn any information they want to know from their smart phone. Because mobile technology is improving gradually, people from everywhere can connect and communicate to each other. Today, with more people sending emails via smartphones, these two entities formerly foreign to each other, visiting cards and email have merged, leaving them with multiple options for sending visiting cards by cell phone. Visiting cards are an important part of life, helping us quickly swap contact details and turn a brief meeting into a valuable long-term contact. Having visiting cards ready to hand out, whether at a professional networking event or while the person is simply out running errands, is a great way for person to be able to spread word of mouth about his/her business. Those little cards will allow person to advertise to potential clients and customers that he/she might not have gotten the chance to work with otherwise.

While the idea of handing out physical visiting cards to people might seem like an old-fashioned one, the truth is that they can be very beneficial for their company. When the person wants to find a card, he/she has to search in the bulk of visiting cards. This can take a lot of time and efforts. This system is to solve this problem that the user will have to scan all the visiting cards he/she has got using the scanner, which is usually built-in for many phones or tablets. After scanning, the application will store the owner's name of that visiting card, contact information and address in each category they belong to. This way will be much more effortless and save time. The good point would be that user won't have to see hundreds of photos to find one card but will have type the name of the person, he/she wants to find in the search box. All the matched cards will be shown up and they can contact to the visiting card owner with a single touch on the phone number. This system can help to manage their visiting cards more effectively than the old ways.



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II. RELATEDWORKS

Ishita Pal [3] This paper aims to recognize the image and translate it into an editable text using Optical Character Recognition (OCR) method through an android app. This paper presents an efficient use of the android platform to extract the text from an already existing image as well as from any real time image, providing the user with multiple time cropping option for expeditious recognition of text. S.S.Kulkarni [6] This paper discusses android card reader application using OCR and it uses Global Positioning System to detect end user address for tracking the other user. Through GPS facility for android mobile, the user can get address very correct. Chowdhury Md Mizan [1] The goal of Text Recognition is to recognize the text from printed hardcopy document to desired format (like .docx). The process of Text Recognition involves several steps including preprocessing, segmentation, feature extraction, classification, post processing.

Dishank Rajesh Palan [2] In this paper it presents an android application for accurate recognition and translation of text in varying environmental conditions, given an Android mobile having a camera. Line Eikvil [4] This paper presents a review on OCR techniques. It also tells about the OCR process that converts text, present in digital image, to editable text and how it recognizes characters through optical mechanisms. N. Venkata Rao [5] In this paper a large number of methods of optical character recognition are presented. It analyses the advantages and drawbacks of various OCR methods and also proposes a modified back propagation method. The proposed method computes error rate efficiently, it results in increasing the accuracy.

Sonia Bhaskar [7] This report presents an algorithm for accurate recognition of text on a business card, given an Android mobile phone camera image of the card in varying environmental conditions such as variable lighting, reflection, rotation, and scaling, among others. José C. Principe [8] This report unifies the concepts of neural networks and adaptive filters into a common framework. It begins by explaining the fundamentals of adaptive linear regression and builds on the concepts to explore pattern classification, function approximation, feature extraction, and time-series modelling/prediction. Rohit Verma [9] This paper presents an overview of feature extraction methods for recognition of segmented(isolated)characters. Selection of feature extraction method is probably the single most important fact or in achieving high recognition performance in character recognition systems. Different feature extraction methods are designed for different presentations of the characters.

III. THE PROPOSED SCHEME

This system is intended to easily recognize visiting cards and store data directly into users' phones or tablets. By using this system, users can manage mass amount of visiting cards in an efficient way, communicate and share visiting cards through phone call, sms and email functions. Firstly, user can take a photo of visiting card by using camera. And then, he/she can crop the photo, edit scanned text and choose background to prepare card. Moreover, he/she can view all the cards, search by person name, search by company name and search by alphabet. Then, if user wants to edit and delete the card, he/she must select the card. Besides, he/she can import existing cards into the system and export cards from the application.

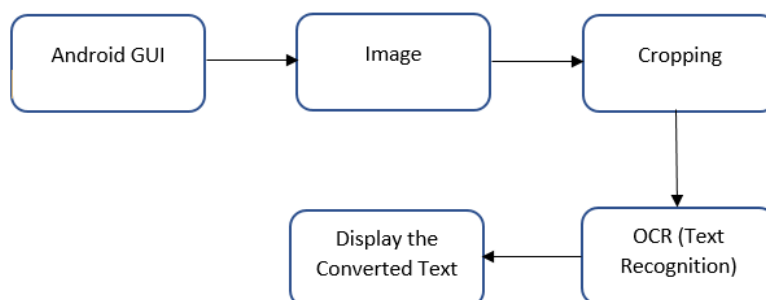


Figure 1. Block Diagram

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The above figure 1 shows the basic steps involved in recognizing the text from an image using an android app. The image to text recognition consists of first developing an android app in android studio for loading and cropping of image. The use case diagram of the system as show in figure 2 and 3. The function of the proposed system is described as follows:

Cropping

The user takes a photo to save the visiting card in his/her phone by using Camera. And then, user can crop the photo, edit scanned text and choose background to prepare card.

Managing gallery

The user can select picture and then crop the photo by using Prepare Card Function.

Managing Cards

The user can view all cards, search by person, search by company and search by alphabet. Then, if users want to edit and delete the card, they must select the card.

Importing

To import existing cards into the system.

Exporting

To export cards from the application database.

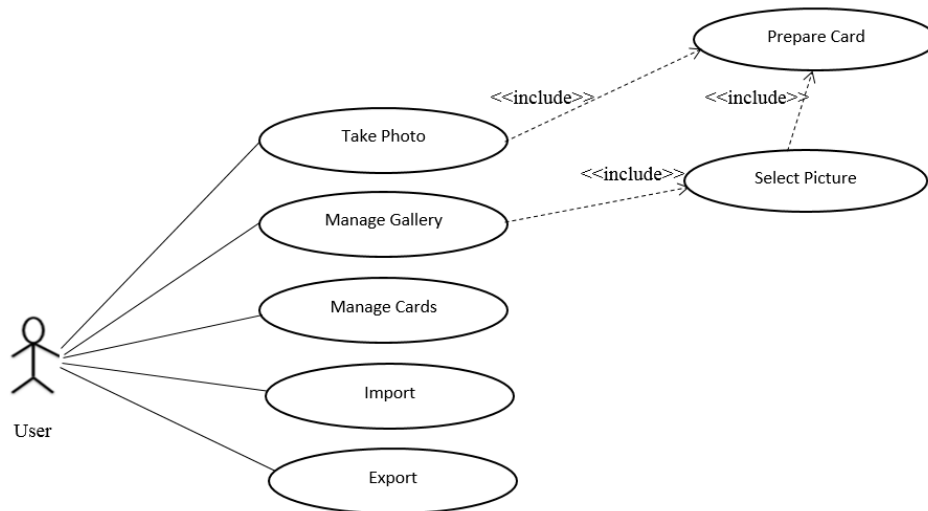


Figure 2. Use Case Diagram of Visiting Cards Collector System

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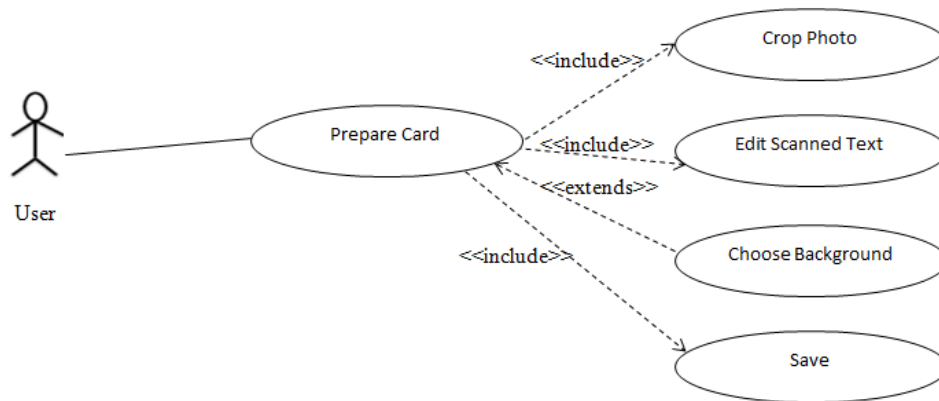


Figure 3. Use Case Diagram of Prepare Card

IV.SYSTEM DESIGN

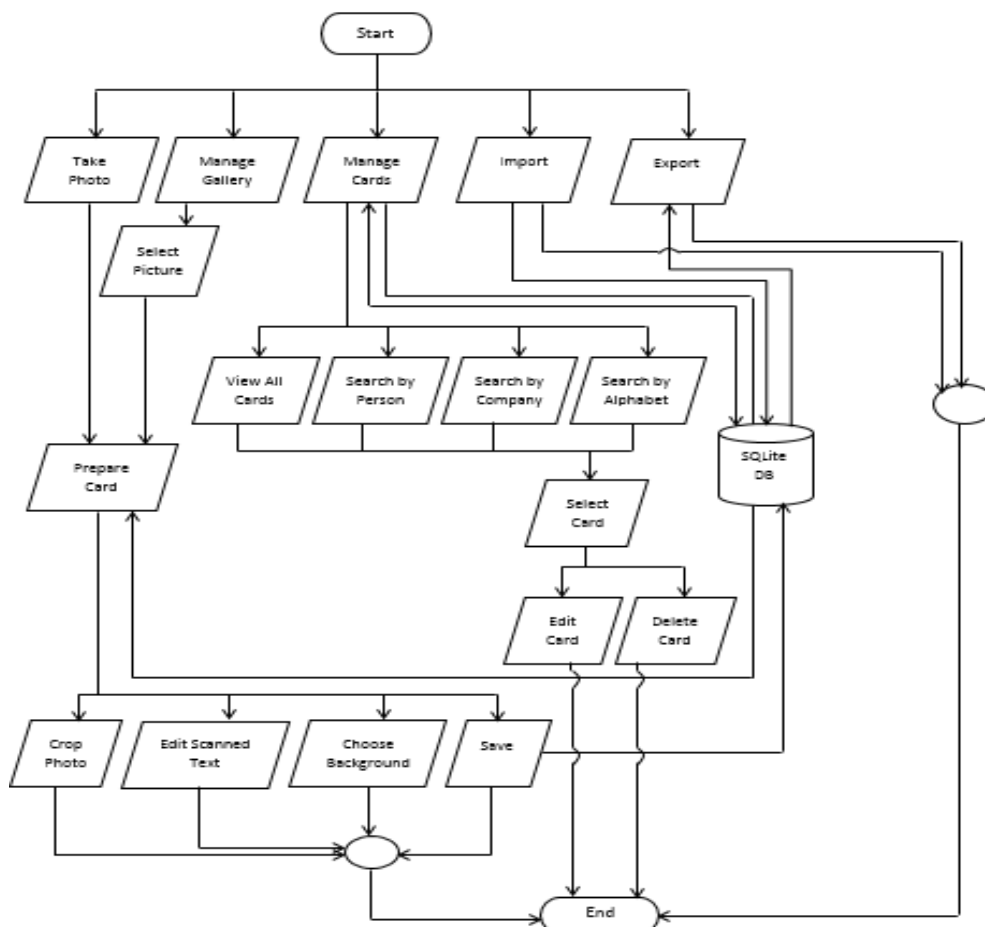


Figure 4. System Flow Diagram of Visiting Cards Collector System



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Figure 5. Main Screen of the System

The above figure 5 is Main Screen of the GUI. Cropping Words from Image Screen of the System as shown in figure 6. In this screen, user can crop for taking words from image of gallery such as name, rank, degree, department, email, address and phone etc.

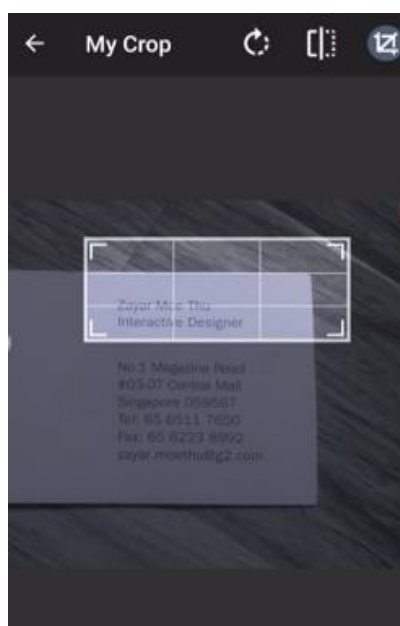


Figure 6. Cropping Words from Image Screen of the System



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Inserting Words from Image Screen of the System as shown in figure 7. In this screen, user can view the cropped words from image into the textbox. After all, user can click Next Button for checking the words. This screen is shown in figure 8. In this screen, user can check spelling of the words, edit and also insert details information. After editing details information, user can click Confirm Button for saving information.

Taking Words from Image

Name, Rank, Degree and Department
Zayar Moe Thu
Interactive Designér

Other: Email, Address, Phone etc..
Job, Shop or Company

NEXT >>

Figure 7. Inserting Words from Image Screen of the System

Checking Words

6565117650
6562238992

Email
zayar.moethu@g2.com

Website
Can't find Website Address.

Address
Can't find Address.

Other
Branding& Design/ Data Consulting/
Direct/Interactive /
Promotions/ Trade & Shopper
Marketing

Figure 8. Checking Words from Image Screen of the System



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V. CONCLUSION AND FUTURE WORK

In today, android applications are very popular among people. Visiting Cards Collector system can easily install by any users' mobile phones with android version 4.0 and above. This system can be used for saving the visiting card in short span of time. The proposed system can help the users to use their valuable minutes for other important matters. Moreover, the proposed system is simple to install, pleasant and easy-to-navigate GUI. And also user can access this application anywhere and anytime. The image is loaded into the Android application and the users are provided the choice to select the part of image to be converted. Then the image is processed by OCR technique to produce the converted text on screen. The concepts involved can further be used to boost the future technology like handwriting recognition or recognition of many more languages and even for translation purpose.

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BIOGRAPHY



Aye Aye Maw has received Master of Computer Science (MCS) degree in 2012 from University of Computer Studies(Yangon) Myanmar. She did successfully finish Professional Diploma in Java Programming Course and Professional Certificate in Android Programming Course from IMCEITS. She has also received the certificate of CLVM(ASEAN) teachers training on the title of "Specialized Programme on Web Application Development Using Open Source Tools" conducted by CDAC, NOIDA(INDIA). At present, she is working as Assistant Lecturer in the Information Technology Support and Maintenance Department, University of Computer Studies(Kalay), Myanmar. Her research interests are Artificial Intelligent, Web Service, OCR, Image Processing, C++, Java, PHP, Android and C# programming languages.