

Cloned Screen Application

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ABSTRACT

Cloned Screen application is wonderful screen capture software. The basic idea of this software is to copy the text from an image, captured screen or active windows. If the image contains a text and if the text is needed in the text format, it will take a long time in rewriting the text in notepad or word documents in the text format. In this software, this process can be made easy without wastage of time by capturing the screen or importing image of scan from scanner to copy the text needed from the image in no more than four clicks. CSA application is developed to save time and effort in text extraction process and easy to share text through the communication applications installed on android device. However, it also included two new developing features which allow user to connect to his personal computer to share the text or note with computer that can print and transfer file into computer as word document or text file. The website of CSA provided all information about CSA, the new features incorporated in this application and how to use the application through PDF guide file and videos description.

Keywords

CSA, CSA-Bridge, OCR

1. INTRODUCTION

In today's world, with the advent of computers, smart phones and network communication, most of the people are familiar with using these technologies. Smart phones play an important part in the life of people for communication. By using the services of smart phones, one can perform some actions to get the result fast, easy and without much effort.

Android operating system is provided from Google for Samsung smart phone devices. It advances a billion services for android users through their application which available in the Google play market [1]. People now days used android applications for many things as they need for entertainment, chatting, emails, security files, editing photos, internet, photography, extracting text application, banking services, manage business, airport services and many more things people can do with android applications. Sharing information or files between android applications is a perfect thing which android users want to be available in all application whether it is games, chatting, and news or office applications. Office applications are more helpful for student, business men or women, companies and other institutions. In addition people can now transfer information using these kinds of applications to share news and other information, but we need to know how people can share information from documents, newspaper or books using android application. There is a technique using OCR (Optical Character Recognition) to extract the text from documents, newspaper or books by taking a picture of the paper from where they want to extract the text from and then manage the text using OCR application with the features available in that application [2].

However, there are several OCR applications available in play markets and approximately have the same features with little

difference. Android users always want OCR application which contains a lot of features that give a full control for text extracted, i.e. high quality text extracted without changing in text format, print notes using printer and file transfer from android application into PC and to use the PC office programs for full controlling or modification. Fascinated by this, new OCR application called Cloned Screen application (CSA) is proposed to be developed.

2. LITERATURE REVIEW

There are several android applications for extracting text with perfect features which is more helpful to get text from an image. Scanning is one of the famous application using OCR to extract text with features like sharing, speak, rotate and other main features to help user for more quality of text extraction. All these features which is provided through Scanning application are perfect and one of the more interesting feature is that user can also share the image to the other contacts through this application [3]. Mobile OCR converts the scanned documents from your camera or photo album into a regular text. This application is simple & reliable 100% satisfied or refunded. Mobile OCR is compatible with more than 25 languages without any other features [4]. Smart Notes is a simple notepad with OCR (Optical Character Recognition) function. Turning your phone into a scanner and extract text from image, OCR result text will be saved into a note automatically. Smart Notes never uploads image, recognition is done offline and Supported 33 languages for OCR [5]. Support extracting text from image with dark background (such as white text with black background), in this case, please make sure "Dark background" option is checked. Support 4X4 or 2X2 widget, you can link an existing note for widget. Clone Display clone any selected application with Window Cloner. The Application allows you to clone any of the selected running application. The Cloned Application is displayed in another window which can be resized, moved, minimized, etc. In case you have dual monitors connected to your windows computer, you can move the clone window to second monitor by just dragging the window to second or secondary monitor, just like any other window. The Cloned Window will also display the updated title as and when it changes on the selected application [6]. As we have seen, there are several OCR applications about 53 applications available for OCR in play market and many of them are paid applications [7]. Now, in this project, CSA application is developed as free application and it covers some features of previous other applications which we had seen. The new features developed on this CSA which no other application had developed in sharing the text with computer and using print from mobile device through PC.

3. METHODOLOGY

Software development process, also known as a software development Life cycle, is a structure imposed on the development of a software product. Similar terms include software life cycle and software process. There are several models for such processes, each describing approaches to a variety of tasks or activities that take place during the process

[8]. Planning is the important task in creating a software product is extracting the requirements or requirements

analysis.

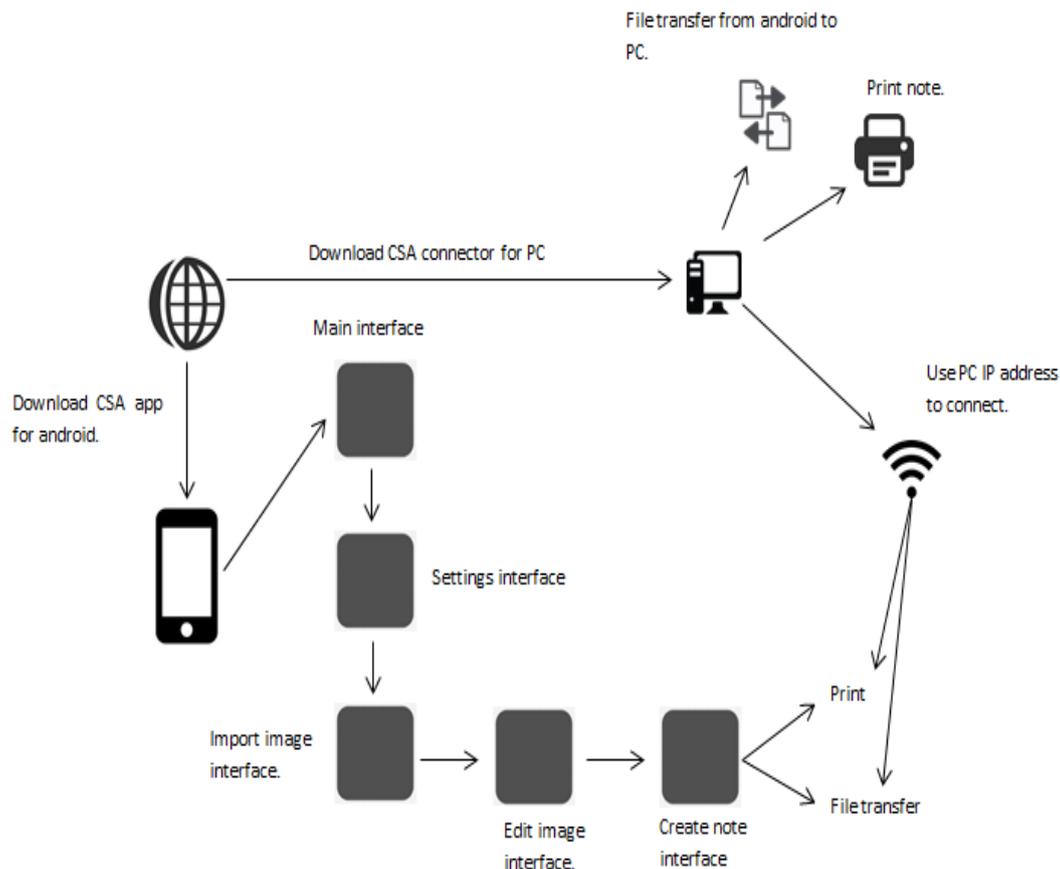


Fig:1 CSA structure diagram

After finishing the planning stage, collection of information about CSA application and the functionality algorithm (OCR) is done. The information analyzed and image the final stage of application to use all these information and planning to start designing the project which divided into three parts for android, PC and website. The software to design and program the application, the hardware requirement and the network architecture is studied

3.1 CSA Structure

The following diagram shows the structure of the CSA application, CSA connector and the network connection. Through diagram, it is explained how the CSA works itself or through connecting to the PC using the network connection.

3.2 Software Required

Implementation stage of CSA application is divided into three main components, CSA application on android, CSA-Bridge on PC and lastly CSA website. Each part uses different developing tools to implement which is provided from Google, Microsoft, Oracle and Adobe companies. The tools which used to implement the application and program languages are described in brief as following:

SDK manage, it is the developer tool provided from Google Company which is used to download packages of android version which consider as the target to start implement the application. CSA application implemented for Samsung devices supported android OS 4.0 with API 14 as the lowest

level needed to run the application.

Basic4Android is the developer environment for android which contains all tools and features to start designing the interface and coding the application using Basic languages. Basic4Android provides a common user interface (UI) model for working with tools. Through the Basic4Android environment CSA is designed and coded using the tools available for android [9].

Adobe Dreamweaver CS6 [10] software empowers designers and developer to build standard-based website with confidence. Design visually or directly in code, develop pages which contain all information, videos and download page of CSA application with using CSS sheet are used to add more beauty in designing the website.

SQLite [11] is a software library that implements a self-contained, server less, zero-configuration, transactional SQL database engine. It used as the database for CSA application for android using the newest Version 3.8.1 of SQLite because it is recommended for all new development [12].

Visual studio 2012 [13] is the software provided from Microsoft Company used to program software for PC which support (.net framework). Through visual studio, the CSA connector will be implemented as software which is used to connect the CSA application of android with the PC to use the print and file transfer features through wireless connection.

As we have seen, all the previous tools and software will be used together to implement the CSA project in implementing the three components, CSA for android [14], CSA for PC and the website of CSA.

3.3 Hardware Requirement

- ❖ For the hardware requirements to use the application it should the following hardware available:
- ❖ Nexus Galaxy device
- ❖ PC with windows operating system support
- ❖ Printer
- ❖ Router (Wireless modem)

3.4 CSA Design

3.4.1 Main activity module

Main activity module is the first interface when program starts running, and it contains a list of items for all notes extracted from text using CSA application. Also it is included with three options Add new note, About CSA and Help. Add note load user into new model called select image activity module to start new extract text process. The last two options shows as message for help and about the CSA application.

3.4.2 Select Image Activity

This module includes two options to select image from Camera and Gallery. After choosing an image, it will directly load user into edit image activity and show the selected image into image view object.

3.4.3 Edit Image Activity

Edit image activity module allow user to edit the image to rotate directions and extract text from an image using OCR function. After being extracted the text it will show text box object with the extracted text and then it will save into SQLite database after clicking save option in menu item to save the note.

3.4.4 Note activity module

Note activity module show the note which is selected from the first module (main activity module). Then, it will directly show the edit text box object with four options that are edit text, delete text, share note and lastly print and transfer note. Print and transfer will load user into new activity module called print and transfer note activity module which allow user to connect to his/her own computer to start new features with CSA application and CSA-Bridge to help the application to connect with computer by using wireless IP address.

3.4.5 Print and transfer activity module

This activity module allow user to connect with computer using CSA-Bridge and wireless connection. After two devices being connected successfully then click on connect button and then print and transfer file options will be active to print and transfer note into computer.

3.4.6 CSA-Bridge

CSA-Bridge is the second part of the CSA application used to connect the CSA application with computer to start the transfer and print features using the IP address of the wireless. CSA-Bridge shows all details about wireless and printer available to the computer. It includes menu such as File, View, Tools and Help. File and View menu show the properties of the objects and the settings of the toolbars to hide and show. Other one, Tool show the wireless connection option and when clicked on that option it will show the box

dialog to insert the IP address which is given in the CSA application in Print and Transfer file activity module. The connection state will be shown in the bottom of the CSA-Bridge Tool strip bar.

3.4.7 CSA website

CSA website contains all information and guide document with videos for all features about CSA application and CSA-Bridge. It includes four pages that are Home page, Download Page, Support page and Contact us page. Home page shows advertisement and some pictures about CSA application and brief description about CSA application. Download page includes the CSA application and CSA-Bridge direct download links to download the CSA application for android which support OS version 2.1.3 and above and API lever 10 and above. Also CSA-Bridge support windows operating system XP, Vista and 7.

4. IMPLEMENTATION

4.1 Main Activity Module

This is the main activity module which has three options that are Add note, About and Help. List of all notes stored into SQLite database is shown in front of user as list view items.

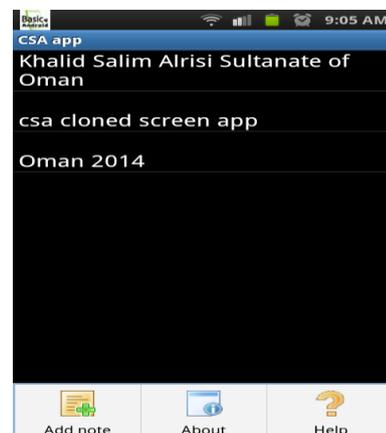


Fig 2: Main Activity

4.2 Select Image activity

This activity shows two options to select, import picture from camera and gallery, then load the picture selected into the image view in new activity called edit image activity to start new extracting text process.

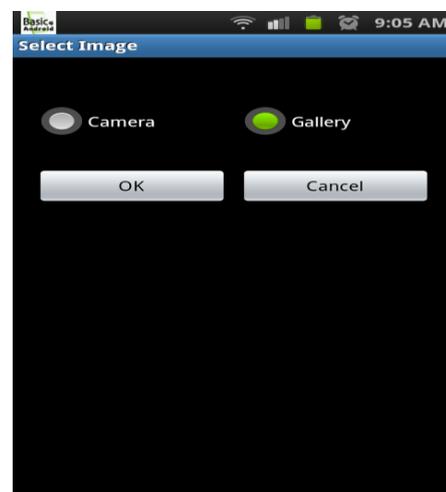


Fig 3: Select Image Activity

4.3 Edit Image Activity

In this activity, it shows the image selected from which to extract text and edit the image direction into four directions with option called rotate. Also OCR option used to start extract text process and to show the extracted text into textbox. After extracting process is done successfully save button will be active to save the into SQLite database to be available in main activity module as item in list view. Finally cancel option is provided to cancel the process and back to the previous activity to select new image and start new extracting process.

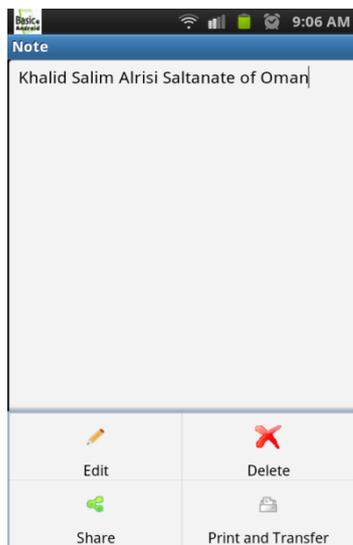


Fig 4: Edit Image Activity

4.4 Note Activity

This activity module will be shown after select the note item from list view in first module activity called main activity. It is included with four options that are Edit, Delete, Share and Print and Transfer note. The print and transfer note load user into new activity module called print and transfer note to connect the CSA application with computer to print and transfer note into computer.

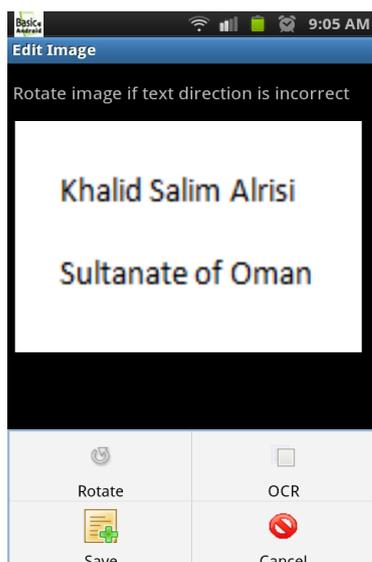


Fig 5: Note Activity

4.5 Print and Transfer Activity Module

This activity module show the note in text box which selected from note activity and it includes the following:

- ❖ IP address of wireless
- ❖ Connection state (connect CSA application with CSA-Bridge).
- ❖ Connection button (connect with wireless network).
- ❖ Print (active after connection connects successfully between CSA and CSA-Bridge).
- ❖ Transfer note (active after connection connect successfully between CSA and CSA-Bridge).

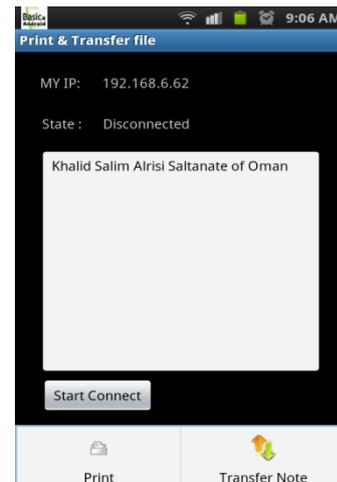


Fig 6: Print and Transfer Activity

4.6 CSA-Bridge

CSA-Bridge it used to contact the computer with CSA application on android to make connection between them and allow user to use the printer connected with computer. Also it show the state of devices connected to the computer which are wireless network and printer connected to the computer. It includes some menu items are File, View, Tools and Help to manage the CSA-Bridge setting as user wants. Tools menu shows the wireless connection option which shows the connection dialog after clicking. The user should insert the IP address of wireless which then shows the print and transfer activity. When the two devices connect successfully the connection state will shows down into the tool strip bar.

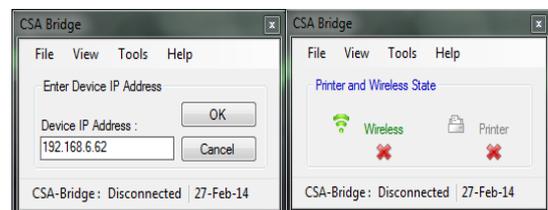


Fig 7: CSA-Bridge interface

4.7 CSA Website

CSA website provides all information about CSA application and CSA-Bridge and advertisement with some CSA pictures to show the new features developed by CSA. It includes four pages that are Home page, Download Centre page, Support page and contact us page. Home page contains information about both CSA application for android and CSA-Bridge for computer side. Also it provides a brief description about CSA application and the features which is developed through the

CSA application. The next page is Download Centre page which includes the direct link to download CSA for android and CSA-Bridge. Support page is provided with a document guide as PDF file which shows all information about how to use CSA application and also videos provided to show how to use CSA with all features. Finally the contact us page show a form for all visitors of website to send an email to us for feedback to develop the CSA application to solve any problem user may face.



Fig 8: CSA Website

5. CONCLUSION

CSA application is studied and all the software required for designing the three parts of CSA application is completed. CSA is allowing users to extract any text from an image with the easy to use, fast and quality extraction process software. Website of CSA application provides all information required for understanding what the application needs to be launched in user's devices and the new features developed. It is divided into three parts which are CSA application for android, CSA-Bridge for PC and lastly CSA website. The new features developed in this application allow the user to print and transfer note into computer by using CSA-Bridge to connect the CSA application with computer using the wireless IP address and then the print and file transfer will be activated for action. Website is covered with the support center having video and PDF file description on how to use the CSA from

beginning until the last features developed through this application. In future, CSA application will be developed to be available with new version which covers the sharing with android phone to be available as option for all notes, message and communication applications to print and transfer note into computer using CSA-Bridge. In addition, it will be made easy to connect to the PC using the wireless as well as the Bluetooth if the wireless connection is not available.

6. REFERENCES

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