

DOCUMENT FAXING THROUGH MOBICLOUD USING ANDROID

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Abstract— This paper discusses about the software which is developed for the Android mobile devices for widely used in the Business fields as well as our day to day life activities. In this era of paperless offices and digital documents, you'd think the paper and ink fax machine might finally be ready to retire. But faxing is still an essential part of doing business for certain types of documents (legal contracts, for example) and certain industries, such as public relations. Although there are some similar technologies developed for document faxing, there is main issue of security. By using this software we will fax the document through mobicloud using Android. There is not an issue of third party involved as like internet faxing, so security can achieved easily. For providing security we are using RSA algorithm for encryption and decryption. This paper discusses the proposed system, overview of the design, the various modules of the system and its implementation.

Index Terms - Faxing, Mobicloud, Security, Encryption, Decryption.

I. INTRODUCTION

What can't you do with a cell phone these days? The latest models allow you to take pictures, record movies, watch TV, play music, browse the Internet, send e-mails and even make the occasional phone call. But what if you want to use your cell phone's multimedia technology for more than just entertainment? What if you actually need to get some work done? No problem. With a simple camera phone and some new software, you can turn any mobile phone into a scanner, fax machine and copier. Camera phones are everywhere. According to 2007 statistics,

79 percent of cell phones sold in the United States had a built-in digital camera. An estimated 1 billion camera phones are in use around the world. Some cell phone manufacturers have already released megapixel camera phones and there are rumors about a 10-megapixel model hitting the shelves any day now. Scanning and faxing from a cell phone works through the same technology as internet faxing. A document, in this case a digital photograph, is e-mailed to an Internet fax service that converts the digital photo into fax data. The fax service then sends the fax to the recipient over a phone line.

The cool thing about these new cell phone "scan and fax" services is that they can optimize and compress camera phone images into clear, readable PDF documents. Using special imaging algorithms, the cell phone scanning software can take a photo of an open book with shadows in the crease and curved pages and turn it into a flat image with uniform background color and sharp text. The software also simplifies the image, getting rid of unnecessary digital noise to make the smaller and easier to send over a cellular data

network. Next implementation is that we can send the document via cloud to the destination. This is same like mobile faxing except we are using mobicloud technology in this system.

At the same time when mobile becoming so popular, cloud computing [2] is also becoming popular. Through the development of cloud computing, service providers no longer need to worry about resource management. Resources are managed by cloud providers, and service providers can use resources depending on their demands. In addition, users can access data and services anytime and anywhere. This lets users share data more easily than before. Users can access the same data in the same way from any device. In our application we are using hybrid application of Mobile and cloud computing known as Mobicloud[3].

Literature Survey:

Recent Market shows that document faxing activity is very important in our day to day life. There are many ways through we can fax the document from source to destination. As this all have some advantages also has certain disadvantages related to them. We can fax the document using Fax machine, Internet and mobile phones.

A. Using Fax machine:

This is a very traditional type of document fax. In this type of system whenever a sender wants to send some documents to the destination he should have paper and fax machine. Using his fax machine he can send a document and receiver will receive the same with his side fax machine.

At one time, fax machines were a very common way to send documents from one location to another. Fax machines are still used today but are not considered as reliable as other options that are available. To send a fax, both the sender and the receiver must have access to fax machines. If access is not available, there are stores--such as Kinko's, Office Depot and Staples--that allow you to fax documents from the store for a fee.

Advantages:-

1. You only need a fax and a telephone line to be able to fax.
2. It does not cost you more than a normal phone cost per minute.
3. Sometimes it is important to receive a document as quickly as possible. Fax machines are a great option if it is a paper that cannot easily be sent through email.

4. One of the key advantages of fax machines is that they provide an instant hard copy of a document. This removes the chance that an email attachment can be deleted or an online correspondence erased in the case of a hard drive failure or computer crash. For businesses that keep paper copies of official correspondence, fax machines speed up the process by removing the need to receive an email and then print it later for filing. Instead, everything happens at once.

Disadvantages:-

1. The receiving party should have a fax.
2. The receiving party should have a physical paper.
3. Needs a telephone line.
4. You don't have to worry about just your own fax machine when you are faxing a document. You must be concerned about the availability of the fax machine of the person to whom you are faxing a document. To avoid possible problems with paper jams or a lack of ink in the fax machine, another person must be able to confirm receipt of the fax and that it printed correctly.[6]

B. Using Internet:

With Internet faxing, any document that can be attached to an email can be faxed to an analog fax machine. That includes Microsoft Word documents, PDF and scanned images. Internet faxing is a hosted service, meaning you don't need to buy and install fax servers, modems and special software. Instead, you subscribe to a third-party Internet faxing service that converts e-mails to faxes and faxes to e-mails for you. Here's how you send a fax using Internet faxing:

1. Your subscription Internet-fax service assigns you a toll-free or regular fax number.
2. The sender dials that number and then sends the fax from a regular fax machine.
3. The subscription service receives the fax, converts the data into an e-mail attachment and sends it to your e-mail address.
4. To read the fax, you simply open the attachment. Since e-mail is the only application required to send and receive Internet faxes, faxes also can be sent from a handheld device[5].

Advantages:-

1. There are no busy signals to contend with since there is no dialing to be done.
2. You don't have to tie up your phone line in order to send a fax.

Disadvantages:-

1. You will have to have a scanner in order to fax a hard copy document.

C. Using Mobile Phone:

Scanning and faxing from a cell phone works through the same technology as Internet technology. A document, in this case a digital photograph, is e-mailed to an Internet fax service that converts the digital photo into fax data. The fax service then sends the fax to the recipient over a phone line.

Advantages:-

1. In this case you need not have a scanner.
2. You need not have a fax machine.

Disadvantages:-

1. As third party involves there is issue of security.

II. PROPOSED SYSTEM

Our system allows a smart phone user to capture virtually any type of document whether an expense receipt, an insurance claim, driving license etc, and deliver it to needed destination via cloud. It is operating as a kind of mobile fax. As we are using mobile as well as cloud for this purpose we can call this system as faxing using Mobicloud.

Steps involved in Proposed System:-

1. Sender will Capture an image/ document using Camera.
2. Encrypt the document.
3. Upload/Push encrypted data on to cloud.
4. Receiver will connect to cloud
5. Retrieve the document/data.
6. Decrypt the document.
7. Get original

Basic Structure:

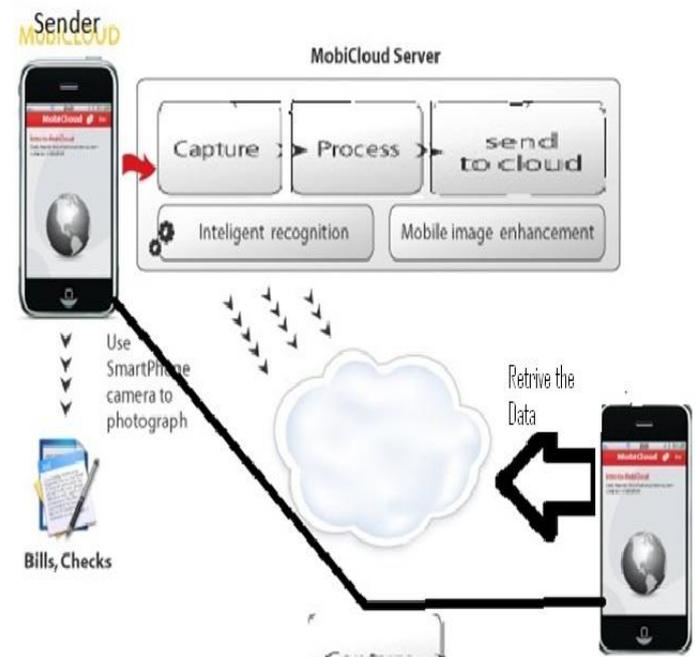


Fig 1. System Overview

III. MODULER DESIGN

Our proposed system is divided into four distinct modules described as follows:

1. *User authentication*: Initially, when the user runs the application for the first time, a login screen will be displayed that will prompt the user to enter the username and password required for authentication if he is already signed member otherwise asked for new user sign in. Only when the user enters the correct username and password, a “success” message will be displayed and the user will get authenticated and directed to the next screen.

2. *Search User*: -Whenever any sender want to send some data to receiver he will search that receiver to ensure that receiver is authenticated user. In Search user application will show only that much users who are authenticated. And you have to select receiver from them.

3. *Select File*: -When user get authenticated and select receiver he will prompt to select file which he/she want to send to particular user.

4. *Key Management*: -This is one important module of our application. As we are using RSA for encryption and decryption we are using public as well as private keys. So in this module management of this keys are carried out.

5. *Encrypt File*: -In this module we are encrypting the Data or file which you want to send before uploading on cloud. We are performing encryption using RSA. This will be carried out at sender side only.

6. *Transmit File*: -After encryption encrypted data will be uploaded on cloud.

7. *Transmit Key*: -After transmitting key sender will send one private key to receiver for performing decryption at receiver side via SMS.

8. *Retrieve File*: -After getting notification receiver will retrieve the encrypted data from cloud.

9. *Decrypt data*: -Using private key receiver will decrypt the data and get original data.

IV. TECHNICAL REQUIREMENTS

Software requirements of our system are:

1. Windows XP/ Windows 7 Operating System
2. Android mobile Operating System
3. Eclipse IDE
4. NetBeans

As far as the hardware requirements are concerned, the User would require an Android OS based Smartphone.

V. IMPLEMENTATION

For implementing this application we are using softwares like Netbeans, eclipse, ADT and java. We have done all GUI Using Netbeans and Eclipse and all programming has been done in Java. Our proposed system is divided into four distinct modules described as follows:

A. User Authentication

The user authentication module on the client side involved the development of a login screen in the application. For this purpose, standard Graphical User Interface (GUI) that consists of buttons and textboxes were developed. The button

is also associated with an action that sends the input parameters in the textboxes to the remote database via a web service.

1. Sign In:

Sign In is an activity in which user authentication carries out by a system. When application starts after welcome screen you will see the screen as in fig.2.

This screen asks you about your username and passwords. If you are registered user then you can provide your username and password but if you are not registered then you can register yourself using sign up.

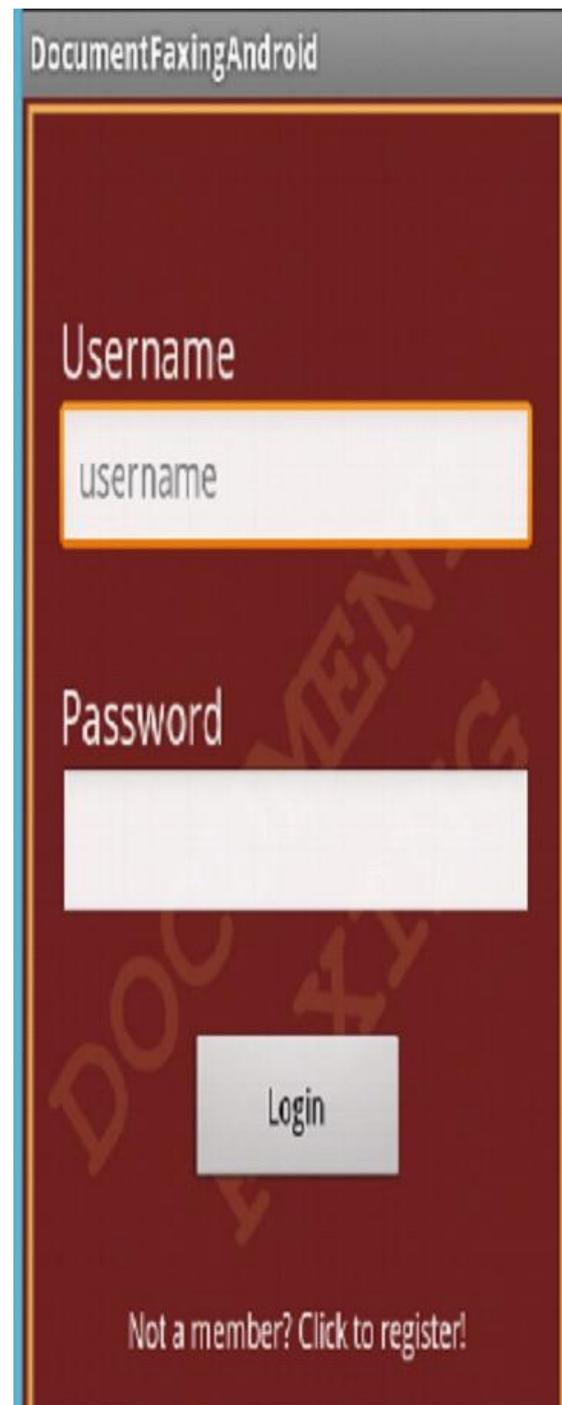


Fig. 2. Sign In Screen

2. Sign Up:

If user is not registered he can register using sign up. Sign up is best option for new users to get registered. You have to fill your all information as shown in fig 3. Like your Name, address, username and password etc. Then application will store his/her new username and passwords in the database and he/she becomes registered user.

After sign up whenever user want to login the application he can login with this username and password which are provided during sign up.

Fig 3. Sign Up Screen

B. Main Menu

After authentication User will provided with main menu screen. This will show what menus sender can use. As you can see in fig 4. there are various menus provided for user like search user, select file, key management etc.

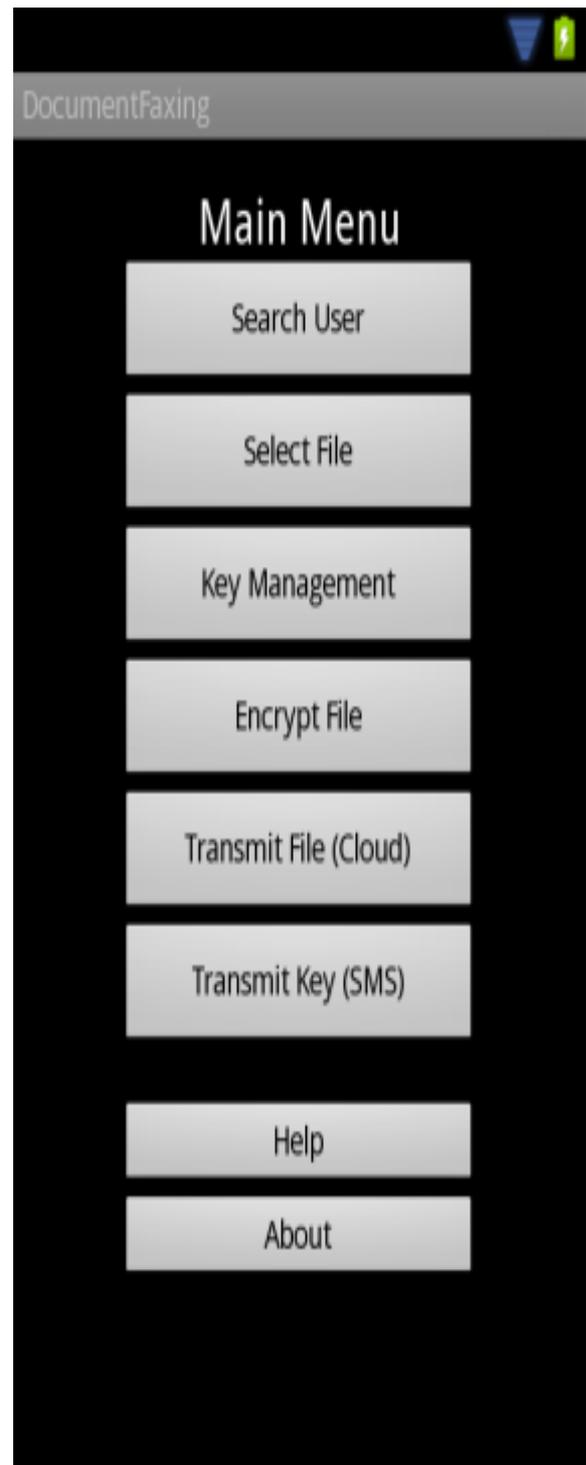


Fig 4. Main Menu Screen

C. Search User:

There are many users those are registered for the application.

As you can see in the fig.5 this module is used to select receiver from authenticated users based on name or user Id.

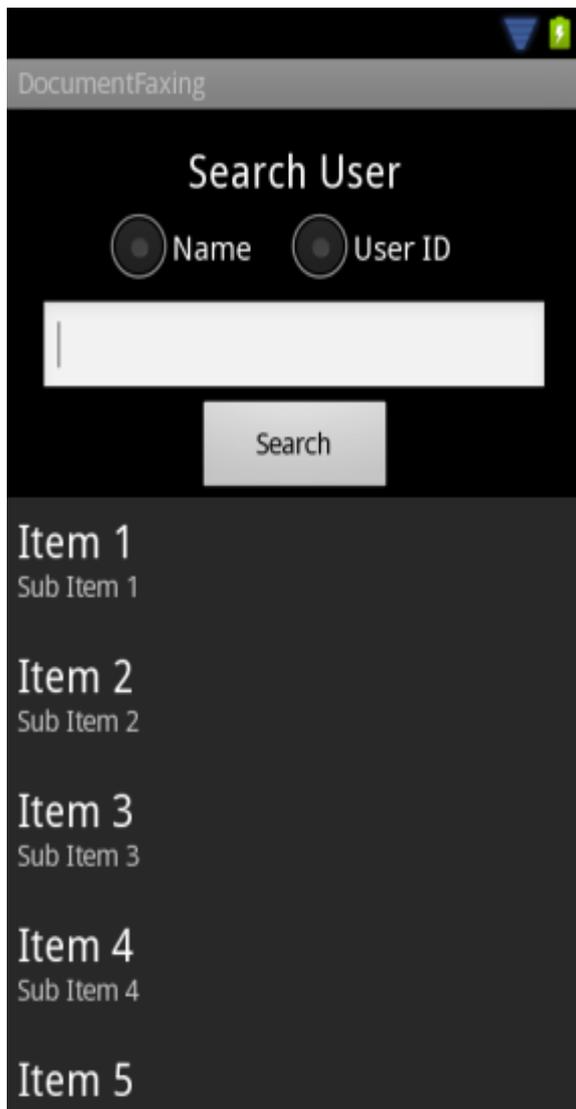


Fig 5. Search User Screen

Also we have implemented modules like send file, encrypt file etc. For sending file we have provided three ways. They are as follows:

a. Insecure transmission:

In this type of transmission there is no security provided for data transmission.

b. Secure Transmission:

In this type of transmission we will encrypt the data using RSA[4] and then send it on cloud.

c. Ultrasecure Transmission:

In this type of transmission we are encrypting the server key using RSA[4] then the output of RSA will encrypt with DES and this password will send to receiver.

VI. FUTURE SCOPE

In future our system can be used in applications like government documents can be signed by a third party authenticator in order to provide e documents like bonafide etc.

VII. CONCLUSION

In this paper, an Android based mobile application for Document Faxing through mobicloud is presented. As we all know that now a days faxing is very important activity so there are many ways to do that but all existing system have some limitations. So to overcome all the limitations of existing system we are proposing a new system for document faxing Using MOBICLOUD. This application offers reliability, time savings and easy transfer of data with security. Also we are trying to contribute our efforts to save trees as we are not using any paper for faxing.

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