A Secure Software for Mobile Computing : Android Wallet

Ashfaq Shaikh, Assistant Professor

Yahya Arsiwala [a], Karan Randhawa [b], and Kaizar Lehri [c]

Information Technology Department
M. H. Saboo Siddik College of Engineering, Mumbai

ABSTRACT

The purpose of this paper is to contribute to the design of e-wallets. e-wallets are intended to replace the existing physical wallet, with its notes, coins, photos, plastic cards, loyalty cards etc. Four different user groups, including teenagers, young adults, mothers and businessmen, has been involved in process of identifying, developing and evaluating functional and design properties of e-wallets. The main objective of Android-Wallet is to make paperless money transaction easier. The main idea behind this paper is to bring in a cheaper, more versatile and much more easily usable kind of a card .Using this Android-Wallet the transaction procedure can be as simple as: the customer goes to the point of sale (POS), does the purchasing and when it comes to the payment, the customer submits his Android-Wallet to vender who connects it to his terminal .The vender displays the billing information to the customer who finalizes it. The amount in the Android-Wallet is updated accordingly. The advantages of Android-Wallet are its ease of use (doesn't require a separate card reader), ease of maintenance, flexibility, safety, being the primary ones There are sample enhancements to this application from credit cards to tele-voice cards. Unlike traditional cards which are application oriented, all the applications Software can be embedded into this Android-Wallet which provides multi-functionality.
Keywords:-Andriod,Wallet,Transaction,Server

1. INTRODUCTION

Moblie payments have been in use for many years and have gained ground .The mobile wallet is a new application of mobile payment that has functionality to supplant a conventional wallet and more. One may find in a wallet, such as membership cards, loyalty cardsand travel cards [5]. It also stores personal and sensitive information like passports, credit card information, PIN codes, online shopping accounts, booking details and insurance policies that can be encryptedor password-protected.

The mobile wallet is the newest form of mobile payment that enables users to share content and access services as well as conduct payments and ticketing transactions. Simply put, a mobile wallet is the replacement of a person's wallet with a mobile phone equipped with the functions of a bank card, credit card, house key, company access control ID, subway tickets, membership card, and so on.

The industry strives to develop and build solid mobile commerce applications and at the same time provide an environment for secure, convenient, cost saving and efficient business transactions [1].

A mobile wallet can support various transactions, including consumer-to-consumer, consumer-to-business, consumer-to-machine, and consumer-to-online. In addition, consumers have greater flexibility for settling transactions at the point of sale with mobile phone payments [2].

Furthermore, merchants can more directly engage consumers by sending discount coupons to their mobile handsets..As mobile wallets become popular, a rising question is: ''Will mobile wallets replace traditional leather wallets?'' Or, ''How will mobile wallets be positioned in the market?'' It may be true that the mobile wallet is an innovative technology that can provide customers with a great convenience, but are consumers ready to embrace this new method of payment [2]? This study ap-proaches these questions by analyzing user acceptance behaviour.

2. SYSTEM WORKING

This project enables the user to store all his banking information, transactions and details into a small computing device like smart phones and that too with the highest

security which makes the user feel safe for storing and/or retrieving banking data and transactions. 'E-Wallet' is similar to a person wallet but with involvement of mobile technology that can make the person important bank details much more secure.

E-wallet requires 'internet' as a mandatory criteria for performing any of its operations. The working of E-wallet basically includes the use of Client-Server concept. More importantly, server is essential for the updating the banking transactions and the banking details of the user if any changes are needed to be made in future. Server is most responsible for executing any of the banking transactions. While client is an user interface to display the data and is required by the user to perform any of its operation [4].

2.1. Server Side

The e-banking system consists of an IIS + PHP web server, MySQL database and the clients accessing it. (web browsers or dedicated clients running on mobile devices).

If a service request comes from a mobile device, then the server's functionality is invoked via web services layer. The web service does nothing more than reusing the existing functionality also available for browsers (or vice-versa, depending on how we look at it). The difference resides only in the access interface level (layer 2 upper scripts expose the core layer 1 functionality to web browsers, while layer 2 lower scripts expose the same layer 1 core functionality to web services consumers – our mobile J2ME clients in this case).

Technical Review **:-** The servers sole purpose to do database operations. Here for php server we will be using server Environment as **xamp** and for java we will be using **Tomcat** as its server Environment.

2.2. Client Side

This is nothing more than an early stage, a sketch of what the final version will look like. There will be more research for integrating HTTPS into the e-banking system; this could ultimately lead to switching from the soap library to the JSR-172 (J2ME pre-integrated) library.

Technical Review :- The Android Wallet App will send HTTP request to the java or php server using **URL based coding** . The

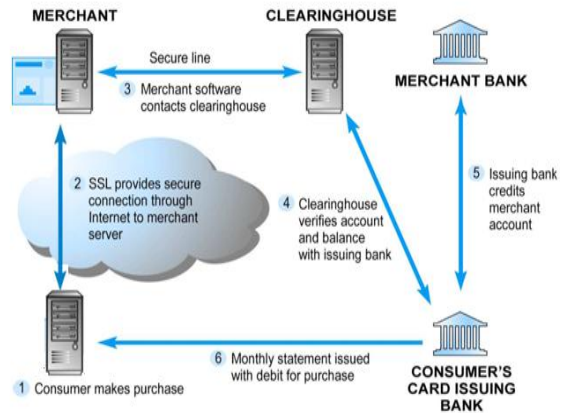viewing part and the logic part will be done by the Android App using Android programming

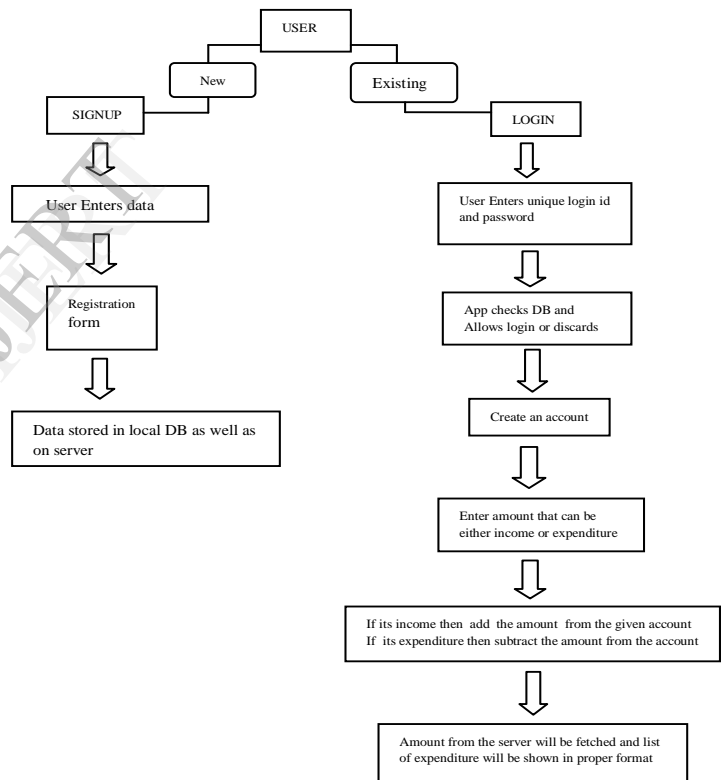

Fig.1: Overview of Andriod-Wallet Working

Fig.2: Flow Chart for Andriod Wallet

3. SMART PHONE FEATURES MANDATORY FOR E-WALLET

Some important features are as mentioned below [1] :

1. Multi-tasking operating system To satisfy the multi-tasking, multi-application nature of the smart phone, a multi-tasking operating system is the absolute necessary foundation.

2. Powerful SOC application processor and DSP communication processor Multi-tasking operating system won't go too far without the support of a powerful processor.

3. Business productivity tool as smart phones must have application software and corporate database access for business information including business metrics, real-time business events update, sales and financial information.

4. E-mail, SMS, MMS, IM services These become the basic features of a mobile phone and business/personal tools for the digital age.

5. Personal Information Management (PIM) Features like important bank details such as card number and password are the basic features for smart phones.

6. Host synchronization With the increasing functionality of the smart phone, such as e-mails, PIM, business tools, the ability to synchronize with another host computer and make use of the work done on both devices also becomes essential.

7. Smart phones that support WiFi are best suited for local use such as corporate or home networks. Bluetooth enables hand free operation of the smart phone, as well as communication with other computing devices.

8. File management and manipulation with the added capability for running business application tools, comes with the need for file management and manipulation.

4. MOBILE COMMERCE & SMART PHONE

Mobile commerce includes a vast variety of activities comprised of transactions with monetary value conducted via a mobile phone. These transactions may involve intangible and tangible goods. Examples of intangible goods are applications and information delivered to the mobile device in digital format. Tangible goods are those purchased using the mobile phone but delivered separately. Mobile phones can be used for a wide range of mobile transactions, either through remote purchase over the digital mobile network, or local purchase at a point of sale. A large proportion of mobile commerce today consists of different types of digital content purchased that is used in the mobile phone.

Once consumers get used to purchasing digital content and services with their mobile devices, they will be more easily conditioned to adopt the mobile payment mechanism for their remote and local transactions.

The key drivers of mobile commerce service adoption are ease-of-use and convenience, as well as security, privacy, and reliability. Applications and services that are too complex and time-consuming will discourage consumers from "going mobile".

The main drivers of smart phones that enable convenient and secure mobile commerce services are the following:

1. Electronic wallet application — a program or web service that allows users to store and control their online shopping information, like logins, passwords, shipping address, and credit card details, in one central place [5].

2. Electronic payment application for buying and billing.

3. 3G broadband Internet access.

4. High computing and communication performance.

6. ELECTRONIC PAYMENT FOR M-COMMERCE

The following four categories of payment are most common for mobile commerce:

1. Fixed amount, like mortgage payment

2. Varying but predicable amount, like utility bills of electricity, phone, gas, water, cable, etc

3. Varying amount, like monthly credit card payments

4. Other one-time payments, such as downloading of digital contents, purchasing of service, etc.

The motivating factors for using smart phones in mobile commerce over the use of

desktop or notebook PC can be summarized below:

1. Convenience; consumers can initiate the transaction anytime and anywhere on the move at their convenience.

2. Instant notification and delivery via e-mail, SMS, EMS, or IM.

3. Ease of use; much simpler to use than a PC.

6. FUTURE SCOPE

Use of mobile technology has increased so much that it is not just a device to make calls, but an important medium to fulfill all the financial needs for friends and family. Now, mobile phone technology has made another leapfrog to pave its way for a new trend called mobile commerce where the financial transactions are made using mobile devices.

6.1. Bill Payments

With the m-Payment services, paying all types of utility bills such as water, electricity and gas bills has become much more convenient via mobile phone [2]. People can pay their bill from anywhere and anytime via their mobile phone, thereby they do not need to stand in a queue therefore they can save their lots of time.

6.2. Money Transfer

Funds transfer is one of the unique features of mobile commerce services. Now, one can easily send money to anyone, anywhere; or transfer money between bank accounts through mobile devices within a few seconds.

6.3. Retail Transactions

M-Commerce & M-Payments services are extremely valuable for customers for making payments at the checkouts. Additionally, these services also make online shopping much easier and lucrative for both the customers and merchants.

6.4. Movie Ticketing

Mobile commerce services also enable users to book movie tickets via a mobile phone.

6.5. Travel Ticketing

Now, scheduling any trip to anywhere and anytime has become convenient with the m-Commerce services available in India. People are now able to book train or flight tickets via their mobile phone and have the pleasure of the journey.

7. CONCLUSION

Our project Android Wallet provides tools that are useful for assisting the utility in prioritizing expenditures as well as optimizing reliability within a budget . The highlight of this project is that It is an E-wallet in 'Android' which supports multiple smart phones proving itself as an advanced application.

In this paper, we present an approach to restructure the UI of an existing E-wallet application so as to improve its usability[4]. Improved UI improves the user experience by offering more guidance and reducing the time needed for user to perform banking operations.

The challenge in this project is to implement a secure payment scheme which is convenient and simple to use. Android wallet focuses on proposing must-have and desirable-to-have features in smart phones which we have mentioned in this paper.

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