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Smart Shopping App

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Abstract - *In recent years, the way of shopping has changed from small shops to the shopping centre and E-commerce site. Every System has some disadvantages. The purpose of this application to overcome the problems of traditional shopping and provide more convenient and user-friendly shopping experience to the customer. The customer scans the product by using their NFC-supported smartphone. In the shopping centre, group of a similar product would have 1Nfc tag which contains all the information about the products. Information includes image of products, a brief description of the product, price, etc. customer can touch or wave their mobile on NFC tag and add the product to the shopping basket and they can also edit the basket any time during shopping. This application also provides a feature such as user identifier, new product notification, alternate product, and offers. At the merchant end, a customer can pay for their goods by cash, credit card, smartcard, and E-wallet.*

***Key words*— E-commerce, NFC, Smartphone, E-wallet, Tag, Card.**

1. INTRODUCTION

This project is going to represent a peculiar method of shopping in a more comfortable way using an android based M-commerce application. The purpose of this application to overcome the problems of traditional shopping and provide more convenient and user-friendly shopping experience to the customer. With the enhancement in NFC technology the application is going to give customers a more handy experience. This project will also give a brief idea on how this technology can further be used in future in our application for billing and security.

2. Problem Statement

Today's systems are traditional commerce or e-commerce systems of the retail domain which have a whole herd of disadvantages like every e-commerce system has. The prototype application's aim is to eliminate all the inconsistencies as possible from these systems and to make a system which is consumer friendly and high performing.

3. Objective

The system's ultimate aim would be consumer's convenience and time efficiency. This goal could be achieved by using M-Commerce system implemented using NFC technology. The use of NFC would benefit the system in many ways mainly with automation and security. The consumer for a regular shopping experience goes to the mall and roams around in the outlet for the search of their desired goods. They physically pick up the desired items, place them in a trolley/cart and then carry the trolley all around. Once done with the shopping they need to stand in queues to get the billing done, which is a time-consuming process. And ultimately carry the shopping bags back home. Using M-Commerce application this entire process could be simplified and made more user-friendly.

4. Literature Survey

The main purpose of this literature overview is to investigate the topic of "Smart Shopping App". The following section explores different references that discuss various topics related to our project.

[1]. Communication between NFC device and a smartcard is done through the APDU (Application Protocol Data Unit), executed in the proximity card processor. NFC equipped device can operate in two modes: Active and passive, depending on whether it generates its own field. Active devices have a power supply; passive devices do not. In the active mode the data is sent using Amplitude Shift Keying (ASK), so that the base RF signal is being sent modulated.

[2] Automation: The entire shopping process could become a digitally immersive experience. Smart phones equipped with NFC can be paired with NFC tags which can be programmed by NFC apps to automate tasks.

Availability: The user experience with NFC tags is generally better and in the instances where the additional cost of using an NFC tag is less relevant to the overall cost.

Cheap and Effective: The strongest argument in favour of NFC, over other forms of short range wireless communication, is that tags are incredibly cheap to make and maintain, but can still be used for a wide range of applications. With very simply circuitry and very few components. NFC tags can be produced on a mass level for very low unit costs.

[3]. The purpose of testing is to discover errors. Testing is the process of trying to discover every conceivable fault or weakness in a work product.

• System testing ensures that the entire integrated software system meets requirements. It tests a configuration to ensure known and predictable results.

Functional Testing

• Valid Input: identified classes of valid input must be accepted.

• Invalid Input: identified classes of invalid input must be rejected.

• Functions: identified functions must be exercised.

• Output: identified classes of application outputs must be exercised.

• Systems/Procedures: interfacing systems or procedures must be invoked.

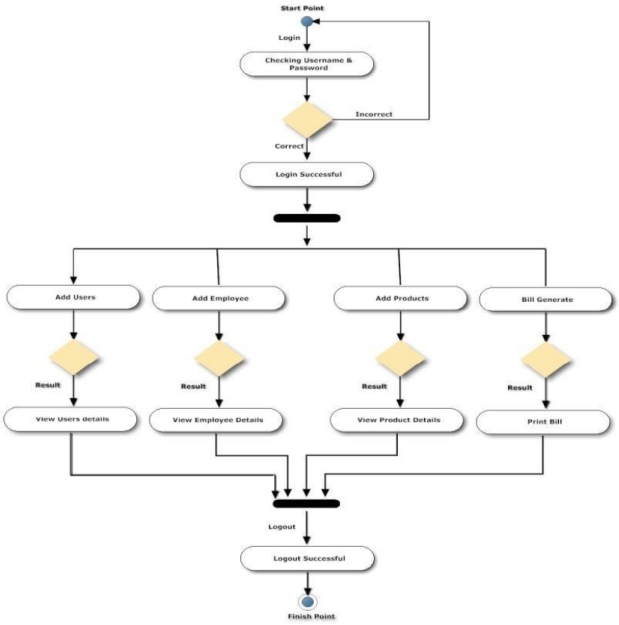
5. SCOPE

This project aims at customers who frequently visits the store to buy products on weekly or monthly basis. The scope is to increase space and time efficiency. To make the store system more efficient and bring an ease on the customer side. Such as completely avoiding the use of trolleys which will be done by the NFC tags that is explained in the project in detail.

6. PROPOSED SYSTEM

The proposed application system will be using Android based mobile phones which are integrated with NFC technology. In general, the user will do the entire shopping process with the help of their Android mobile phones with a software application that would read and process the tap to the NFC Tag of the products, which are to be purchased. These tags assigned to the products would retrieve the information about them from a main database which is stored on the server at the merchant's end. The products whose NFC tags were tapped (read) will be stored in a shopping list/cart. Users will be able to perform editing of existing products in the cart such as the process of addition, subtraction of quantity or deletion of the product all together from the cart. Furthermore, the user will be informed about the ongoing offers in the store and could avail them right from the application itself. The user at all times would be aware of the expenditure made by them and could verify the same. Finally, the user will checkout and confirm the same to the Merchant by performing a handshake with the merchant device. The shopping cart consisting of selected items will be processed and the same will be recorded in the merchant and user history.

Application processing time is not too long, for instance the application process features not more than 1-2 seconds for communication between mobile device and the server and 2-3 seconds for processing description of goods based on reading of NFC tags. Payments as of now could be made using cash at the point of sale or online using existing payment gateways through a credit/debit card. In future with the development and advancements in NFC based payments, the same could be applied for the prototype application.



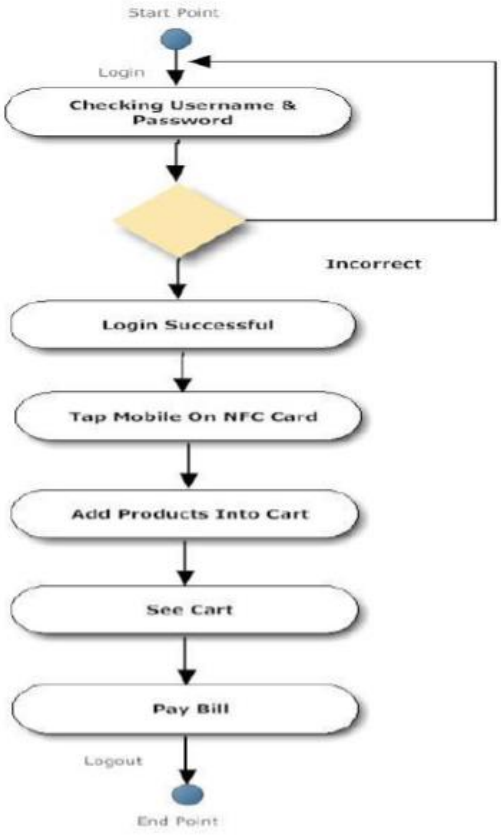


Fig : UML Diagram

6.1 FLOWCHART

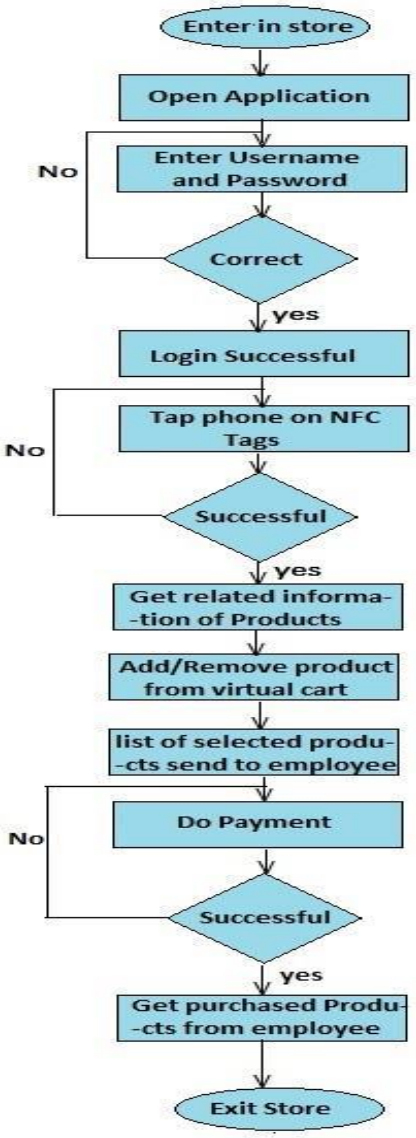


Fig -2: Flow-Chart

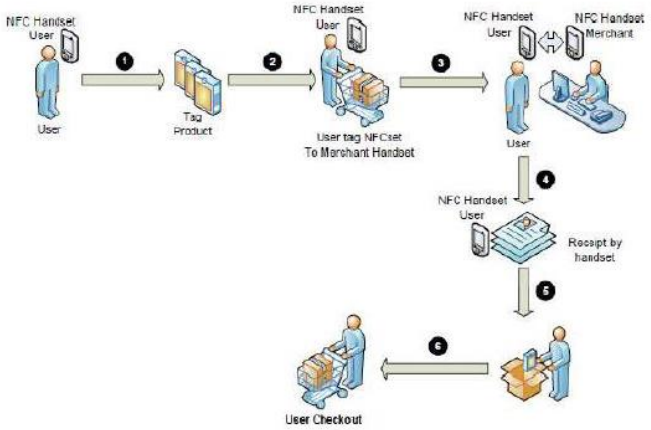


Fig -3: Work-Flow

7. HARDWARE REQUIREMENTS

Intel processor IV and above

1 GB RAM

160 GB hard disk

7.1 SOFTWARE REQUIREMENTS

- Visual Studio 2010
- Windows Operating System
- Eclipse
- Microsoft SQL Server 2008
- Android SDK

8. FUTURE SCOPE

Our application is for mobile users who do not want to carry cash everywhere and want to do a shopping in less time. An important technology is called Near Field Communication (NFC). At the moment, the only problem with our approach is in a low number of NFC enabled mobile phones. Some of them are already available, but the price is still very high. Application created a prototype that shaped the future still remains much to do development and improvement of existing models. Shopping and NFC applications NFC Merchant shopping process is created as a model with NFC technology that allows users to do the shopping process and verification of expenditure.

9. CONCLUSION

The Project uses contact less NFC Tag technology for purchasing of products at stores. Thus, the time required to purchase and billing will be reduced as the user can purchase the products directly from his Android NFC

enabled Mobile. This project aims at user who frequently visits Mall to buy products on weekly or monthly basis.

10. REFERENCES

[1] Secure NFC Application for Credit Transfer Among Mobile Phones by David M. Monteiro, Joel Rodrigues and Jaime Lloret [Computer Engineering and Applications Vol. 1, No. 1, June 2012]

[2] A Generic Model for NFC-based Mobile Commerce by Hsu-Chen Cheng, Jen-Wel Chen, Tain-Yow Chi & Pin-Hung Chen [ISBN 978- 98-5519-139-4, FEB 15-18, 2009, ICACT 2009]

[3] Shopping Application System With Near Field Communication (NFC) Based on Android by Emir Husni, Sugeng Purwantoro [2012 International Conference on System Engineering and Technology, September 11- 12, 2012, Bandung, Indonesia]

[4] Verification of Receipts from M-Commerce Transactions on NFC Cellular Phones by Jungha Woo, Abhilasha Bhagav-Spantzel, Anna Cinzia Squicciarini, Elisa Bertino [AUG 2010]

[5] Near field communication forum. http://www.nfc-forum.org.