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Future Shopping Technology Using Hybrid Approach

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Abstract: *The rapid development of mobile communications systems today, along with the changing times and technology, both in terms of hardware, operating system used and the use of Internet bandwidth, making some mobile applications also contribute to exploit these developments. Mobile Commerce Applications for an example, became the most popular applications for mobile users who do not want to trouble yourself with having to carry cash everywhere. An important technology behind mobile payments is called Near Field Communication (NFC).The NFC (Near Field Communication) became a popular short distance wireless communication technology by providing many convenient services such as an easy payment in a store. It has fast connection ability between devices and provides certain secure communication. In traditional shopping, the customer needs to physically pick up the items to be purchased and carry cash or credit/debit cards with them to make payments. The application mentioned here would read the NFC tag(s) of the product(s) & add it to the shopping cart in our application. It would also provide methods to change the quantity of product/s purchased and edit the cart. Along with this the customer would be informed about the on-going offers in the store. RFID reader will be used for the same. RFID tags contain an antenna and a memory chip that stores data. Payment could be made through cash or online using existing payment methods. The paper would also throw light on NFC based payments. This paper summaries few standard application of NFC in day to day life.*
Keywords *-M-Commerce, NFC (Near field communication), RFID (Radio frequency identification).*

I. Introduction

In the era of 21st century where there are various ways of shopping available and when India is progressing more in m-commerce here we are introducing a new stress free way of shopping i.e. Future shopping technology using hybrid approach. Aim of our project is to make shopping more convenient by using NFC and RFID technology. The focus is mainly on minimizing the resources like manpower and maximizing convenience of customers.

Humans are being smart about everything is a new trend. Smart shopping for the changing world has become a part of our lives. This application focuses on ease in shopping, carting and payment techniques by using NFC and RFID with enhanced performance with less amount of manpower. The fusion of online and offline trading has become a significant central point of the Internet Era. Under the existing operation structure of supermarkets, this article aims to propose a Smart Shopping System based on NFC Technology. This system includes technical support of mobile applications, and users will be able to conduct a series of actions like product ordering, product purchasing and online payment on the mobile app. With NFC users can even pay the bills without credit card which would simplify the purchasing process.

II. Ease To Use

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.

Mobile e-commerce is a term that describes online sales transactions that use wireless electronic devices such as hand-held computers, mobile phones or laptops. These wireless devices interact with computer networks that have the ability to conduct online merchandise purchases. Any type of cash exchange is referred to as an e-commerce transaction. Mobile e-commerce is just one of the many subsets of electronic commerce.

III. Methodology

Modules of the project

Admin module:-

[1] Admin can login into the application.
[2] Admin checks the documents if its legal then he will make a new user account and provide a new license to the user.
[3] After creating a new user account user will get the username and password by mail.

User module:-

[1] User can login into the system using username and password.
[2] User can view the complaint which are placed against him.

Employee module:-

[1] Employee can access the operation on the cart prepared by the user.
[2] Payment mode can be operated by employee too.
[3] Employee further processes the cart details.

Account module:-

[1] Different payment mode will be available to the user.
[2] Security of transaction will be taken care.

IV. Problem Statement

Today's systems are traditional commerce or ecommerce systems of retail which have a lot of disadvantages in themselves like every commerce system has. The prototype application's aim is to remove as many inconsistencies as possible from these systems and to make a system which is consumer friendly and high performing.

The goal could be achieved by using a M-Commerce system implemented using NFC technology. The use of NFC would benefit the system in many ways mainly with automation and security.

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V. Related Work

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.

Feature	

NFC tags	Acts as a reader as well as tags for e-payment as well as to access product details
Security	More secure as the distance between the tag and the code reader is 10 cm
RFID	Helps to read tags

VI. Proposed System

The proposed system will read the NFC tags to read the details of the product and for making payments. Till date NFC is been used at many places especially in payments area. This system is introduced to explore many areas where the use of NFC will be seen effectively and optimally. This system is globally working in many areas such as payment processing, online shopping, manufacturing etc. It will be both advantageous and effortless to merchants and customers. In this system NFC tags acts as a reader as well as tags for e-payment as well as to access product details. This system is more secure as the distance between the tag and the code reader is 10 cm. RFID helps to read tags. NFC reader previously was not supported by all the system but now it is supported by most of the system. In traditional method of shopping person usually go to big malls, enter inside and has to carry cart to keep his product and that used to occupy some space as well as long queues are observed this will overcome the long queue and carry of cart while shopping. During shopping user purchase the product and at times doesn't want to take that product home so he keeps the product at the nearest location this problem of misplacing will also overcome. Earlier the system was generated keeping in mind the ease of shopping for user now ease on merchant side is also taken care. For shopping people carry cards for payments and there was high threat of theft or misplacement of card this is also overcome with the help of M-commerce that is E-wallet.

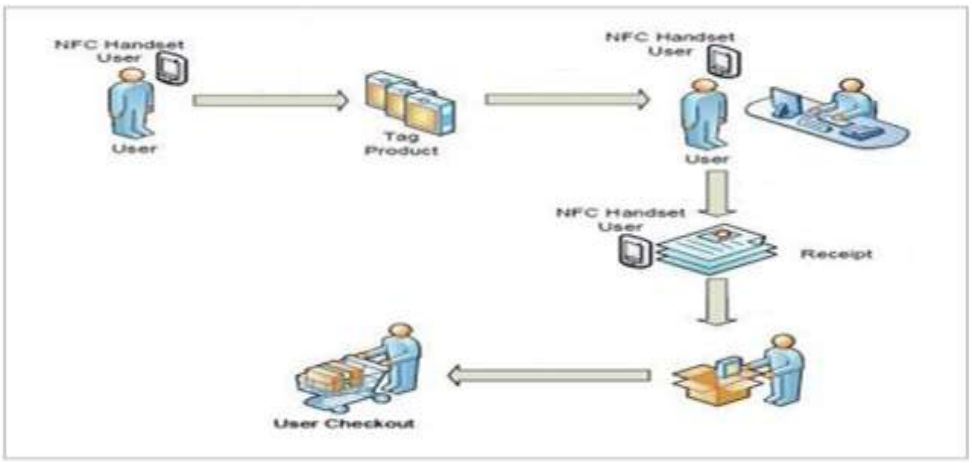

Fig 6.1. Basic flow

VII. Conclusion

Application described in this paper is a prototype that shapes the future & there still remains much to do in terms of development and improvement of the existing models. NFC based shopping is created as a model with the use of NFC technology that allows users to perform the shopping process and verification of expenditure. An application is created with ease of understanding and the design created and tailored to the shopping process to make it, more effective and user friendly. Thus making it easier and convenient for the users to do the entire shopping process with the use of this application.

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