

Ventajas de la tecnología Near Field Communication (NFC) como sistema de pago electrónico

*Advantages of Near Field Communication (NFC) technology as electronic payment
system*

*Vantagens da tecnologia Near Field Communication (NFC) e sistema de
pagamento eletrônico*

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Resumen

El presente trabajo se realizó con el objetivo de estudiar las ventajas del uso de la tecnología Near Field Communication” o “Comunicación de campo cercano”, como sistema de pago electrónico, mediante el uso de un móvil con capacidad de almacenar aplicaciones de pago que son compatibles con los millones de puntos de venta sin contactos existentes actualmente, realizando un análisis documental donde se demuestre que son más las ventajas de usar un teléfono móvil para realizar los pagos, que los métodos tradicionales.

Para el desarrollo del presente estudio se investigaron y analizaron las diversas fuentes de información relacionadas con el tema en el año 2014.

Se llegó a la conclusión de que es más cómodo y seguro pagar con dispositivos con tecnología NFC que con un sistema tradicional, ya que ofrece mayor seguridad que los sistemas que actualmente se usan como herramienta para pagar electrónicamente.

Palabras clave: NFC, pago móvil, pago electrónico.

Abstract

The present work was carried out with the aim of studying the advantages of the use of Near Field Communication Technology as electronic payment system, through the use of a mobile phone with the ability to store payment applications that are currently compatible with the millions of points of sale without existing contacts, making a documentary analysis which proves that they are more the advantages of using a mobile phone to make payments than traditional methods.

The development of the present study is investigated and analysed the various sources of information related to the subject in the year 2014.

It was concluded that it is more comfortable and safe to pay with devices with NFC than with a traditional system, since it offers greater security than systems currently used as a tool to pay electronically.

Key Words: NFC, mobile payment, electronic payment.

Resumo

Este trabalho foi realizado com o objetivo de estudar as vantagens do uso da tecnologia Near Field Communication "ou" Near Field Communication ", como sistema de pagamento eletrônico, usando um capaz móvel de armazenamento de aplicativos de pagamento são compatível com os milhões de pontos de venda Atualmente não há contatos existentes, fazendo uma análise documental, onde se for provado que há mais vantagens do uso de um telefone celular para fazer pagamentos, que os métodos tradicionais.

Para o desenvolvimento deste estudo foram investigados e analisados os diferentes fontes de informação relacionada com o tema em 2014.

Concluiu-se que é mais confortável e seguro para pagar com dispositivos NFC do que com um sistema tradicional, proporcionando uma maior segurança do que os sistemas actualmente utilizados como uma ferramenta para pagar electronicamente.

Palavras-chave: NFC, pagamento móvel, pagamento eletrônico.

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Introduction

The mobile phone from a few years ago has become an indispensable device within the digital lifestyle in which we are immersed. Of be a device that only served to communicate is with voice, is has transformed in a device universal that includes the functionality of many devices in one only, as are camera photographic, player of music MP3, player of video, browser of internet, etc (Chavarría, 2014).

As technological advancement of communication, creation and interconnection of robust data networks has a profound effect, either in communication between portable mobile devices currently used, or cell phones, computers, among others, and the new trends technology to implement is in them, that grows exponentially with the step of the years. NFC wireless technology is progress in the convergence of mobile phone applications, since it offers the services of smart cards and also the advantages of short range wireless technologies. NFC presents a particular feature and is its compatibility with other existing ones, such as RFID and Bluetooth wireless technologies, which increases its investment and development.

Recent projects in Europe and United States pilots have since revealed that the combination of these two technologies may allow the development of more and new services with a very high level of security, as required for the payment via mobile phone. They are the so-called proximity services that the user can access with just bring your mobile phone to a terminal offering service with more advantages and the same security tools of payment that nowadays are used for various banking and/or payment for services. One of the biggest advantages to consider is that we will say goodbye to all cards since the mobile will become our purse to be easy to use with a simple touch.

General objective

Analyze the advantages of NFC as electronic payment system technology.

Methodology

For this work, the documentary methodology was used. According to Baena (1985) is a technique that involves the selection and compilation of information through reading and critical documents and bibliographic materials, libraries, newspaper libraries, documentation centres and information (Baray, 2006).

Materials and methods

This research was based on the analysis of scientific articles, documents, forums, essays, case studies, etc.

NFC (Near Field Communication)

NFC is a system of transmission of data similar to the bluetooth, which uses the principles of RFID (radio frequency identification) technology. However, it offers much more spacious than the RFID benefits because it leverages the widespread use of mobile phones and computing capabilities (nfc-forum, 2014).

Near field communication, usually called NFC, is a short-range, high-frequency wireless communication technology of 13.56 MHz, which allows the exchange of information between peripherals up to a distance of approximately 10cm. This technology is an extension of ISO / IEC 14443 standardizing proximity maps used by RFID, combining a map-to-chip interface and a reader within a single peripheral using an ISO, ECMA and ETSI standard that works in The frequency band AF (alternative frequency) (13,56 MHz).

It currently offers data rates of 106 kbps, 212 kbps and 424 kbps and is not intended to transmit large volumes of data, but rather to exchange information quickly, efficiently and securely. Like the rest of RFID technology, the NFC protocol covers active and passive modes of operation (Reyes, 2014).

NFC technology is designed for use in mobile phones; The user will be asked to scan their fingerprint or enter a secret code to approve the transaction, validating the transaction with a separate chip known as the SE (security element) that communicates the authorization to the NFC

modem. Hence, the payment is processed in the same way as a transaction in which a credit or debit card is slid into a cash register (Profis, 2014).

Its development began in 2002 and its promoters were Philips and Sony mainly to achieve compatibility with its Mifare and FeliCa technologies, but it was approved in late 2003 as ISO 18092 (Sacristana, 2014).

In order to achieve greater NFC penetration, Sony and Philips decided in 2002, through international ECMA, to create the open standard 340 "NFC interface and protocol", which was adopted in 2003 by ISO / IEC with the number 18092. To achieve further promotion of NFC, Nokia, Philips and Sony founded the 2004 NFC forum.

Electronic payment systems today

Electronic card

The card as a means of payment encompasses a very wide range of different products (credit cards, debit cards or wallets). However, they all have two common elements: the linking of the customer, trade or both to a bank account necessary to be able to finalize the transactions, and the difficulty and slowness in the process of acceptance of this means of payment.

The electronic card presents modifications with respect to the traditional scheme. The provider transmits the information to his bank and this to the system (Santoma, 2014).

Electronic cash registers

ATMs, also known as ATM (Automatic Teller Machine), are devices whose main purpose is to dispense cash, in addition to the following financial transactions: check balances and movements, purchase air time for cell phones, payment of services, change of PIN (Confidential key), etc. (Bancomer, 2013).

Electronic checks

They are electronic transactions once a retailer makes against your account for the check that you just wrote. Instead of processing the paper check you gave, the retailer takes the name, route number, check number and other pertinent information from the check and processes a single

transfer of funds from your bank to yours. You return the check along with your receipt (Finances, 2013).

A check is a document used as a means of payment by which a person (the drawer) orders a bank (the drawee) to pay a certain amount of money to another person or company (the beneficiary or holder). The drawer can also be the beneficiary, as happens when one uses a check to withdraw money from his own account (Education Plan, 2010).

Offline anonymous money

With anonymous electronic money offline (offline) the merchant does not have to interact with the bank before accepting money from the user. Instead you can collect multiple coins spent by users and then deposit them in the bank. In principle this can be done offline, that is, the merchant could go to the bank with his storage means to exchange the electronic cash for cash. Likewise, the merchant must ensure that the user's electronic money is either accepted by the bank or that the bank is able to identify and punish the users who try to deceive by this route. In this way, a user has no possibility to use the same coin twice. Off-line electronic cash systems also have the need to protect themselves against the possible deceptions of traders, ie traders wishing to deposit a currency twice (Advisory Channel, 2013).

Advantages and disadvantages of using NFC technology

Advantages of using NFC technology

The use of NFC technology has great advantages, which allow the user to free themselves of cables to share information between mobile devices, recharge them or achieve with a touch that smartphones, tablets, audio equipment, payment systems, vehicles and appliances And interact. This is one of the advances achieved by short-range wireless technology (Weather, 2014).

As if it were a magic trick, in which the physical connections disappear to transmit information, the equipment and platforms that work with NFC allow, in seconds, to connect a device with multiple mobile devices through the RFID.

The technology, tested since 2004, took off in Europe in 2010 with the first trials to carry out financial transactions through mobile phones.

As a result, companies such as Visa, MasterCard, Telefonica, Citibank and Google, with their Google Wallet, among others, have already had payment systems with NFC since 2011, turning smartphones into smart wallets that offer many advantages (El tiempo, 2014).

- The most obvious of all is the comfort, we will say goodbye to all the cards since the mobile phone will become our wallet.
- It is simple to use, it is done through a simple touch.
- Offers greater customization, collects customer data in a way that makes it easier to get to know them better.
- • Saving time, both in payments in stores, bars and restaurants, as in means of transport. It is much more comfortable to get on the bus and bring the mobile closer to the device than having to purchase the physical ticket.
- It goes beyond payment, as NFC technology offers other uses. From the possibility of redeeming discount coupons to social media campaigns through mobile devices, for example, check in at Foursquare, start to follow on Twitter or become a Facebook fan of a local simply by bringing your mobile to the Logos of the establishment.
- The possibility of associating a bank account number to our mobile device allows us to gain in comfort and speed when validating purchases with the only action of bringing the phone to a receiving team.
- Easy to enter points where identification is necessary.
- The connection time between the two devices is extremely fast, since it only takes 0.1 seconds and is done automatically.
- It has many more uses than bluetooth, among which stand out, for example, the payment of services with the cell phone through NFC with the application of Google Wallet.

Disadvantages of using NFC technology

- The speed is slower than the bluetooth, as it is 424kbits / s while the bluetooth is 2.1 Mbit / s.
- The maximum distance between the two devices or technological devices is 20 cm. This makes mobile phones must be together. It has another use compared to bluetooth.
- Only the connection between devices is point-to-point, there is no possibility of creating a wireless network between several devices.
- It is a radiofrequency communication, so there is always the possibility of a transmission reading.
- Operates at close range, so codes can be copied for fraudulent use (Gigatecno, 2014).

NFC Security

One of the aspects that most distrust awakens is security, although the truth is that it is as safe as a credit card. Transactions are secured with the same methods as cards; The NFC chip does not have access to mobile data, so it can not be accessed through malicious programs. In case of mobile theft, the thief would need the password to access the money; In addition, the NFC chip can be locked in the same way as with credit cards (NFC use safety, 2013).

Whether it is a chip on the phone, or from the cloud, the security element is tamper-proof and protected by a unique digital signature. According to Michael Armentrout, manufacturer of security elements chips Infineon, the architecture of the security element is designed against attacks on the phone (Profis, 2014).

Mobile payment

It is the payment method that allows you to make purchases online and by phone with your cell phone and without providing the actual data of your cards, since a different and personalized virtual card is generated in each transaction, offering maximum security in electronic purchases (Giesecke And Devient, 2014).

NFC capable phones can store payment applications that are compatible with the millions of existing outlets with no existing contacts.

The intuitive simplicity of approaching a mobile phone to a Point of Sale (POS) terminal to pay for products or services contrasts with the difficulty of reading or inserting a card into a POS slot (Giesecke and Devient, 2014).

In addition, a phone can store information about multiple accounts such as credit, debit or prepaid, allowing the user to select the most appropriate payment method in each situation in a much simpler way than having to carry multiple cards in the wallet.

Transactions are completely secure and the payment application is password protected. In case of loss or theft of the phone it is possible to deactivate the remote application further increasing the security.

Discussions

Today there are a large number of electronic exchange systems for bank funds that ensure the circulation of money. Our study found that the advantages of NFC technology as an electronic payment medium breaks paradigms. Before it was not glimpsed that people could say goodbye to cash, debit or credit cards, but now it is a reality.

Conclusions

NFC appears as a progress in the convergence of applications within the mobile phone by offering the services of smart cards: credit and debit. Thanks to this new technological trend, the user will have the same comfort and security as traditional payment systems.

It is worth mentioning that this technology will have a positive impact on society, because thanks to its use people will say goodbye to all electronic cards. The phone will become your personal wallet, and through an application you can make payments easily and quickly.

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