ISSN 1512-1232

An Efficient Authentication and Payment Method for M-Commerce

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Abstract

Technological advances in mobile phones have also made it possible to carry out ecommerce via mobile phones (m-commerce). M-commerce involves the use of mobile devices such as mobile phones and PDA's in carrying out electronic transactions. Just like e-commerce, the security of m-commerce applications is critical, especially when it involves applications that deal with user sensitive data such as credit cards details, medical details etc.Authentication and secure payment is a major security issue when it comes to carrying out mobile financial transactions remotely. However, the security issues that arise with the growth in this field cannot be neglected. It is necessary to prevent Simishing and since its occurrence may affect the image and the potential customer base of a company. So security enhancement of mobile payment system is done and as well as modification of current authentication system. Apart from these proper SMS alerts will be given whether to proceed with the transaction or not with suitable timing constraints. The objective of research is to enhance existing authentication and mobile payment method to prevent from credit card fraud attack.

Index Terms: *M-commerce, E-Commerce, Cryptography , Security, Authentication protocol ,*

1. Introduction

Applications in Mobile commerce domain range from normal information consumption to high security financial electronic transactions. Just like e-commerce, the security of m-commerce applications is critical, on especially when it involves applications that deal with user sensitive data such as credit cards details, medical details etc. The technique of using PIN for authentication has been shown to have memorability problems. Users adopt non-secure behaviours to circumvent those problems. To improve the usability and the security of authentication, alternative techniques have been suggested. PIN authentication remains as the primary login technique across many (or possibly all) implementations of mobile banking. However, the security issues that arise with the growth in this field cannot be neglected. For example, how does one ensure that participants in an m-commerce transaction are who they claim to be (authentication)? Also, how does one support secure financial transactions in m-commerce businesses?

2. BACKGROUND

2.1. *E – Commerce*: E-commerce has allowed firms to establish a market presence, or to enhance an existing market position, by providing a cheaper and more efficient chain for their products or services through online and major marketing segments are B2B ,B2C, C2C,C2B.

ISSN 1512-1232

Figure 1. Basic View of .E-Commerce

2.2. *Cryptography*: Secure stored information - regardless if access obtained. Secure transmitted information - regardless if transmission has been monitored

2.3. *Security*: Information Security Threats are using the following

a) Internet Cryptography Techniques
b) Transport Layer Security
c) Application Layer Security
d) Server Proxies and Firewalls

2.4. *Authentication protocol*: a legal user can access its own data fields, only the authorized partial or entire data fields can be identified by the legal user, and any forged or tampered data fields cannot deceive the legal user.

2.5. *Payment*: A payment is the transfer of an item of value from one party (such as a person or company) to another in exchange for the provision of goods, services or both, or to fulfill a legal obligation. The simplest and oldest form of payment is barter, the exchange of one good or service for another.

Figure 2. Example of Payment Transaction

2.6. *Payment Security:* Secure payment protocols are not necessarily tied to any of the aforementioned transport mechanisms, or even tied to a specific network architecture. These payment schemes exist in various degrees of implementation. This section describes some of the better known protocols.

2.7. M-Commerce: M-commerce means mobile commerce, It is the buying and selling of goods and services through wireless handheld devices such as Cellular telephone and Personal Digital Assistants (PDAs).

ISSN 1512-1232

3.RELATEDWORK

3.1. *Literature survey*

It involved researching previous studies that were conducted in the area of authentication, as well as reviewing what underlining techniques current existing
authenticating systems use. To achieve this, the following research questions were looked into: What are the security threats that are currently faced by m-commerce systems? What are the necessary security requirements that must be met by a platform independent authentication and payment system? What are the current authentication methods/solutions available? What are the current payment methods / solutions available?

3.2 *Types of Security threats*

Security threats of authentication systems can be classified into two categories: malicious and non-malicious. Malicious security threat is a state when a system or a user deficiency is being exploited by illegitimate users with an intention to do harms Phishing attacks, for example, are a malicious activity made by attackers to trick legitimate users to give out their login passwords or personal information. The obtained information can be used to gain access into the user's accounts. Other common forms of malicious attacks against password systems are dictionary attacks, keystroke logging, and shoulder-surfing. Dictionary attack is a type of password attack that uses words from dictionaries to crack a user‘s password. Users tend to choose weak passwords; therefore this attack is most efficient against authentication systems that allow users to choose personalized passwords without policy restrictions. A more exhaustive version of dictionary attack is brute force attack; it attacks a password by trying all possible combinations of password elements.

Types of Security Threats:

- Unable to user server resources
- Type of DOS Attacks
- Web jacking : site vandalism
- TCP/IP SYN attack
- PING of Death
- Flood server with URL requests

Figure 3. Example of Simishing Attack

3.3 *Facilities required for System Configuration*

The authentication and payment method tested through Android emulator**.** Coding done in Java through Eclipse Software.

ISSN 1512-1232

Figure 4. Android Emulate

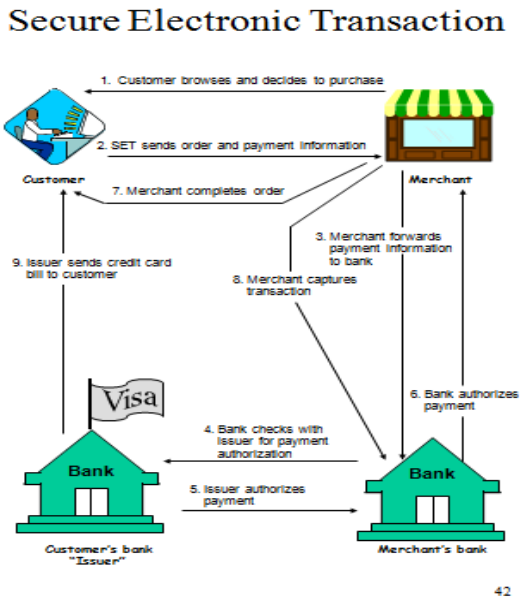
4. PROPOSED WORK

The objective of this work is to propose a secure platform-independent authentication and payment method for m-commerce applications free from Simishing attacks , Dictionary attacks etc. Credit card fraud is identity theft in its most simple and common form. The objective is to enhance existing authentication and mobile payment method to prevent from credit card fraud attack. Dictionary attack is a type of password attack that uses words from dictionaries to crack a user‘s password. Users tend to choose weak password, therefore this attack is most efficient against authentication systems that allow users to choose personalized passwords without policy restrictions.

4.1 *Supported Examples*

There are a malicious activity made by attackers to trick legitimate users to give out their login passwords or personal information. The obtained information can be used to gain access into the user’s accounts. Other common forms of malicious attacks against password systems are dictionary attacks, keystroke logging, and

Shoulder - surfing. Dictionary attack is a type of password attack that uses words from dictionaries to crack a user‘s password. Users tend to choose weak passwords; therefore this attack is most efficient against authentication systems that allow users to choose personalized passwords without policy restrictions. A more exhaustive version of dictionary attack is brute force attack; it attacks a password by trying all possible combinations of password elements.



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5. RESEARCH WORK

The current mobile banking login method is PIN authentication. For a client to use mobile banking, the bank requires the client to register for the service. During registration, the client receives (or provides) a four or five digit Personal Identification Number (PIN)as a password. To access the service, the client is required to enter the correct combination of his/her identification (usually the account number or the mobile number) and the registered PIN to authenticate. Yet, this mechanism is unsatisfactory. The use of a text-based password requires a trade-off between security and memorability; the trade-off arises from the limitation of human memory, and, as a result, passwords are easily forgotten. System security is often considered to be a technical issue. Before conducting a transaction, a client is required to login with a PIN and only a valid PIN code will grant the client access to the service. In public key encryption and other authentication methods , proper authentication of user is missing. So security enhancement of mobile payment system is done in this work and as well as modification of current authentication system is done .

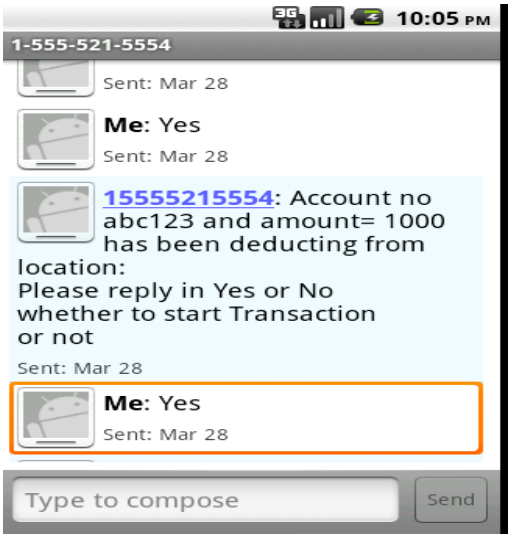

Figure 6. Based on user reply ‘Yes’via SMS

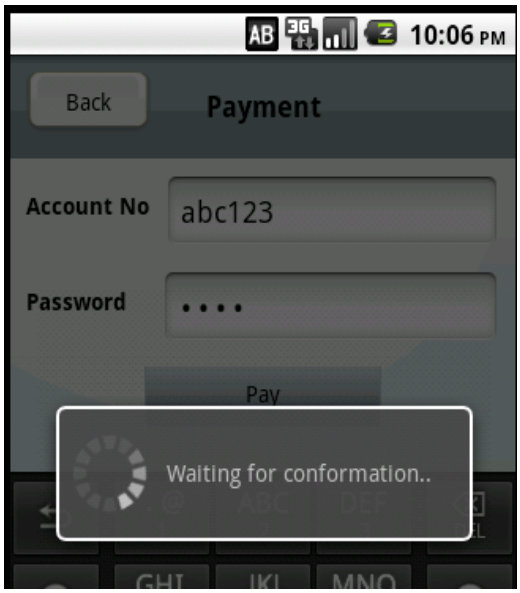

Figure 7. Time given for confirmation (1minute)

ISSN 1512-1232

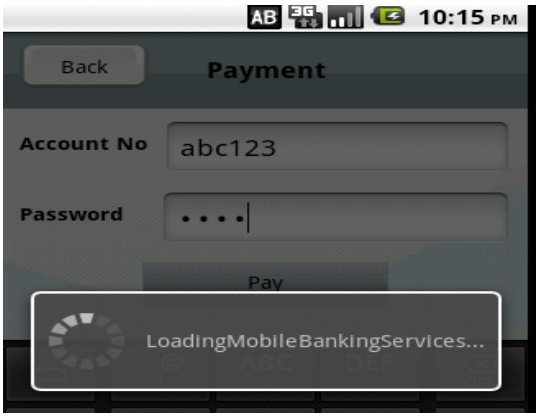

Figure 8. Successful Execution Start

6.EXPECTED RESULTS

Step1.Username and password will be provided for login. 2. User will enter the registered PIN to authenticate.3. To prevent simishing, dictionary attacks from attacker , an SMS will be given whether to proceed with the transaction or not with suitable timing constraints(1 minute). (Reply in Y or N).4. User has to reply with Y or N to enable transaction to execute.5. SMS will be generated to genuine user to his/her registered mobile number (regarding attacker's location or phone no. credit card no. etc).6. If the attacker is going to do M-Commerce transaction then transaction will not execute.

7. CONCLUSION

Now a days everyone widely used in M-Commerce through purchase anyone, isn this mode every customer must knows minimum things. In this paper discuss about Secure payment transactions fully authenticated manner types and risk factors. I hope this paper avoid minimum doubts in common man.

Acknowledgment

This paper is Heartily Dedicated to my parents Sri.S.Dandasi & Smt.Janaki and My life Inspirer Eminent Scientist Sri.Dr.A.P.J.Adbulkalam.

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Article received: 2015-12-07