



**CREDIT CARD SYSTEM AND METHOD**

This application claims the benefit of U.S. Provisional Application No. 60/\_\_\_\_\_ (our reference number 032376-003) filed August 26, 1998, U.S. Provisional Application No. 60/092,500 (our reference number 032376-003) filed on  
5 July 13, 1998, the entire contents of which are incorporated by reference herein. This Application also claims the benefit of Irish Patent Application Nos. S98 0223, filed March 25, 1998, S98 0346, filed May 7, 1998, and S98 0458, filed June 15, 1998, the entire contents of each of which are incorporated by reference herein.

**BACKGROUND**

10 **1. Field of the Invention**

This invention relates to a credit card system and method, and more particularly, to a credit card system and method offering reduced potential of credit card number misuse.

**2. Related Art**

15 The development of retail electronic commerce has been relatively slow in spite of the perceived demand for such trade. The single greatest deterrent to the expansion of retail electronic commerce is the potential for fraud. This potential for fraud has been a major concern for the credit card companies and financial institutions as well as the customers and the providers of the goods and services.

20 The former are concerned about fraud because essentially the financial institutions have to bear the cost of the fraud. Additionally, the credit card companies have an efficient credit card system which is working well for face to face transactions, i.e., "card present" transactions where the credit card is physically presented to a trader and the trader can obtain the credit card number, compare  
25 signatures and in many cases photographs before accepting a particular credit card.

The latter are equally concerned about fraud being well aware that ultimately the user must pay for the fraud. However, there are particular personal concerns for the consumer in that the fraudulent use of the credit card by misuse of the credit card number by a third party may not become apparent for some time. This can happen  
5 even if the card is still in his or her possession. Further, when fraud does occur the consumer has the task of persuading the credit card provider that fraud by another did indeed occur.

There is also the additional fear of being overcharged on a credit card. There are thus particular risks for those credit card holders who have relatively high  
10 spending limits, in that if fraud should occur, it may be some considerable time before it is detected. One particular form of fraud referred to as "skimming" is particularly difficult to control. What happens is that the card holder proffers his or her card at an establishment to make a transaction, the relevant information is electronically and/or physically copied from the card and the card is subsequently  
15 reproduced. This can be a particular problem with travelers particularly during an extensive period of travel as the fraudulent card may turn up in other places and it may be some considerable time before the fraud is detected.

For remote credit card use, the credit card holder has to provide details of name, master credit card number, expiration date and address and often many other  
20 pieces of information for verification; the storing and updating of the information is expensive but necessary. This of itself is a considerable security risk as anybody will appreciate that this information could be used to fraudulently charge goods and services to the card holder's credit card account. Such fraudulent use is not limited to those people to whom the credit card information has been given legitimately, but  
25 extends to anybody who can illegitimately obtain such details. A major problem in relation to this form of fraud is that the credit card may still be in the possession of the legitimate holder as these fraudulent transactions are taking place. This is often referred to as "compromised numbers" fraud. Indeed all this fraud needs is one

dishonest staff member, for example in a shop, hotel or restaurant, to record the credit card number. It is thus not the same as card theft.

The current approaches to the limiting of credit card fraud are dependent on the theft of a card being reported and elaborate verification systems whereby altered  
5 patterns of use initiate some enquiry from the credit card company. Many users of credit cards have no doubt received telephone calls, when their use of the card has been exceptional, or otherwise unusual in the eyes of the organization providing the verification services.

Thus, there have been many developments in an effort to overcome this  
10 fundamental problem of fraud, both in the general area of fraud for ordinary use of credit cards and for the particular problems associated with such remote use.

One of the developments has been the provision of smart cards which are credit card devices containing embedded electronic circuitry that can either store information or perform computations. Generally speaking they contribute to credit  
15 card security systems by using some encryption system. A typical example of such a smart card is disclosed in U.S. Patent No. 5,317,636 (Vizcaino).

Another method used is the Secure Electronic Transaction (SET) protocol which represents the collaboration between many leading computer companies and the credit card industry which is particularly related to electronic transmission of credit  
20 card details and in particular via the Internet. It provides a detailed protocol for encryption of credit card details and verification of participants in an electronic transaction.

There are then specific electronic transaction systems such as "Cyber Cash," "Check Free" and "First Virtual." Unfortunately, there are serious problems with  
25 what has been proposed to date. Firstly, any form of reliance on encryption is a challenge to those who will then try to break it. The manner in which access has been gained to extremely sensitive information in Government premises, would make even the most foolhardy wary of any reliance on an encryption system. Secondly, a further

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problem is that some of the most secure forms of encryption system are not widely available due to government and other security requirements. Limiting the electronic trading systems and security systems for use to the Internet is of relatively little use. While electronic commerce is perceived to be an area of high risk, in practice to date it is not.

5 Japanese Patent Publication No. Hei 6-282556 discloses a one time credit card settlement system. This system employs a credit card which can be used only once in which various information such as specific personal information, use conditions, and an approved credit limit identical to those of the original credit card are recorded on a data recording element and displayed on the face of the card. The one-time credit card contains the same member number, expiration date, card company code, and the like as on existing credit card, as well as one-time credit card expiration date not exceeding the expiration date of credit card, available credit limit, and the like. The one-time credit card makes use of the same settlement means as the conventional credit card. However, the system also requires use permission information to be recorded on the credit card, the information permitting the credit card to be used only once or making it impossible to use the credit card when the credit limit has been exceeded. A special card terminal device checks the information taken from the card for correctness and imparts use permission information for when the card is not permitted to be used on the transmission to the credit card issuing company. The use permission information takes the form of a punched hole on the card itself. This system has obvious flaws, such as the card terminal having to be modified for additional functions (e.g., punching holes, detected punched holes, imparting additional information, etc.). Also, such a system offers little additional security insofar as fraud can still be practiced by covering the holes or otherwise replacing the permission use information on the credit card. Such a system would require a change in nearly all card terminal equipment if it were adopted.

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