A SMART CARD-BASED MOBILE SECURE TRANSACTION SYSTEM FOR MEDICAL TREATMENT EXAMINATION REPORTS

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Abstract. *In many countries, the use of electronic health care and medical treatment services have become essential components of efforts to provide citizens with a high level of service that promises the advantages of convenience, mobility and time saving. On the other hand, hospitals require efficient management of medical treatment. In this paper, we combine these requirements and propose a smart card-based mobile medical treatment examination report transaction system to achieve a secure transaction model. We apply cryptography mechanisms to reduce cost, share medical treatment resources, mobilize services and simplify examination procedures. With this product, both supply merchants and retailers can find their niche. Moreover, users can share the mobile medical treatment examination resources saving much valuable time.*
Keywords: Mobile medical treatment, Smart card, Secure transaction, Security

1. **Introduction.** With an aging society, changes in population structure and medical challenges, issues that relate to the introduction of new health care initiatives and the management of medical treatment must be addressed. For instance, how patients can be provided with convenient medical services is an important question worthy of being researched.

According to Business Weekly magazine (March, 2007) [1], population trends will dominate the discussion of global economic development in the coming twenty-five years. The medical treatment industry is expanding rapidly. The Market Intelligence Center (MIC) predicts that the value of the global health care industry will rise to US$597 billion by 2015. In Taiwan, expenditures in the health care industry will reach US$18 billion [2]. As such, mobile medical treatment is recognized as an important future trend in medical and technological industry.

The smart card is an important facet of the public key infrastructure integrated into the Windows platform by Microsoft. Smart cards can enhance software solutions, such as the client identification and log-in. Smart cards contain the following features: (1) The capability to operate, access control and store. (2) The ability to perform repetitive writing and deleting. (3) They provide safe protection to hardware, limiting access data to a smart card without authorization. (4) Algorithms such as DES, RSA and Hash are built into smart cards for encryption and decryption to assure the security of data transmission. (5) Through security systems such as RSA, smart cards can generate the corresponding digital signatures for electronic transactions, which can be used as the authorization basis