Chapter 30
Applications of Intelligent Agents in Mobile Commerce:
A Review

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ABSTRACT

Mobile phone usage and its adoption have been growing at exponential rates. It is this exponential growth rate that has led many to predict Mobile Commerce (M-Commerce) as the next major evolution of Electronic Commerce (E-Commerce). While M-Commerce comes rich with unique features, it is currently lacking in usage when compared to traditional e-commerce. There are many challenges that must be addressed in this respect. These challenges are mostly inherent in the mobile devices, communication network, legal and regulatory infrastructure. The use of agents in e-commerce has long been explored in the context, resulting in a number of agent based e-commerce systems. It is not surprising then to note that many researchers believe that the problems that the M-Commerce now faces can be addressed well using agent technology. While there is an abundance of information on the use of agent based systems in other areas, there has been no great surge yet in the use of agent based systems in real world M-Commerce applications. We believe that this slow adoption of this agent technology is due to a lack of standards. There has been a quite an amount of research work carried out in the use of software intelligent agents in the M-Commerce applications like Shopping, Hotel, and Airline industries. These are outlined in the paper with appropriate screenshots and descriptions.

1. INTRODUCTION

There has been emergence of many new mobile technologies pertaining to cellular phones in the last few years. These days Mobile phones which we call as Smart phones allows running various applications like Games, Television/ movie watching, Business, Productivity tools etc. These kind of smart phones have been used in many commercial applications in M-Commerce like Airline Ticketing, Movie Tickets, Hotel/Restaurant Reservation & Booking, Mobile Banking etc (Abott 2001).

M-Commerce is the business transaction on the move (Rao et al 2005). The growth of Mobile Commerce is due to the desire of the users for conducting business, enable communication and also sharing information from anywhere. M-commerce is nothing but an extension of E-commerce technology which makes it available on any smart phone enabled mobile device (Abbott, 2001). Though Smart Phones together with Mobile Network make M-Commerce an attractive feature, still a lot of challenges exist and one such challenge is Security. Security concern is more prevalent in Mobile commerce transaction especially towards making payment online from Mobile handset using Credit card (Lynn 2006). The issue of security concern like card-cloning, identity theft, eavesdropping are not only in Mobile commerce transaction but also when conducting transaction in person (Schwiderski-Grosche and Knopse n.d)

With this brief introduction on Mobile Devices as enablers of Mobile Commerce Applications, we will now discuss in detail in the forthcoming sections, the functioning of M-Commerce and the associated security aspects to be considered during applications

2. MOBILE COMMERCE

M-commerce market has witnessed a rapid and exponential growth (Butcher, 2010). This kind of increase in M-commerce added tremendous value towards increasing purchases made online and in-store. Many organizations are investing a lot towards developing a versatile front end mobile experiences and ensuring compatibility with their back end technology.

Many applications are available today for consumers possessing smart phones which provide luxury and comfort ability at the tip of their finger like browsing the stock for a company, adding goods to their shopping cart, Payment to supplier etc. One such example is E-bay allowing consumers to shop, buy, pay and review purchase history online. We will discuss in the next section the security aspects involved in M-Commerce

2.1. Security Aspects in Mobile Commerce

With the exponential growth of M-commerce in many countries like Finland, Austria, and Japan, much new service application such as Mobile Parking Payments, Train Ticketing, purchasing Airline tickets were deployed.

While addressing the issue on the security aspects in M-Commerce, there is a necessity to look at efforts towards a standardized safe transfer of mobile payment over the air. Some of the companies looking towards standardizing of M-commerce applications are PayCircle, Mobile Signature(Mosign), Mobile Payment Forum, Mobile Electronic Signature Consortium(mSign) and Encorus. Such companies would provide methods for international acceptance of cross application infrastructure, development of secure and authenticated M-commerce using payment cards and other methods (Schwiderski-Grosche and Knopse n.d).

For securing data stored in mobile device, transaction details and communication medium must be properly secured in place. So towards achieving an effective mobile commerce security, the following security mechanism needs to be followed like Authorization, Authentication, Integrity and Confidentiality (Stallings 2005)

In addition to securing Mobile Commerce transaction, the ways by which an intruder can attack the systems are the following:

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