The Role of Mobile Bank in Intelligence of Urban Transportation Fare Payment

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Abstract

The recent history of Iran indicates the country’s great achievement in science and knowledge, having made an important step towards the development of innovative technology. A glimpse at history of our country, Iran, indicates its great achievement in science and knowledge as we are now able to see an important step in development of technology after thousands of years. The advent of electronic age has made a dramatic development in today’s world. Moreover, the existence of mobile banks has opened a new gateway to banking transactions for people in such a way that most of the people at any educational levels and even with low level of literacy have been able to use this software; and the tendency to receive such technologies has been increasing every day. On the other hand, due to the fierce competition between local banks, they have sought to try new methods to facilitate the public affairs in order to attract more customers. Therefore, the mobile banking software is constantly updated. The integration of banking system with public transport fleet is one of the concerns of banks in order to facilitate affairs; hence, the adoption of mobile bank with taxi organization for taxi fare payment by passengers is one of the effective steps in this field.

Keywords

Mobile Bank; Bank; Taxi Organization; Fare; Trust

Introduction

The current human being is seeking to accomplish the affairs with the lowest energy and highest efficiency, and thus the technology is advancing day by day in order to facilitate the public life. The emergence of mobile banks among people for performing different fields is one of the newest technologies in the field of banking.

In this regard, the mobile bank system has been taken into account and implemented due to the widespread use of wireless communicational services, and message, and mobile phones to provide financial services for customers. The ability to perform financial practices at the large scale compared to other channels (such as the telephone banking, Internet, etc.) is the main advantage of this service channel because the customer can utilize this service at any time and place and just by a mobile phone and proper antenna coverage [1].

Since the numbers of mobile phones are much greater than the PCs, the mobile banking has been more welcomed by bankers than the e-banking. Furthermore, the mobile phones increase the quality of service because the customers can accomplish their financial affairs at any time and place. Obviously, the use of cell phones for banking affairs is useful both for banks and their customers; and it strengthens the strong relationship between financial institutions and customers [1].

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Therefore, the banks are looking for provide a simple infrastructure for their customers by appropriate services along with organizations. The taxi organization is one of the most important and high-income local centers with which a large population is dealt. The banks can be beneficial for taxi organization and themselves by improving the fare payment by passengers.

1. Theoretical Principles

People are often against the advent of any new technology, but that technology begins to be accepted and applied at a large scale over time. Obviously, the banks are seeking to expand the use of mobile banks among their customers; and the people now welcome this technology and receive the mobile banks after a period of resistance in order to facilitate their banking affairs. This needs trust in efficiency of software in order to be used by a majority of people.

The primary trust indices are defined as the relative advantages, structural assurance, brand reputation, and disposition to trust [2] which requires the use of a new technology. In addition to the observed reliability, the facilitating conditions and demographic factors have a significant impact on the acceptance of mobile bank [3].

The ease of use and usefulness are two factors of acceptance [4], thus the mobile banks should have simple and applicable designs, so that people can accomplish their affairs by all sectors of a mobile bank, so they do not require using banking services in performing different banking affairs.

2. Research Literature

Mobile bank is a system by which the banking operations can be accomplished in mobile phones. According to this system, the operation such as the reception of account balance, fund transfer and by payment of bills can be performed at any hour without visiting the bank only by installing an application on the mobile phone. This service enables the customers to receive the information such as their bank account balance, etc. via their mobile phones. This is done with high security.

2.1 Examples of Services Provided by Banks Provide on Customers’ Mobile Phones are as Follows

2.1.1 Checking the personal account balances
2.1.2 Observing the last several financial transactions on customer’s account
2.1.3 Billing request
2.1.4 Ordering the money transfer from an account to another
2.1.5 Cheque Book request [5]

The use of new technologies by people has been increased in recent decades. However, it should be noted that the rise of all technologies has not been welcomed by people. According to studies, the trust in security of applied technology for solving the everyday life problems has played an important role in use of new technologies by people.

The reliability is another factor affecting the acceptance of IT services. The reliability means the credit of a system and also the ability to perform transfer and transactions [6].

In the field of mobile banking, the recent studies have proved that the perceived reliability is significantly associated with bank customers’ acceptance [7]. Therefore, the banks with more service reliability will attract more customers.

The intelligent transportation system (ITS) refers to the application of Information and Communication Technology (ICT) to improve the performance of transport system. “ITS term means a set of tools, facilities and expertise such as the traffic engineering concepts, and software, hardware and telecommunication technologies which are used in coordinated and integrated manner to improve the efficiency and security in the transport system”.

2.2 The Most Important Functions of Intelligent Transportation System

2.2.1 Management and optimization of traffic flow and making it calm
2.2.2 Management and control of accidents
2.2.3 Management and support of emergency vehicles
2.2.4 Management of obtaining the electronic tolls, parking fees, ticket purchase and reservation, etc
2.2.5 Control of light and heavy transport
2.2.6 Advanced management and navigation
2.2.7 Management of public transport
2.2.8 Management and support of pedestrians, etc [8].

According to the above-mentioned cases, the banks can play major roles in urban transport. Therefore, the integration of mobile bank system can significantly affect the development of intelligent transportation, and
also the banks attract more customers.

The simple and convenient use of banking services such as mobile banking, internet banking, etc. is one of the most important factors in attracting the customers in banks. This ease of use needs proper education for account holders through different ways. A bank may not sufficiently provide its banking services due to the large number of customers and the lack of proper education for them.

Customer education for optimal use of banking services is an important issue in attracting the customers and achieving the reliability. Therefore, the customers should be encouraged to accomplish their daily banking affairs by mobile banking through proper education and necessary explanations.

3. Research Method

This research is suggested as an applied idea and we hope that it will be easily utilized by the public through removing its deficiencies by professors. The use of mobile bank is increasing and if the banks include the public demands in this software, a majority of people will take the advantage of it. However, it should be noted that the volume of this software should not be too high because it confuses most of the people and thus they abandon this technology.

Therefore, it is suggested utilizing the mobile bank in widespread public uses such as the public transportation. It should be noted that the accurate taxi fare payment to drivers often causes discontent between passengers and drivers, so a new system called the “Taxi intelligent system” was introduced to taxi organization but unfortunately it was not welcomed.

3.1 Evaluation of Deficiencies in Taxi Intelligent System

P.O.S (Point Of Sale) device is one of the most important sectors of taxi intelligent system. It is designed by Eb Company in South Korea and can be used to receive the passengers’ taxi fares. This P.O.S can be utilized to pay the fare via the passenger or designed card and is designed to display different information such as the travel distance, amount of fare, and so on. It also displays the map of city, and current location on the map, so that the drivers can enter the travel destination and use the routing capabilities of this device [2].

The use of taxi intelligent system is a new evolution in public transportation fleet and it is now implementing in different cities over time. This system has numerous features which have solved most of the problems arisen for taxi passengers and drivers.

The taxi intelligent system has features such as the automatic calculation of taxi fare, electronic payment of fare, and fare payment to driver’s bank account and also includes an incentive package for driver and passenger. The advantages of taxi intelligent system include the calculation of fare according to the passenger’s travel distance and time, solving the problem of lack of cash, saving time and spending less energy to get the fare, the possibility of accurate calculation of driver and owner’s portion of fare, routing, increase in security, queue and notification system, MTN recharge card sales, notification of car crashes, and request for discharge [3].

Despite the fact that the taxi intelligent system is a new way to pay the taxi fare by passengers, unfortunately it has not been welcomed by taxi drivers and passengers because taxi drivers have to pay to use this intelligent device and it is not cost effective for them; on the other hand, a majority of drivers are dissatisfied with route costs and do not often use this device. Furthermore, the people have not paid much attention to it and think that the cash payment is an easier and faster way.

4. Data Analysis

According to Data Monitor research, the UK, Germany, France, Italy and Spain run about 73 percent of their business on mobile trading in Europe until 2004. In Italy, which has the most progress in mobile phones among the five countries above, the mobile banking overtook the internet banking since 2004; and Woolwich Bank in the UK as a pioneer bank in providing the micro-scale banking services via mobile phones has attempted to develop the WAP-based services. According to WAP project manager in this bank, the WAP Banking is defined as follows: Not only the WAP Banking gives the permission to mobile phones to access to traditional banking services, but also reorganizes the business model (of banks) to facilitate the affairs and increase the customers’ ability to do their transactions [9].

There are not any significant differences between the provided services of software for mobile banks in the pioneer countries with our country; hence, the use of mobile bank in intelligent transportation can be a new step in mobile banking services.

Despite the fact that the use of Taxi intelligent system is considered as a major step in the public transport
fleet, unfortunately it has not been welcomed yet. Therefore, we should first implement a system with lower cost than the Taxi intelligent system in order to institutionalize this system in our country.

The cost of purchasing and installing a new system should be first economical for taxi driver in order to be welcomed in the taxi fleet because the rate of welcoming the new technology by job owners is the most important stage in use of new technology in a traditional job.

After taxi drivers’ acceptance of using a new system, the passengers should be convinced to utilize this new method for taxi fare payment in order to be widely welcomed in the shortest time.

As we are now seeking to make our country developed by application of new technologies, we should first remove the past shortcomings and provide the preparations for new development by small steps. Therefore, it is suggested using the mobile banks to pay the taxi fares.

You may have the experience of sitting in a taxi and realizing that your wallet is missing or there is not enough taxi fare in your pocket, so you had to get out of taxi and apologize and walk a long distance to get to your wallet. As most of the people have smart phones, and do not miss their mobile phones in our country, the use of mobile bank for daily payment is the best way to overcome forgetting the wallet [10]. On the other hand, due to the increased public use of mobile phones, the banks are seeking to design multiple services in their mobile banks in order to attract more people to this software.

The exact taxi fare payment to taxi drivers is one of the important issues which will be solved by mobile bank because it is one of reasons for verbal conflict between passengers and drivers and these conflicts can be reduced by such software.

The use of mobile bank for passengers’ fare payment has a very simple method. On the other hand, the first bank, which takes this step, can be the first party of contract with taxis organization and attract more customers. When the banks add a section for fare payment in this application, the passenger uses it for distance payment; and pays his fare by inserting the taxi driver code which should be referred to applicant drivers by bank.

After designing this software, the taxi drivers have to get their taxi codes from the bank; on the other hand, the banks should provide the preparations for public use of mobile bank by providing the taxi codes to taxi drivers. This part of software should include the amount of fare and taxi driver code. For payment, the passenger asks the driver the fare payment code at the time of getting out of the taxi, and then enters the fare figure via the mobile bank installed on his own mobile phone, and finally sends the figure.

After utilization of this system in taxi organization, the fraudsters probably try to design the similar software. Therefore, it should be avoided by sending SMS or display on taximeter as the immediate payment in order to make drivers comfortable. Passengers can also pay the figure to driver’s account if he does not use the taximeter.

Furthermore, the taxis which use the intelligent system can solve the problem of passengers who have missed their wallets by a section added to monitoring taxi system in which the passenger can pay the fare by inserting his bank card number and then the second password.

4.1 The Advantages of Mobile Bank for Taxi Fare
4.1.1 It increases the turnover of bank account.
4.1.2 It reduces the cash transfers.
4.1.3 In the case of passengers’ complaint about their fare, they can take measure by this document.
4.1.4 It is a step towards electronic country.
4.1.5 The drivers’ worry about the lack of coins will be overcome.
4.1.6 If a passenger misses a thing in a taxi, he will be able to find it by driver code.
4.1.7 The lower cost of than the Taxi intelligent system
4.1.8 The conflicting drivers will be more willing to use the taximeters.
4.1.9 People are led towards greater use of mobile banking services.
4.1.10 Pioneer bank in this field will earn more profit than other banks.

4.2 The Disadvantages of Mobile Bank for Taxi Fare
4.2.1 Sending a text message to drivers brings charge.
4.2.2 The rate of cash payment is higher.

5. Conclusion
According to the above-mentioned description, the utilization of modern methods has always been relatively controversial, but we should persuade most of the traditional systems towards the use of technology to take steps towards the progress. The use of mobile bank is one of the ways to make progress in banking; and most of the problems in traditional methods can be solved by its
integration into any organization.

The use of mobile bank for taxi fares may not solve the entire problems of taxi organization, but it may be a major step in its optimization. Meanwhile, the taxis which have not used the intelligent system or not shown any interest yet, can leave the traditional method of fare payment by this system which has lower cost. This will be possible and welcomed in a society where most of the people have smart phones.

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