

SMS Banking in E-governance

Vikas Chandra Pandey
Lect. of IT Department
Dr. C.V.R. University
Kargiroad, Bilaspur(C.G.)
Vickichp@gmail.com

Pooja Agrawal
Lect. of IT Department
Dr. C.V.R. University
Kargiroad, Bilaspur(C.G.)
pooja_agrawal148@yahoo.com

Suresh Kashyap
Lect. of IT Department
Dr. C.V.R. University
Kargiroad, Bilaspur(C.G.)
Suresh.k1718@gmail.com

Minakshi Agrawal
Lect. of IT Department
Dr. C.V.R. University
Kargiroad, Bilaspur(C.G.)
minakshi.20@gmail.com

Abstract- According to the Euronet mobile Banking Guide, there are currently close to 400 Mobile Operators in over 133 countries who are signing up 4 to 6 new customers every second. This implies that more people are going mobile like never before. The novel method presented in this paper is an Interactive SMS Banking Agent that is incrementally scalable for banking operations. Hence, a mobile banking solution called SMS Banking that allows people to bank with their mobile phones is presented in this paper.

Keywords: Banking services, Agent, SMS, Network, and GSM.

I. INTRODUCTION

SMS Banking is a Mobile technology that allows you to request and receive banking information from your bank on your mobile phone via Short message service (SMS). Individuals or corporate bodies can manage their bank accounts, check their account balances, perform check requests, money transfers, pay some bills, and perform other banking transactions using their mobile phones. There are two methods of SMS widely used in applications; they are the PUSH & PULL.

Push SMS is sending a message from an application (i.e. SMS Server in this case) to the Mobile Phone. It is a one way message. In other words, it's the mobile application (in this case, the SMS banking application) that initiates a message. An example could be a deposit alert, which alerts the user when a deposit is made to his/her account. Pull SMS is sending a request and obtaining a reply. This is a full duplex scenario where a user sends a request to the SMS banking application and the application replies with the information requested. An Example is when a user requests his bank account balance.

II. WHAT IS SMS BANKING?

SMS banking is a particular way of doing banking activities, like Debit and Credit Alert where customer will get a message alert whenever a debit and credit transaction will occur and end of the month there will also be a message

alert about the total balance. In other words, SMS Banking is a Mobile technology that allows requesting and receiving banking information from the bank on the mobile phone via Short Message Service (SMS). Individuals or corporate bodies can manage their bank accounts, check their account balances, perform check requests, money transfers, pay some bills, and perform other banking transactions using their mobile phones. There are two methods of SMS widely used in applications; they are: 1. PUSH 2. PULL. 1. Push SMS is sending a message from an application to the Mobile Phone. It is a one way message. In other words, it's the mobile application that initiates a message. An example could be a deposit alert, which alerts the user when a deposit is made to his/her account. 2. Pull SMS is sending a request and obtaining a reply. This is a full duplex scenario where a user sends a request to the SMS banking application and the application replies with the information requested. An Example is when a user requests his bank account balance.

III. THE NEED FOR SMS BANKING

The telecommunications industry worldwide has scrambled to bring what is available to networked computers to mobile devices. Presently, the use of electronic banking is considerably high and as more and more users sign up for electronic-banking, the maturity as regards remote banking is on the increase. With electronic banking, users can now conveniently carry out banking transactions, but this convenience cannot be achieved if the user does not have access to the internet, hence, in other words, the user cannot carry out a banking transaction while waiting for a bus, or perhaps while having lunch in a restaurant. With SMS banking, convenience can be achieved 24hrs a day. This is because a user has access to his mobile phone all day, at all times. So, to effectively achieve a truly convenient banking mode, a truly mobile mode of banking has to be explored, hence the need for SMS Banking

IV. HOW SMS WORKS

SMS stands for Short Message Service; it's a mobile technology that allows for sending and receiving text

or even binary messages to and from a mobile phone. The relative ease of use of SMS makes it possible for a user to learn how to send SMS easily. More than 160 billion SMS are exchanged each month in European countries (Mavrakis, 2004). SMS use the GSM special signaling channel instead of the voice channel and is therefore a very reliable media channel. MAVRAKIS, 2004 identifies two types of SMS which can be classified by the origin of the message

- *Mobile Originated (MO)*: SMS-MOs' are sent from a mobile phone and could be sent either to another mobile phone (such when a mobile subscriber sends a personal message to another subscriber) or to a computer application that will process the message.
- *Mobile Terminated (MT)*: SMS-MTs' are transmitted to a mobile phone. They also could be sent by another mobile phone or generated by a computer application.

The SMS processing computer applications usually runs on corporate servers that are connected to the SMS network through specialized connectors and gateways connected to the SMS Centers of mobile operators (Mavrakis, 2004). These servers are assigned short numbers instead of the traditional 10-digits mobile numbers. These numbers, also known as short codes are usually 4 to 6 digits long. These numbers are operator specific. Also, a premium fee (a fee other than the fixed rates for SMS) can be charges on these short codes; in other words, users would pay more for sending SMS to short codes.

V. SMS BANKING IN INDIA

It is a new concept in India. SMS (Short Message Service) Banking is the most convenient, low-cost and quickest way of banking. This service will enable the customers to check account balance, stop a cheque payment or even get statements at their fingertip. In our country people can only check their balance in their accounts and also view their debit -credit transactions. Office/ Branches whereupon a PIN will be sent to them. Only a registered customer (account holder) along with his mobile number verified by the PIN is authorized for SMS Banking.

VI. IMPLEMENTATION OF MOBILE /SMS BANKING SYSTEM IN THE BANK

SMS stands for Short Message Service; it's a mobile technology that allows for sending and receiving text or even binary messages to and from a mobile phone. The relative ease of use of SMS makes it possible for a user to learn how to send SMS easily. More than 160 billion SMS are exchanged each month in European countries. SMS use the GSM special signaling channel instead of the voice channel and is therefore a very reliable media channel. MAVRAKIS, 2004 identifies two types of SMS which can be classified by the origin of the message:

Mobile Originated (MO): SMS-MOs" are sent from a mobile phone and could be sent either to another mobile phone (such when a mobile subscriber sends a personal message to another subscriber) or to a computer application that will process the message.

Mobile Terminated (MT): SMS-MTs" is transmitted to a mobile phone. They also could be sent by another mobile phone or generated by a computer application. The SMS processing computer applications usually runs on corporate servers that are connected to the SMS network through specialized connectors and gateways connected to the SMS Centers of mobile operators (Mavrakis, 2004). These servers are assigned short numbers instead of the traditional 10-digits mobile numbers. These numbers, also known as short codes are usually 4 to 6 digits long. These numbers are operator specific. Also, a premium fee (a fee other than the fixed rates for SMS) can be charges on these short codes; in other words, users would pay more for sending SMS to short codes. In order to avail the services mentioned above, a user subscribing to a wireless carrier sends an SMS with a predefined code to the bulk service provider's number.

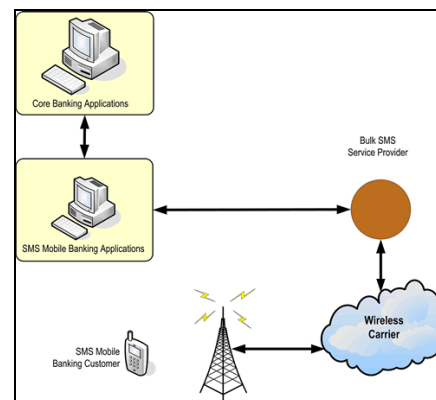


Figure: SMS Banking Process

The service provider forwards this message to the bank's mobile banking applications. The mobile banking

applications interface with the core banking servers (that contain the user account information) that service the request made by the user. The response is then sent by the mobile banking applications to the bulk service provider who in turn forward it to the valid user via SMS. SMS banking services implemented with message allow customers to access their accounts using any standard mobile phone device. Customers can carry out a range of banking tasks, e.g. to view account balances and transactions, pay utility bills, top up pre-paid mobile phones, by sending a „Pull“ SMS message request to the bank. Customers are also notified of account activity and other bank advices and confirmations are sent automatically by SMS. Alerts are generated on predefined events such as salary credits, account transactions or ATM withdrawals and a choice of other banking events. This provides an effective safeguard against suspicious activities which can be immediately queried by the customer. Banks also use the messaging platform as a customer communication tool, e.g. for marketing activities.

VII. ADVANTAGE AND DISADVANTAGE OF IMPLEMENTING MOBILE BANKING

The use of mobile telephone is rapidly growing in India and most of the services can be accessed through mobile phone these days. The potential for SMS banking is also growing and bank enable mobile banking to their customers. One of the featured delivery channels is SMS banking, which provides customers with 24-hours banking service via text/short message service (SMS). Alongside such core transaction as money transfer, SMS banking also delivers various account-related information including remaining balance, interest rate, new products, as well as bill payment capability and purchases of assorted consumer service in compatible with any SIM card. SMS Banking is the most familiar way to inform customers about their bank information.

VIII. ADVANTAGE OF SMS BANKING

The SMS banking system throughout the world enables the following Functions to their mobiles customers:

- Cheque Status Inquiry
- Mini Statement (transaction history)
- Today's Transaction of an account
- Stop Payment of a cheque
- Exchange Rates Inquiry
- Interest rates inquiry

- Fixed deposit interest rates inquiry.
- Stock Exchange Information
- Contact Number of Any branch
- ATM Location
- Changing of password
- Fund transfer and Multiple account credit
- Fund transfer and third party credits
- Transfers between customer's own accounts, like moving money from a savings account to a current account to fund a cheque
- Shopping/ Purchasing items
- Utilities payments and other bill payments
- Requesting for an ATM card or credit card to be suspended
- De-activating a credit or debit card when it is lost or the PIN is known to be compromised
- Advertising system (exchange rates, loans, and deposits), etc.

IX. DISADVANTAGE OF SMS BANKING:

- Mobile phones lack the level of anti-virus and personal firewall protection now considered standard on PCs.
- The browsers that run on mobile phones must work on a very small screen. As a result, banks must create "mobile-friendly" sites that work more efficiently in cramped quarters. Even with such accommodations, the number of clicks required to complete a task can be prohibitive.
- WAP banking requires a smart phone or a PDA, but such devices represent less than 10 percent of the phones in use. Even if a customer has a WAP-enabled phone, he or she can elect not to sign up for the more costly data plans required for Internet access.

- The lack of encryption on SMS messages is an area of concern that is often discussed.
- Supporters of SMS claim that while SMS banking is not as secure as other conventional banking channels, like the ATM and internet banking, the SMS banking channel is not intended to be used for very high-risk transactions.
- The attacker can view critical user information like account details of a valid user that can be used to carry out further attack. Also it will result in unsolicited SMS to be sent to the user. This can lead to the user believing that someone is requesting his account details on his behalf which in turn will lead him to cast aspersions on the security controls employed by the application. As a financial institution prepares for the mobile banking revolution, it must weigh the advantages and disadvantages of these various solutions to decide which one best meets the needs of its customers and its own technology infrastructure.

X. THE EFFECTS OF MOBILE/SMS BANKING ON THE E-COMMERCE

It works on virtually every cell phone, regardless of manufacturer, model or carrier. It accommodates two-way communication, allowing messages to be initiated by banks or by customers. The customer of bank can have their Accounts statement in details or view the balance status in their mobile through SMS they do not have to visit the bank physically for getting this information. Even there is no such thing to standing in a queue. Sending text messages is relatively cost-effective. This is how SMS Banking allows the users to reduce the costs of performing a banking transaction, relatively lower cost of accessing information. Especially for the customers, who are business man SMS Banking enables them to view balance information at anytime whenever they need. The bank sometimes sends SMS to the customers regarding their other bank facilities or new offerings through SMS Banking. Customers can also know the location of nearest ATM boot. Bank provides their users the contact number of any branch as per request of the customers. Customer can get the Cheque status inquiry, mini statement, Exchange rate inquiry, Stock change inquiry and many more. The banks also provide the Stock Exchange information through SMS. It allows customers to access his/her banking information from anywhere, as long as he/she has network coverage on his mobile phone. In essence, SMS Banking brings the information to the customer by bringing the customer to the information.

XI. PROBLEM THE BANKS ARE GOING TO FACE WITH THE HYBRID SYSTEM

Since the reported failure of dotcom companies, the argument that ecommerce will replace traditional business model is not supported, While dotcom companies are struggling to gain competitive advantages in the non-linear and rapid change of business environment, much attention has shifted from pure play Internet based business model to hybrid business model. The hybrid business model is also known as “multi-channel commerce”, “bricks-and-clicks” or “clicks and-mortar”. It focuses on maximizing the competitive advantage from the combination of both the web channel and the physical channel. This multi channel commerce raises the cost of a bank with also time consuming because bank has to maintain the physical and virtual both of the system at the same time. Because there are few customers who likes to do the transaction by physically going to the bank. There are some customers who like to do the transactions in online virtual system.

XI. CONCLUSION

As we know anything good in this world have also its bad sides. In the same way SMS banking has also its advantages and also disadvantages. It is obvious that SMS banking is the future of banking technology and SMS banking would play an important role in the creation of a cashless economy, what is left is for us to recognize this fact and utilize it. DBBL has earned a lot of advantages by providing the SMS banking facilities. It works on virtually every cell phone, regardless of manufacturer, model or carrier. It also accommodates two-way communication, allowing messages to be initiated by banks or by customers. As customer of DBBL can have their Accounts statement in details or view the balance status in their mobile through SMS they do not have to visit the bank physically for getting this information. Even there is no such thing to standing in a queue. In the other side with the facility of SMS banking the attacker can view critical user information like account details of a valid user that can be used to carry out further attack. Also it will result in unsolicited SMS to be sent to the user. This can lead to the user believing that someone is requesting his account details on his behalf which in turn will lead him to cast aspersions on the security controls employed by the application. Last but not least we can come to the point that SMS banking can provide us wide range of facilities compare to the disadvantage. So our Government should take necessary steps to improve SMS banking. ABC Knowledge Center |

ACKNOWLEDGMENT

The authors would like to take this opportunity to thank Suresh Kasyap for his invaluable peer review and editorial work on this article. Her insights were truly appreciated and

this paper would not have been possible without her assistance

REFERENCES

- [1] Koneru, I. 2007 "e-Governance: Empowering Citizens through e-Inclusion 2.,"The Icfai Journal of Governance and Public Policy, Vol. 2, No. 3, pp. 53-68.
- [2] Lal, Bhavya. 1999 "Information and Communication Technologies for Improved Governance", African Development Forum ADF '99.
- [3] Modan, S. 2004 Evaluating the Developmental Impact of E-Governance Initiatives: An exploratory framework, The Electronic Journal on Information Systems in Developing Countries, 20, 5, 1-13 ,<http://www.ejisdc.org> 2007
- [4] Mohammad Shakil Akther, Onishi, T. and Kidokoro, T. E-government in a developing country: citizen-centric approach for success," Int. J. Electronic Governance, 1, No.51.
- [5] Pitroda, S. 1993 "Development, Democracy, And The Village Telephone", Harvard Business Review Nov/Dec93, Volume 71, Number 6 Rogers Okot-Uma. 2000 "Electronic Governance: Re- inventing Good Governance," August,
- [6] Secretariat, London, UK, page 5 Rosell, Steven A. 1995 Changing Maps, Governing in a World of Rapid Change. Carleton University Press. 1995 p. 252 Saxena, K.B.C. 2005 "Towards excellence in e- governance," International Journal of Public Sector Management, Volume: 18 , Issue: 6, pp 498 – 513
- [7] Tapscott, West and Agnew, West. 1999 "Governance In Digital Economy," Finance and Development 14.