ENHANCING THE CURRENT AUTOMATED TELLER MACHINE (ATM) IN NIGERIAN BANKING SECTOR
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Abstract
The Nigerian Banking sector over the years has been experiencing significant changes and development in its Information and Communication Technology. Among the development is the introduction of Automated Teller Machine (ATM) that has seriously decongested the banking halls as customers now can go to any nearest ATM outfit to withdraw money instantly. The major setback is that customer(s) cannot deposit money and send it to someone at different location. The main problem this paper wants to address is coming up with a framework that allows customer(s) to deposit some amount of money into his account and later transfer the amount to another account(s) or deposit the money directly into another person’s account over the ATM network, this can be within a particular bank (intra bank) or involving different banks (inter-bank) in addition to the current transactions customers make using the ATM. This is going to be achieved by creating another input device that collects the money into the ATM system, reads its denomination and either saves it or transfers it the required customer account. The work is limited to the software component of the ATM system. Enhancing the ATM to provide means for deposit will further decongest the banking halls thereby enhancing efficiency in the day-to-day running of the banking system.

Keywords: Automated Teller Machine (ATM), Interswitch, Local Area Network (LAN), Wide Area Network (WAN), Telecommunication.

Introduction
Many ATM definitions were given, the Wikipedia, (2009) defines An Automated Teller Machine (ATM) as a computerized telecommunications device that provides the customers of a financial institution with access to financial transactions in a public place without the need for a human clerk or bank teller. On most modern ATMs, the customer is identified by inserting a plastic card with a magnetic stripe that contains a unique card number and some security information, such as an expiration date. Security is provided by the customer entering a personal identification number (PIN). Using an ATM, customers can access their bank accounts in order to make cash withdrawal and check their account balances.

Banking Sector and ATM in Nigeria
According to Aminu (2010), In Nigeria, the ATM was introduced in 1986 by defunct Societe Generale Bank. In October 2003 Interswitch ATM system took off. When it was first introduced, it was meant to reduce the unnecessary traffic in the banking hall, make customers have a quick access to their money and make life convenient to a certain level.

However, according to Ayo et al., (2010) the situation today has changed drastically; it has become a source of worry to users and providers (banks), because the function it was meant to provide has been eroded seriously. It has become a money wheel for fraudsters, who have found new heaven in compromising innocent people’s personal identification numbers (pin).

ATM behavior can change during what is called “stand-in” time, where the bank’s dispensing the cash is unable to access databases that contain account information (possibly for database maintenance), that is when there is network problem. ATMs at times can also deduct money from the account without actually dispensing money; these among others are the bane of this money spinning machines.

With all the problems and incompetence of this money spinning machines in Nigeria; we can say it has recorded little success.

Statement of the Problem
ATM can be improved to allow customer(s) deposit some amount of money and later transfer that money to other customer(s) account(s) either in the same bank (intra bank) or in different bank (inter-bank), this will further decongest the banking hall and improve customer(s) satisfaction.

Aim and Objective of the Research

The aim is to come up with a new framework that allows customer(s) to deposit some token for another customer in different location over the ATM network.

The objective is to explore the various shortcomings of the current ATM facilities with a view to coming up with another framework that further decongests the banking halls in Nigeria.

ATM System Architecture

According to Aminu (2010), an ATM is simply a data terminal with two input and four output devices. Like any other data terminal, the ATM has to connect to and communicate through, a host processor. The host processor is analogous to an Internet service provider (ISP) in that it is the gateway through which all the various ATM networks become available to the cardholder (the person wanting the cash).

As in the case of much large system, there are a range of components and connection involved in the ATM networks. All connection involved in the ATM network are point-to-point, with traffic being switched through the network by the switching nodes.

The block diagram of an ATM is thus:
Related Works

In an attempt to further drive the penetration of ATM card usage in the country, Nigerian Banks have introduced another formula to push the electronic payment cards on bank customers and at the same time, make extra cash.

Some of the old-generation banks, customers, especially those opening new accounts now have to fill out ATM forms alongside the account opening document. This formula leaves the customers with little or no choice on whether to accept the ATM or not, even the account may not be open further (Aminu, 2010).

According to Aminu (2010), In the last four years, since Nigeria’s e-payment switching company, Interswitch, made its debut, the ATM market in Nigeria has exploded. The market is estimated to have approximately 7,000 ATMs, 75 percent of which are owned and operated by financial institutions. Only 25 are operated by independent deployers like Consortium Ltd., SmartPAY Ltd. And ATMOne, even though independent deployers can run ATM networks more cost effectively than Financial Institutions.

The advantages according to Aminu (2010) for consumers are obvious, with greater access to cash; the market may be approaching its saturation mark much sooner than anticipated. A scenario to support this theory was first made public by respondents in a recent survey. According to the survey, market saturation will only diminish revenue for the banks as acquisition and maintenance costs continue to rise for those which deploy and maintain their own networks.

The unfavourable scenario can be avoided if banks focus on using the ATMs for more than basic cash dispense. Windows-based ATMs have the capacity to process more complex electronic transactions than their legacy counterparts. If properly deployed and harnessed, these terminals could easily be transformed into mini-branches for Nigerian banks.

Likewise Adewale (2008), proposed that the use of the Automated Teller Machines popularly known as ATMs is not a new technology. It has been in use in most third world countries many years back. All thanks to the banking reforms which brought the use of ATMs to the doorstep of Nigerians. The use of these cash dispensers wherever they are being used in any country of the world is always a win-win situation both for the bank offering the service and the customers that makes use of the machines. However, this is not the same in the post-reform Nigerian banks.

Recently, Aminu (2010) tried to come up with some practical solutions to some of the problems facing the ATM in Nigerian Banking sector, but did not mention the possibility of intra and inter-bank instant money deposit into another person’s account.

System Design

The proposed ATM framework shows some activity diagrams, sequence and class diagrams. First, the algorithm is shown below:

i. Insert your ATM card

ii. The system asks your PIN number

iii. The system authenticates your PIN number

iv. The system displays the type of transactions on the screen

v. Choose the deposit money transaction

vi. Start inserting money into the money reader

vii. Press OK when you finished

viii. Type the customer’s bank

ix. Type his/her account number

x. Press OK

xi. The system prints a message that some amount has been transferred successfully.
Figure 3: Activity diagram for the enhanced ATM
Figure 4: Sequence diagram for the enhanced ATM
Results and Discussion
Enhancing the capability of the current ATM operations to accommodate depositing some token to some one especially on emergency over the weekend or at night in different location further decongests the banking halls. Something worth mentioning is convenience, as customer(s) who want(s) to deposit money need(s) not to rush in going to the bank before the closing hour.

Conclusion
In this paper, a new framework is designed to enhance the current ATM operations in Nigerian banking sector to allow customers deposit money and transfer it to another customer in either the same bank or different bank over the network instantly using an ATM. Further work needs to be on improving the ATM security to overcome the activities of fraudsters and hackers.

References


