

Digital Cheque Clearance System

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Abstract - Recent years have seen a tremendous increase in e-commerce transactions. The success of e-commerce relies on developing adequate payment technologies. One such technology is e-Cheque. Banking sector is considered the heart of an economy, integration of the banking and the information technology benefits the consumers in many aspects with respect to time, cost and operational efficiency. This article attempts to explain how digital cheque clearance system should be used instead of paper cheque and how e-cheque benefits the bank sectors.

Key Words: E-cheque, Digital cheque clearance, e-banking, paper cheque

1. INTRODUCTION (Size 11, Times New Roman)

An e-Cheque is an electronic document which substitutes the paper check for online transactions. Digital signatures (based on public key cryptography) replace handwritten signatures. Digital cheque system reduces the efforts of human to make the records of manual cheque and also reduces the paper work and ensures the payer that the payment is received by the payee. Digitize cheque clearance system maintains the integrity of the system and enhances the security thus no third party can tamper with the data. Traditionally Manual cheque clearance system was so time taking process as it often took a week to complete the process of receiving the money in the recipient's account.

2. Literature Review

As Manual, Cheque transaction is very time taking and a digital cheque clearance system makes this process easy and faster. The main focus is on:

1. Fast transaction.
2. And reduce the manual processing

There is an abundance of literature to know the benefits of a digital cheque clearance system and the limitations of a manual cheque clearing system. As many papers

have been published to replace the manual cheque with e-cheque. Therefore, the following literature review will be focusing on recent papers that discuss developing e-commerce in the banking sector and follows the digitization in the cheque clearance. Efforts have been made by researchers in recent years to model the ECCS in various countries (Khiaonarong, 2000; Jresat, 2007; Al Shibly, 2011; Sreedevi, 2013) which have indicated that the model applied in countries vary considerably. For example, Sreedevi (2013, pp. 185) modeled the ECCS in India which is different from the model adopted by banks in Thailand as studied by Khiaonarong (2000).

Roth, (2010) observed that developed countries of the world, to a large extent, are moving away from paper payment instruments toward electronic ones, especially payment cards. Some aspects of the functioning of the cashless economy are enhanced by e-money, e-exchange. These all refer to how transactions and payments are affected in a cashless economy (Moses-Ashike, 2011).

Al Shibly (2011, pp. 463) also defined the automatic clearing of a bank cheque as the extraction and recognition of handwritten or user entered information from different data fields on the cheque such as courtesy amount, legal amount, and date.

Researcher Ms. Sreedevi (2013) has already initiated the solution to this problem. She defines an online image-based cheque clearance system where the image of that particular cheque is used without movement of a cheque.

Rachna Rachna (2013) describes that electronic payment system is the basis of online payments and it makes the electronic payment easy as we can do at any time, there are no restrictions. She also describes the risk to the online payments are theft of payments data, personal data and data breaching and tampering of the data in the middle of payment on the part of the customer.

Hrishikesh Samant, Akshay Gaikwad, Vivek Ingale, Harsha Sarode (2013) describes in their research paper Cheque Deposition System Using Image Processing & TCP-IP Protocol: Use of image processing in cheque deposition can reduce the manual efforts, time and also

become cost-effective. Paper cheques are still used widely for non-cash transactions even after the implementation of credit/debit cards and other means of electronic transactions. In many countries including India, the cheque processing procedure requires a bank employee to read and enter the information on a cheque. A large number of cheques has to be processed every day, an automatic reading system can save much of the work. Even with the advent of successful character recognition algorithms, it is still difficult to recognize handwritten information. So they describe the usage of specially printed cheques for their system.

Sukhdeep Kaur(March 2018) explained that the usage of e-commerce in the banking sectors and the benefits of e-cheque. To study the modes of e – payment system. To know about current and future scenarios of e-payment system. To make the comparison between traditional and electronic payment systems. In the research paper, she explained the key facts of using the e-cheque over a manual cheque.

Alexander Ekow Asmah, Joshua Ofoeda, and Ken Gyapong(June 2018) explained the e-cheque clearance system in Ghana. Clearing cheques in Ghana follows five sets of processes captured as the Pre-Conversion, Conversion, Security, Transaction, and Storage. The cheque truncation process in Ghana is not without problems. With an increasing interest in the usage of cheques, the manual process of reviewing the handwritten instruments makes the process tedious to manage and requires automation based on the pattern recognition approach.

2.1 Research Methodology:

We proposed the system that is the alternate of the manual cheque processing system. Manual cheque processing is a time taking process it has some disadvantages:

1. The person who receives a cheque they have to wait for the cheque clearance.
2. Sometimes cheques bounce due to writing problems and signature matching

A Manual cheque clearing system involves the various parties so that data can be tampered in between this. There is not full security of the data that it wouldn't be tampered in between the processing of cheque clearance from bank to bank.

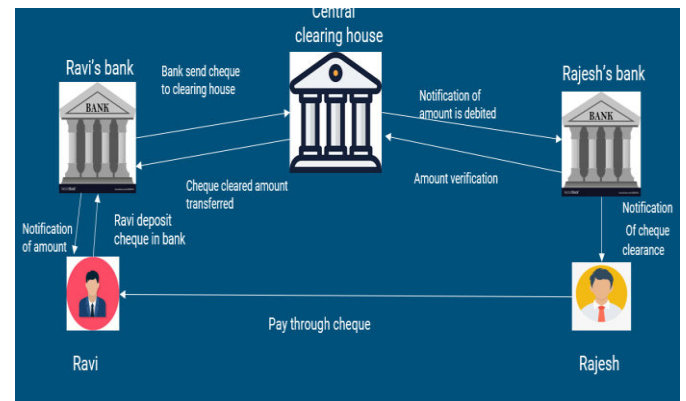


Fig -1: Figure showing the Manual cheque clearance system

To resolve all such problems in a manual cheque process. We proposed a system that resolves all such issues and provides a better gateway to processing the cheque via a digital cheque clearance system.

we try to provide a cheque clearance facility to the person who uses the cheque for a transaction

1. **E-cheque:** This cheque is similar to the physical cheque. It contains the time, date, amount, both parties' names, and unique IDs of the transactions.
2. **E-drop:** This is a digital dropbox to drop the cheque from home or any other place without going to a bank. This dropbox is a database that stores the transaction detail and modifies the amount after the transaction.

This system helps to perform a transaction faster and without going through a large process. This also helps the banking system to process the cheque faster. People easily get rid of the issues of cheque bounce and other manual filling problems. Manual work gets reduced in this cheque processing.

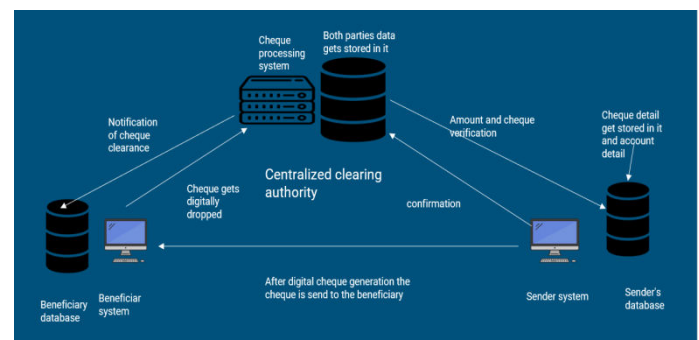


Fig -2: Figure showing the Design of Digital cheque clearance system

The system design shows how the particular data flow throughout the system. In this, there are three databases this one for the sender, the second for the receiver, and the other for central processing. In this the user generates the cheque digitally then they send it to the receiver and then the receiver database stores this data before the clearance. Then the central server verifies the cheque by the sender (who gives the cheque to the receiver) and then the cheque gets digitally dropped and the amount gets transferred to another account.

3. CONCLUSIONS

We proposed a system in which the manual cheque processing is replaced by the digital cheque clearance system in which digitally cheque is generated and then by verifying the credentials of the payer and the receiver's account the cheque gets cleared. This system is one step towards digitization. In this, the whole process is done digitally without any manual work in a bank.

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