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Duplicate and fake currency note tracking in Automated Teller Machine (ATM)

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Abstract: In this modern age we all aware about the Automated Teller Machine (ATM) and Cash Deposit Machines (CDM). However the problem like fake note detection is not perfectly solved. This paper suggests a simple algorithm to be implemented in the Automated Teller Machine (ATM) to detect the fake notes in ATM across the country. The proposed algorithm makes ATM more efficient and reliable system.

Keyword: Automated Teller Machine ATM, Fake note, Deposit, Currency Test, Cash deposit machine CDM, Cash Withdrawal.

I. INTRODUCTION

ATM machine made money withdraw process a very easy task. ATM machine proved successful due to its simple operating process. In addition to ATM many ideas and projects have been suggested and design for the Cash Deposited Machine (CDM). Both i.e. ATM as well as CDM machines is flexible for Bank and their depositors. We may observe that people are moving toward ATM machine and now a day's becomes habitual. This study finds that customer face main problem of fake currency note withdraw from the ATM machine and Banks refused to accept the truth that customer gets those notes from their ATM machines. This paper deals with the elimination of fake note problem in the ATM machine and CDM machine itself. In section II we discuss the existing ATM machine**.** Section III discusses the proposed system. Section IV discusses the advantages of proposed system and section V describes related future work.

II. EXISTING ATM MACHINE

An ATM system is a real-time front terminal of automatic teller services with the support of a central bank server and a centralized account database [1]. The existing machine is simple in operating which follows basic step s that includes insertions on ATM card in ma chine- enter PIN-select money to be withdraw-exit. A TM machine also offers check deposit facility, the amount to be deposited by cheque is asked by AT M machine and then check is to be deposited i n the cheque box. In addition to these, according to [2] State Bank of India has recently launched a new ATM machine named **"Bunch Note Accept"** which is imported from US which costs 14Lakhs per machine. The feature of this machine is that user logins with the traditional method using the debit card and the opts for Deposit. Then the deposit counter is opened and requests the currency to deposit. The denominations accepted by the mach ine are 100s, 500s and 1000s.

The Algorithm and Flow Chart fo r existing ATM transaction is as follows:

Step 1. User accesses his account using Debit card through ATM machine with help of PIN.

Step 2. ATM machine reads this card and check it with Bank server.

Step 3. And now ATM waits to enter the transactions request.

Step 4. User may use ATM now and transact.

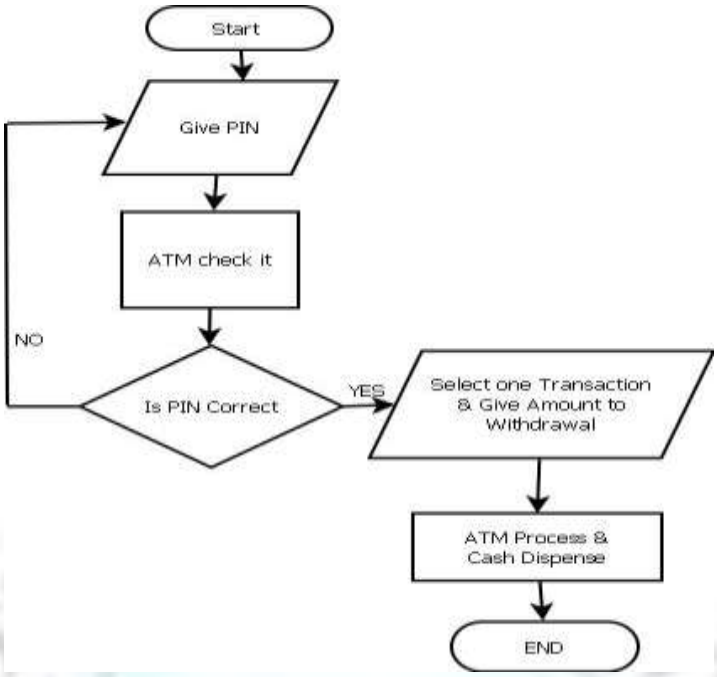

Fig. 1: Existing ATM Flow chart

The above algorithm and flow chart describes the operation of ATM du ring withdraw of notes from the ATM machine by the customer. However the machine doesn't know that the note is fake or original notes. Notes are loaded or deposited in ATM by the bank authority person and that notes are then made available for customers for further transactions. This paper suggests some modification in the existing algorithm which is applicable during the process of de position of notes in the ATM machine by the bank authority person. The algorithm is described in the section III.

III. PROPOSED WORK

The proposed work is design to enhance security and satisfaction of the customer by avoiding any fake note during withdraws from the ATM. In addition to existing facilities supported by ATM if we made some modification such that ATM machine reads the number available on each note and stores in its database during the deposition by the bank authority. The entire ATM network (each and every ATM machines belonging to all banks) should be centrally connected. As we know that CURRENCY NOTE consists of a unique number. According to suggested algorithm in this paper, ATM machine will store currency note number, and that will be circulated over the entire ATM network which is centrally connected. Now consider a scenario that any ATM machine will find a note number that is already exist in the network, and then Machine will give an alert and at the same time the location of another same note number containing ATM machine. Such mechanism and modification should be developed in the ATM.

It may possible that the fake note doesn't have any mach for its number in the entire ATM network. To avoid this problem the note issuing authority e.g. Reserve Bank of India (RBI) should store all available note number series in the central ATM server. If any note found which is out of series will be proceeds for verification and crash.

The Algorithm and flow chart for proposed ATM model used during deposition of notes by the bank authority is as follows:

Step 1. Bank authority User accesses his account using Access card through ATM machine with help of PIN.

Step 2. ATM machine reads this card and it checks the PIN with Bank server through dedicated network and allows access if the PIN is correct.

Step 3. Bank authority now deposits the notes into the ATM and activates the note number reading mechanism.

Step 4. ATM stores all notes number in its own database and starts comparing with the central server database.

Step 5. The central server compares the requested ATM database with all another ATM database in the entire network and confirms all unique notes numbers and now it respond to the respective ATM.

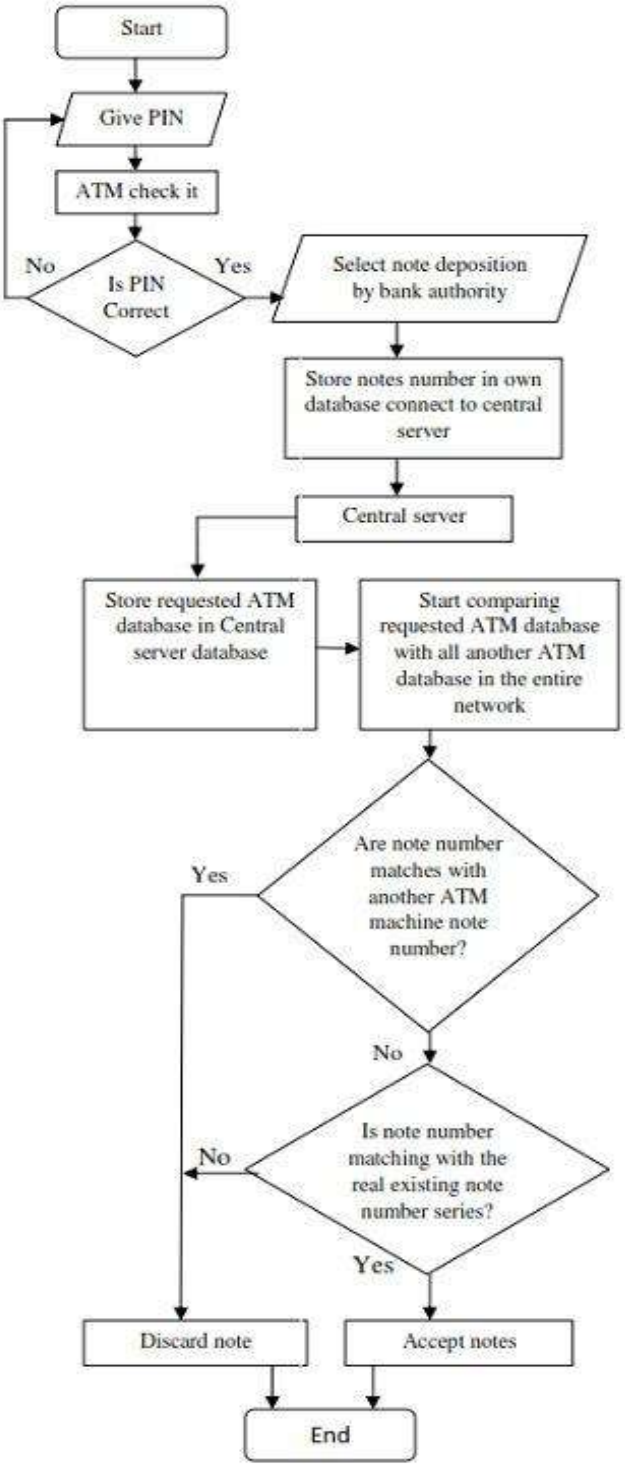

Fig. 2: Proposed flow chart model for deposition of notes by the bank authority

Step 6.1. If any note found match in another ATM machine then discard both the notes and report to respective ATM maintenance authority.

Step 6.2. If any note found mismatching with the existing note number series then discard the note.

Step 6.3. If all note numbers are unique and belong to note number series of issuing authority then accept all notes.

Step 7. Now required notes deposition is successfully done.

IV. Advantages of proposed system

1. Each and every currency note will be link to central RBI server database and hence duplicate note tracking will be easy.
2. Nobody can introduce a duplicate currency note in the market and increases security.
3. Costumer will get 100% reliable note from ATM.
4. Currency checking makes ATM more efficient and reliable.

V. FUTURE WORK

Future research could focus on design of perfect currency note number reading mechanism. Additional study should be done on ATM network and server according to proposed system in this paper.

VI. CONCLUSION

The system proposed in this paper makes ATM and hence banking system more reliable with improvement in service quality. Banks will get advantage of portable device other than ATM based on the proposed algorithm for checking the fake note. With this proposed system the fake notes can be completely eliminate from the market and banks can provide the best quality services to customers.

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