SYSTEM ANALYSIS

Week 6th

group: princess

Category

LABOR DIVISION

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何慧娴 201532120102	Abstract Introduction General description Feasibility analysis
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ABSTRACT

This report attempts to understand the design of an Automated Teller Machine (ATM)system, a device used by bank customers to process account transactions. Typically, a user inserts into the ATM a special plastic card that is encoded with information on a magnetic strip. The strip contains an identification code that is transmitted to the bank's central computer by modem. To prevent unauthorized transactions, a personal identification number (PIN) must also be entered by the user using a keypad. The computer then permits the ATM to complete the transaction; most machines can dispense cash, accept deposits, transfer funds, and provide information on account balances. Banks have formed cooperative, nationwide networks so that a customer of one bank can use an ATM of another for cash access. Some ATMs will also accept credit cards for cash advances. The first ATM was installed in 1969 by Chemical Bank at its branch in Rockville Centre, New York[1]. A customer using a coded card was dispensed a package containing a set sum of money.

[1] WIkipedia

INTRODUCTION

1.1PURPOSE

This document describes the software requirements based on evidences for an automated teller machine. It is intended for the designer, developer and maintainer of the ATM.

1.2 Scope

The aim and associated high-level requirements and constraints , vision statement , functional requirements and non-functional requirements , constraints.

1.3 Definitions

- *Account*

a single account in a bank against which transactions and savings A customer can hold more than be of various types one account

- *ATM*

A station that allows customers to enter their own transactions using cash cards as identification The ATM interacts with the customer to gather transaction information
sends the transaction information to the central computer for validation and dispenses cash to the customer We assume that an ATM need not operate independently of the network

- *Bank*

a financial institution that holds accounts for customers and that issues cash cards authorizing access to accounts over the ATM network

- *Cash card*

a card assigned to a bank customer that authorizes access to accounts using an ATM machine Each card contains a bank co de and a card number coded in accordance with national standards on credit cards and cash cards The bank co de uniquely identities the bank within the consortium The card number determines the accounts that the card can access A card does not necessarily access all of a customer s accounts Each cash card is owned by a single customer but multiple copies of it may exist so the possibility of simultaneous use of the same card from different machines must b e considered

- *Customer*

the holder of one or more accounts in a bank A customer can consist of one or more persons or corporations the correspondence is not relevant to this problem The same person holding an account at a different bank is considered a different customer

- *Transaction*

A single integral request for operations on the accounts of a single customer. We only specified that ATMs must dispense cash, but we should not preclude the possibility of printing checks or accepting cash or checks. We may also want to provide the flexibility to operate on accounts of different customers, although it is not required yet. The different operations must balance properly.

GENERAL DESCRIPTION

2.1 product functions

The software should support a computerized banking network. Each bank provides its own computer to maintain its own accounts and process transactions against them. Automatic teller machines communicate with the banks computers. An automatic teller machine accepts a cash card interacts with the user communicates with the bank computer to carry out the transaction dispenses cash and prints receipts. The system requires appropriate record keeping and security provisions. The system must handle concurrent access to the same account correctly. The banks will provide their own software for their own computers. The cost of the shared system will be apportioned to the banks according to the number of customers with cash cards.[2]

[2] ANALYSIS OF AN AUTOMATED TELLER MACHINE (ATM) SYSTEM by Bayezidur

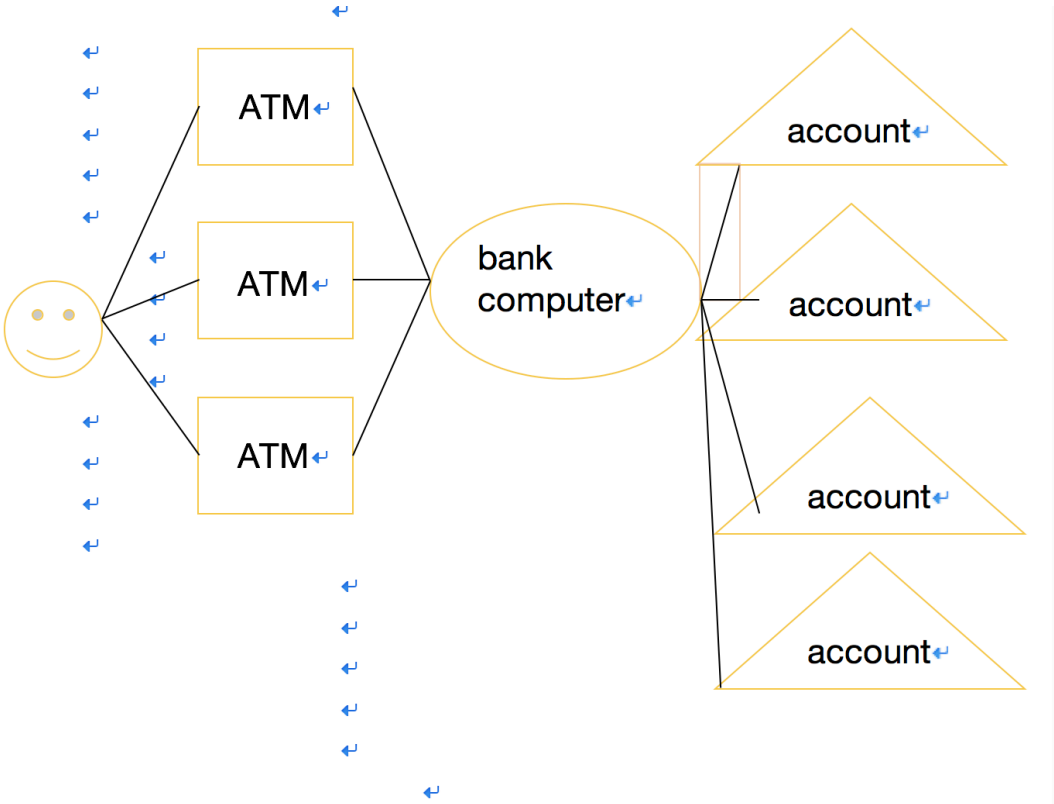


figure1:ATM networrk

2.2 User characteristics

1. Customer

The customer interacts with the ATM network via the ATM. I t must be very easy for them to use the ATM. They should be supported by the system in every possible way.

2. Maintainer

It should be easy to maintain the whole system. The maintainer should be the only person that is allowed to connect a new ATM to the network.

FEASIBILITY ANALYSIS

1. Technical feasibility

In this part, it is ensured whether the existing technical resources – hardware, software, etc. will support the design of the proposed system. During the component analysis it was found that the Premier Bank uses computers. These computers work under a Local Area Network (LAN) based system. Therefore, it can be concluded that the proposed system is technically feasible.

2. Economic feasibility

After analyzing the technical feasibility, the economic feasibility has to be considered. It is very important to take under consideration the cost effect of the system.

3. Operational feasibility

In this part, the existing managerial and organizational framework was studied. It was done in order to see whether the proposed system would change the working environment or not. The system, which was going to be implemented, obviously will change the working environment but that must not be drastic and the users must feel comfortable handling and coping with the solution.

REQUIREMENT

3.1 Functional requirement

The functional requirements contain two aspects : the functional requirements of ATM and the functional requirements of the administrator.
According to the user's different identity, it is divided into two modules, each module contains different functions:
Depositors module: deposit function, withdrawal function, modify password function, transfer function, query balance function, query flow function.
Administrator module: management and maintenance functions, provide cash function, statistics and print report function, frozen account function, processing swallow card function.

The functional requirements of ATM

Functional requirement 1

- Description :

The standby animation is displayed when the ATM terminal is unattended.

- Input :

  NO input.

- Processing :

  ATM displays the home screen.

- Output :

  Displaying the home screen.

Functional requirement 2 :

- Description :

  ATM accepts card and test whether it can be traded.

- Input :

  ATM accepts the card that users enter.

- Processing :

  Check if it is a valid cash card. It will be valid if

  1. It is not expired.
  2. The information on the card can be read.

- Output :

Display error message and return cash card if it isn't valid , otherwise continue.

Functional requirement 3 :

- Description :

  Check whether the password is right.

- Input :

  Depositor enters the right format of the password.

- Processing :

  Check whether the password entered matches the current amount.

- Output :

  Display error message to tell the depositor password is wrong and enter again.

Functional requirement 4 :

- Description :

  The password entered was consecutive wrong over three times, ATM swallows card

- Input :

The user enters the wrong password for the forth time.

- Processing :

Checking whether the password is wrong.

- Output：

Swallowing the cash card if password is wrong, and displaying ”Your card is swallowed for you enter the wrong password over three times! Please contact customer service: ******”.

Functional requirement 5：

- Description：

The card authorization is completed, ATM turns into the main transaction page.

- Input：

Depositor enters the right password.

- Processing：

Verifying password.

- Output：

Display the main transaction page.

Functional requirement 6：

- Description：

Cash in the ATM is less than the withdrawal amount, tell the depositor this message without displaying the withdrawal option and it is optional to exit from this transaction.

- Input：

No input.

- Processing：

Checking the amount of cash in ATM.

- Output：

Back to the main transaction page.

Functional requirement 7 :

- Description :

If something wrong with the ATM receipt printer ,the system should prompt the depositor who is depositing or transferring, and it is optional to exit from this transaction.

- Input :

NO input.

- Processing :

Check the ATM receipt printer whether work properly.

- Output :

Telling depositor if errors occur and enabling they to continue or just back to the main transaction page.

Functional requirement 8 :

- Description :

The deposit amount accepted by ATM is not accepted by depositor.

- Input :

The authorization is completed, the depositors input the amount they want to deposit and put cash into ATM machine.

- Processing :

Checking cash quantity and prompting the depositors to check, and depositor input ”False”.

- Output :

Returning cash and back to the main page.

Functional requirement 9 :

- Description :

ATM deposit

- Input :

The deposit amount checked by ATM and depositor input ”True”.

.● Processing：

Recording the amount in this account.

● Output：

Printing the deposit ticket and showing " trading success", then return to the main transaction page.

Functional requirement 10：

● Description：

Withdrawal amount is lager than the balance.

● Input：

Entering withdrawal amount.

● Processing：

Checking whether withdrawal amount large than balance.

● Output：

If the balance less than withdrawal amount, prompting depositors and back to the main transaction page.

Functional requirement 11：

● Description： The amount of withdrawal exceeds the maximum amount of withdrawals on one day

● Input：

The depositor enter the withdrawal amount.

● Processing：

Checking the sum of withdrawal amount today whether larger than the maximum amount of withdrawals on one day.

● Output：

If it is beyond the limitation , prompting the depositors, enabling they to enter again or back to the last step.

Functional requirement 12 :

- Description :
  Withdrawal.
- Input :
  Withdrawal amount is valid.
- Processing :
  Recording the withdrawal amount.
- Output :
  Paying out.

Functional requirement 13 :

- Description :
  Withdrawal transaction is completed , printing the withdrawal ticket.
- Input :
  Depositors choose to print the ticket or not.
- Processing :
  Printing ticket if depositors choose “Yes”, otherwise just back to the main transaction page.
- Output :
  NO output.

Functional requirement 14 :

- Description :
  Changing password.
- Input :
  Depositors enter new password.
- Processing :
  Checking whether the password entered twice are the same with each other.
- Output :

If passwords are identical, resetting the new password and shows success,
otherwise back out of password modification.

Functional requirement 15 :

- Description :
  Transfer.
- Input :
  Transfer account, transfer amount.
- Processing :
  Judging whether the account entered twice is consistent and whether the transfer amount is large than account balance.
- Output :
  Showing transfer success or otherwise quiz this transfer.

the functional requirements of Administrator Module

Functional requirement 16 :

- Description :
  Checking whether the password is right.
- Input :
  Administrator enter correct password.
- Processing :
  Checking whether password matches with this account.
- Output :
  If inconformity telling administrator this error message and asking to enter again.

Functional requirement 17 :

- Description :
  Freezing accounts.
- Input :
  Enter the account to freeze.
- Processing :
  Set this account to be frozen.
- Output :
  Showing freezing account successfully, and this account is banned to withdrawal.

Functional requirement 18 :

- Description :
  Thawing account.
- Input :
  Enter the account to be thawed.
- Processing :
  Set the frozen account to be a normal one.
- Output :
  Showing thawing account is successful.

Functional requirement 19 :

- Description :
  Reporting account.
- Input :
  Enter the account to be reported.
- Processing :
  Set this account to be a reported one.
- Output :
  Showing reporting successfully and this account is banned to do anything.

Functional requirement 20 :

- Description :
  Relieving the reported account.
- Input :
  Enter the reported account to be relieved.
- Processing :
  Set this account to be a normal one.
- Output :
  Showing relieving successfully.

Functional requirement 21 :

- Description :
  Add a new account.
- Input :
  Account to be added ,the corresponding password is provided by depositor.
- Processing :
  Add this account to be a normal one.
- Output :
  Showing adding successfully.

Functional requirement 22 :

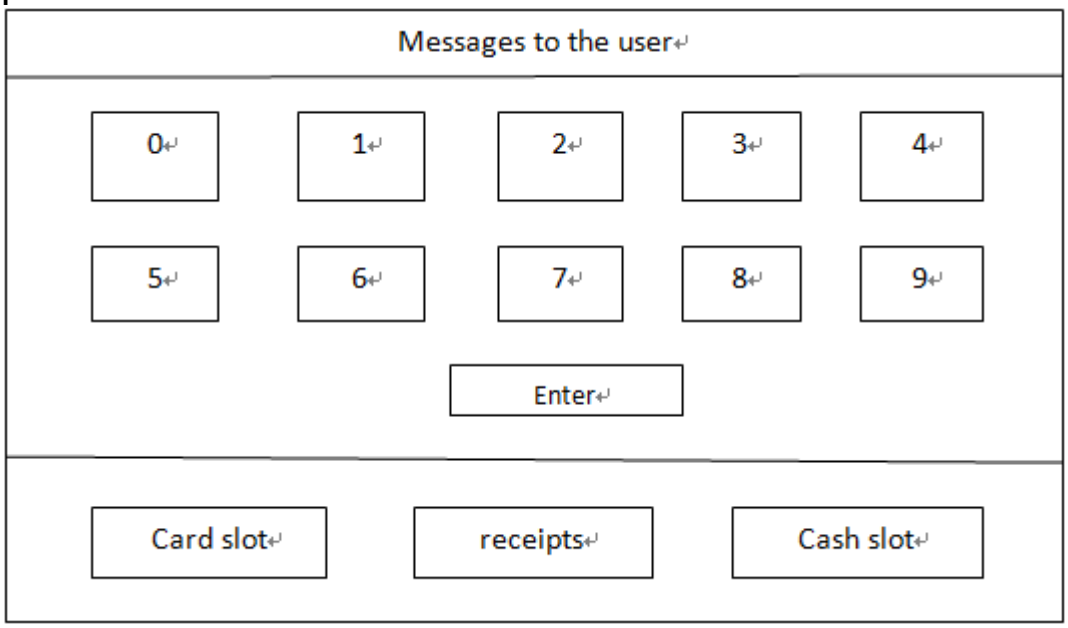
- Description :
  Cancel an account.
- Input :
  Account to be canceled
- Processing :
  Deleting this account while keep the relevant transaction information.
- Output :
  Showing deleting successfully.

3.2 interface requirements

The external interface requirements of ATM system:

User interfaces

The interface of the ATM must fulfill ergonomic requirements. The following is just an example for a possible interface to the ATM



Hardware Interfaces

The ATM network has to provide hardware interfaces to:

a) Various printers
b) Various ATM machines (There are several companies producing the ATM machines.)
c) Several types of networks The exact specification of the hardware interfaces is not part of this document.

Software interfaces

The ATM network has to provide software interfaces to:

a) The software used by different banks

b) Different network software

The exact, detailed specification of the software interfaces is not part of this document.

Communication Interfaces

There is no restriction of the ATM network to a specific network protocol as long as the performance requirements are satisfied.