DESIGN OF CASH REGISTER SYSTEM AT SMALL AND MEDIUM ENTERPRISE IN CHINA

ABSTRAK

*Development of Accounting Information Systems at present has an important role towards the progress of the business world. Not only big companies need information system, small and medium enterprises also require accounting information system. The main use of cash register system is to make calculation process and producing reports easier. Hua Qin (*琴*) Minimarket have been using the application of a computer in the process of calculation but the cash register system still have weaknesses, such as could not produce inventory reports, sales reports and evidence of payment. The author improves the system by making a new cash register system. Design of this system begins with designing a system by using data flow diagram and flowchart. The programming language used to create this cash register system is Visual Basic 6.0. Database programming used Microsoft Access 2007 and Crystal Report is used to create reports. Design of cash register system used inventory data and sales transaction data to produce information such as inventory report and sales report consisting of daily sales report, monthly sales report and annual sales report to be given to the General Manager and evidence of payment to be given to the customers. Improvement of this cash register system has not been implemented because of the time limitations of the author in the research. Hopefully, design of this cash register system can minimize the weaknesses in the present cash register system, such as that can produce the required reports precisely and accurately, can improve the performance of Hua Qin Minimarket to be better and can assist management in decision making.*

Keywords: Accounting Information System, Cash Register System, Small and Medium Enterprise.

Windy Atmawardani Rachman

Majoring in Accounting Information System, Faculty of Management Information System, Gunadarma University

windy@staff.gunadarma.ac.id

INTRODUCTION

The development of small and medium enterprise at this time is more rapid. Data, transaction report and financial statements are needed by each business for decision making by management. Financial reports can also be used by investors and management to see the company's performance. Therefore, an accounting information system is needed. According to Bodnar and Hopwood (2004:1), accounting information system is a collection of resources, such as labors and equipment, designed to alter financial data and other data into information that is communicated to the various decision making. In this case the role of accounting information systems is important to produce information quickly, precisely and accurately.

Business world really needs a computerized system, mainly at a company that has high transaction routines and have a lot of data to be processed. A lot of data and information is not sufficient if processed manually. Processing a lot of data requires a tool that has the highest calculation speed and high data delivery.

Thus, a company needs information technology to produce results more quickly, precisely and accurately with the use of hardware and software. The development of information technology is in line with the development of civilization, which includes the development of information technology infrastructure, such as hardware, software, data storage technology and communication technology (Laudon, 2006:174). Information technology is developing rapidly now, providing support for the development of computerized systems of an enterprise. With the use of this technology in transaction and data collection systems, data can be processed more quickly with minimal error rate, saving labor, time, and cost.

Implementation of computer applications in a business is very useful to easily and expertly process information that can produce an integrated information system. The fact is, there are still some small and medium enterprises (SMEs) that are still doing transaction processing, financial records and preparing reports and transaction reports and also company's financial statements manually.

Some of the small and medium enterprises have implemented computer applications in transaction activity to facilitate the calculation process and generate financial reports required by management. But in the application of computer applications, sometimes there are still some a weakness so it can cause fraud by the user that will cause disadvantage for the company.

Hua Qin (*琴) Minimarket is a retail company that provide a variety of daily needs. Hua Qin Minimarket is one of the small and medium enterprises in China that already uses computer applications in the activities of the sales transaction, but the computer applications have some weakness in producing reports.

The problem in the computer application of cash register system at Hua Qin Minimarket is it could not produce inventory reports, sales report and evidence of payment. Therefore, it needs an improvement by designing a cash register system which is in accordance with the needs of the company so the company's operations will be better. Hopefully, improvement of the system can help transaction calculation to produce inventory reports, sales report to be given to the general manager and evidence of payment to be given to the customers so that it can improve the performance of company.

Accounting Information System

According to Bodnar and Hopwood (2004:1), accounting information system is a collection of resources, such as labor and equipment, designed to transform financial data and other data into information that is communicated to various decision makers. Accounting information system has to perform the following tasks:

1. Collect transactions and other data and put it into the system
2. Process transaction data
3. Saving data for future purposes
4. Produce information required to produce reports, or the user to see their own data stored on computer.
5. Control the entire process so that the result the information is accurate and reliable. (Romney & Steinbart, 2000).

Input to an accounting information system is the economic transaction or event, such as sales of goods in cash, sale of goods on credit, and payment of cost. It is further processed with the record in a journal, posted into general ledger and summarized into report form. The output of the accounting information system is the financial statement.

Accounting information system includes activities related to the cycle of processing of accounting, which consisted of 5 cycles (Bodnar & Hopwood, 2001), such as income cycle, expenditure cycle, production cycle, finance and financial reporting cycle. Revenue cycle is a cycle oriented transactions that change the

products and services into revenue. The Common activity is sales transaction. The sales transaction could be in the form of cash register system that helps in the recording process and produce reports.

Cash Register System

Cash register system is a tool to help in managing a shop, minimarket, and also supermarket because this cash register system is completed with group items according to type, and completed with PLU (price look up) facility. There are two types of cash register systems. The first type is a simple cash register system that has the same facilities with total counts and can print on paper. The second type is a standard cash register system that has more complete facilities which have departments and PLU, and can be used to group the following goods prices based on the types of items in the shop. (Teguh Budi Karyanto, 2003)

A lot of shopping centers use in the payment process to make a regular flow of payments even to detail that will assist the cashier in managing finance from the sales. There are other advantages of the cash register system, i.e.:

- Payment system is more detailed
- Bookkeeping is more structured
- Received money of the company can be seen and structured
- Payments of purchased products that can be seen clearly.
- Finance section does not need to prepare financial statements at the end of the year because the system can assist in preparing it.

Small and Medium Enterprises

Small and medium enterprises (SMEs) in China has experienced rapid growth and has been increasingly contributing to growth of China's economic development. However, lack of relation with external markets, lack of technological innovation and limited of funding for SMEs have limited the growth of small and medium enterprises in China.

There are regulations concerning the criteria Categorization of Small and Medium Enterprises, published in 2003 and based on the SME Promotion Law of China, guidelines for classifying SMEs, which replaces the old guidelines that went into effect in 1988 and additional criteria from 1992. The guidelines mainly include salaries, revenue and total assets of the company (SME promotion law of China, 2003)

1. Specific criteria applicable to the industrial sector, construction, transportation, wholesale and retail businesses, hotels and restaurants. Industrial SME sector needs to employees a maximum of 2,000 people and to have an annual income not exceeding 300 million RMB. Total assets must not exceed 400 million RMB.
2. Medium Enterprises should hire at least 300 people. Their annual income and total assets may not exceed 30 million RMB and 40 million RMB. The residual are classified for small enterprises.

Definition SMEs in China depends on the category and the industry is defined based on the number of employees, annual revenue, and total assets of the company. In China, there are 40 industrial SMEs which have 2,000 employees, while medium enterprises have between 301 and 2,000 employees and small businesses have fewer than 300 employees. Based on this, the SMEs in China can be considered relatively large compared with SMEs in other country.

System Development Life Cycle

System development project consists of three phases: system analysis, system design and system implementation (Erico Afriyani, 2008). There are stages of system development, as follows:

- Analysis : Feasibility appraisal, Information analysis
- Designing: System design, program development, development of procedures.
- Implementation: Alteration, Operation, and Maintenance of the post audit and review.

(Sources : Bodnar GH and WAS Hopwood (1995), Accounting Information System).

Use of Information Technology in Accounting Information System

The use of information technology is the savior for small and medium enterprises because it provides information technology equipment needed for operations and management (Maksoud, 2003). Information technology for small and medium enterprises have several benefits, such as to save time, improve quality, reduce labor, improve cost effectiveness, giving better presentations, share information, improve worker skills, improve communication within the company and with outside world and also to facilitate access to transaction information.

Information technology has important role in accounting information system where information technology includes computer technology (both hardware and software) and also other technologies that include applications that are used to process information. The use of information technology systems in the accounting information system includes the functions of information systems, end user computing and quick-response technology. Accounting information system is developed in a professional manner both internally in a company or externally with a consultant.

Based on the data provided from the Biro Statistik Nasional, which contains information about Science and Technology (S & T) which is an indicator for small, medium and large manufacturing enterprises at China in 2000 and 2004, it shows that for small enterprises in China, S & T has the same role as in some other countries. Most small enterprises do not use S & T, however, small companies that use S & T has a routine transaction that produce higher revenues.

RESEARCH METHOD

This research, information was obtained through interviews with management at Hua Qin Minimarket, in Qingdao, China and also observations and assessment about the cash register system that has been running before. Cash register system has been used for 8 years until now. The time for gathering information about the cash register system in Hua Qin Minimarket is one month. Method of approach used in this research is the system development life cycle that has been adapted to the need for accounting information system of company that consists of two stages: the system analysis and system design.

The stage of system analysis is to understand the system that has been running with the cash register and identify problems that found in the system and seek appropriate solutions to improve the previous system. The stage of design is to design systems that do to improvement to the cash register system that has been running.

System design begins by using data flow diagram and flowchart. The programming language used to create this cash register system is Visual Basic 6.0 and for database programming using Microsoft Access 2007 and Crystal Report for producing reports. Cash register system design used inventories data and sales transaction data to produce inventory reports and sales reports to give to the General Manager as well as evidence of payment for customers.

1. System Analysis

The stage of system analysis in Hua Qin Minimarket is similar to the steps in defining the design of the system to be developed at the planning stage. The difference lies in the scope of the task, which is more detailed. In the analysis of this system, the research conducted by analysis system is detailed research, while in the planning system it is only a preliminary research.

The basic steps of system analysis, consist of:

1. Identify: identifying the problems that exist in Hua Qin Minimarket.
2. Understand: understand the working of the cash register system which is already running.
3. Analyze: analyzing the existing cash register system.
4. Report: reporting the results of the analysis that has been done.

Analysis of Old System

The analysis of the old system is understanding the way of working that have been or are being used by a company in their daily activities, such as how way the company work. The object of this research is cash register system that has been running in Hua Qin Minimarket,

where the system still has some weakness that could not produce reports required by the company. Based on this, it can cause fraud that by the user, so it can be a disadvantage for the company's finance.

2. System Design

The stage of system design is design to improve the cash register system that has been running, which is adapted to the problems that occur in Hua Qin Minimarket. The design begins with system design by using data flow diagram and flowchart.

Design of New System

The design of the new system is how to work the same as the procedure used previously, and make improvement to the cash register system to facilitate producing reports. Using by Microsoft Access 2007 to create Database and programming language Visual Basic 6.0 and also Crystal Report to produce inventory report, sales report, as well as evidence of payment for the customers so that it can reduce the risk of fraud that can be done by the user and can assist management for decisions making.

RESULT AND DICUSSION

1. System Analysis

The stage of system analysis to be discussed is the analysis and design of cash register system that has been used at Hua Qin (华琴) Minimarket. In the cash register system that has been used, input process of the sales transaction data has used computer applications, a cash register system called Shou Xi Tong Kuan (收款系统). The system still has some weaknesses, such as it could not produce inventory report, sales report and evidence of payment. This problem can cause fraud that is done by the user. To prevent fraud, the Hua Qin Minimarket requires improvement for the cash register system to facilitate in producing inventory report, and sales report more precisely and accurately and evidence of payment to be given to the customers.

Based on the above information, the authors designed a system according to the problems and needs of Hua Qin Minimarket. The design of this cash register system is to improve the old system, by using Visual Basic 6.0 as the programming language and Microsoft Access 2007 for the database. This cash register system uses inventory data and sales transaction data to produce inventory report, sales report and evidence of payment.

2. Procedures Analysis

A procedure is an exact sequence of activities that describes the stages of the process of what is done, who is working on the process, how that process can be done and what documents are related. Analysis of the data flow or procedure is necessary to know the running processes and as a basis for making or improving the old system with the design of new system.

Hopefully, it can simplify the procedure under way in this company to make it better. Description of the procedure which has been used is:

a. Customer comes to Hua Qin Minimarket.
b. Customer chooses the goods that are needed.
c. The goods are given to the cashier.
d. The cashier inputs the data items that are purchased which then automatically appears on the screen monitor, as well as input the number of items purchased.
e. Customer pays in accordance with the total price listed on the monitor screen.

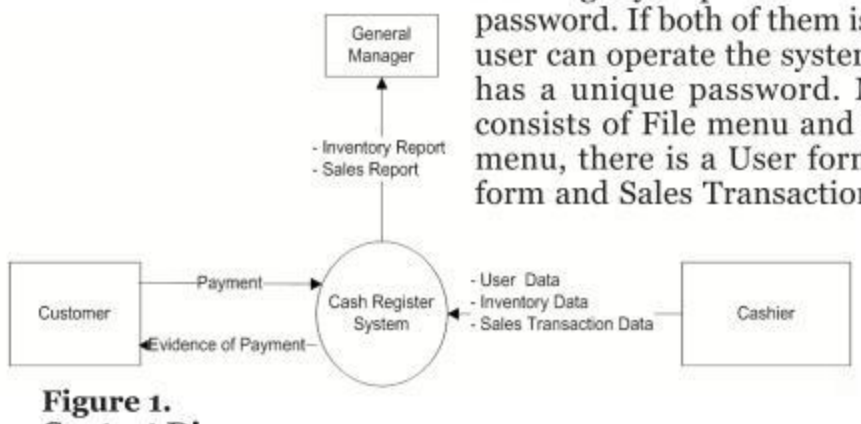

Figure 1.
Context Diagram

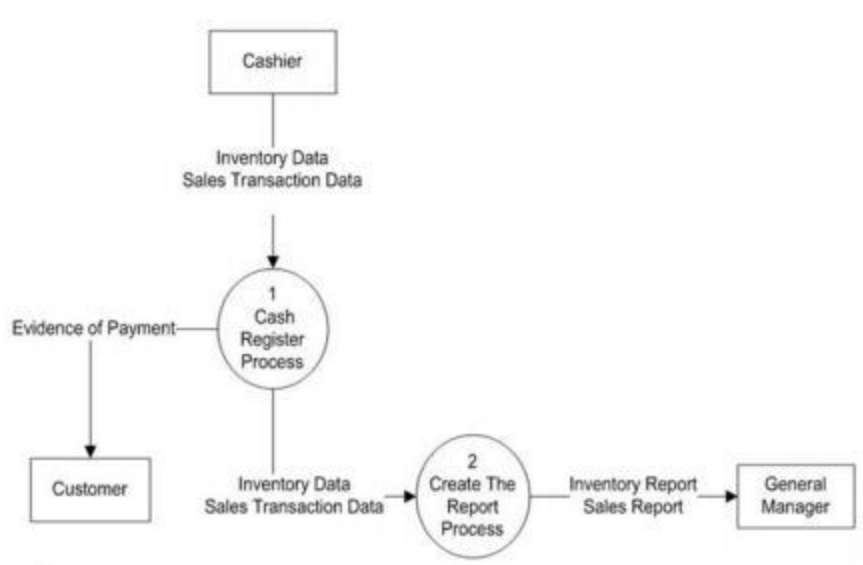

Figure 2.
Level 0 DFD of Improvement Cash Register System

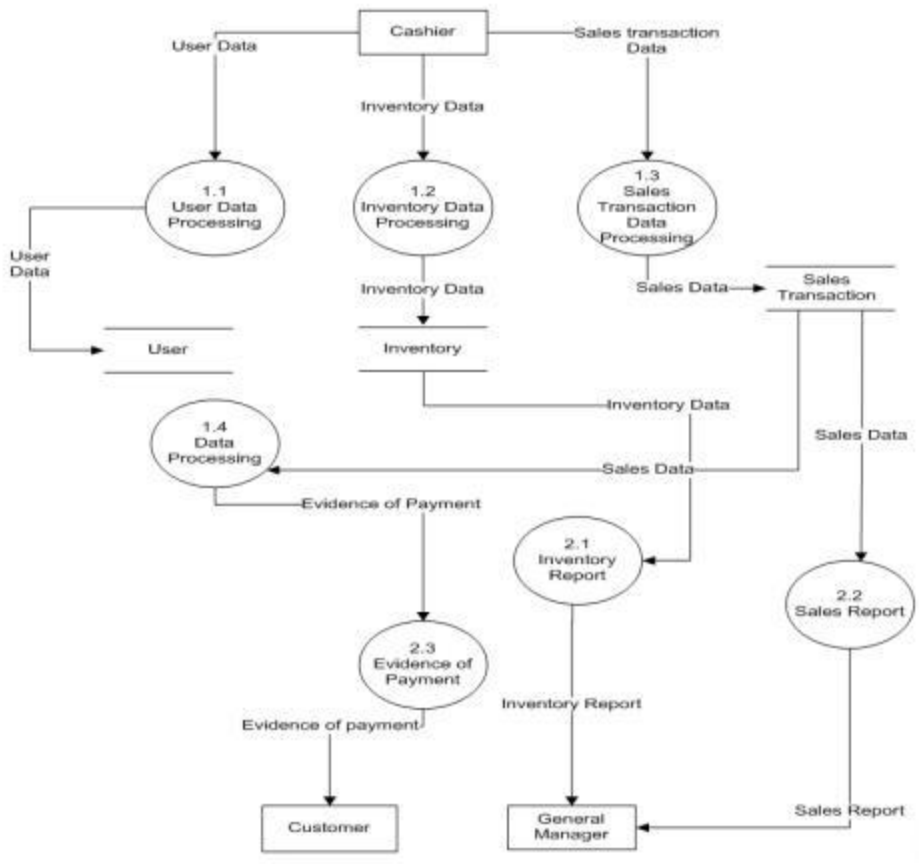

Figure 3.
Level 1 DFD of Improvement Cash Register System

Conceptual Design

a.Data Flow Diagram

Data Flow Diagram describes all events and activities on the proposed process flow of cash register system to provide a clearer and easily understood planning and designing of the new system. Figure 1. through 3. are data flow diagrams describing the improved cash register system of Hua Qin Minimarket.

a. Flowchart

The flow chart of old system describes the existing cash register system. Login Menu, starting by input of username and password. If both of them is correct, the user can operate the system. Each user has a unique password. Main Menu, consists of File menu and Logout. File menu, there is a User form, Inventory form and Sales Transaction form. User

form, used for inputting the new user data for operating the system. Inventory form, used for updating the inventory database. Sales Transaction form, used for inputting the sales transaction by using the barcode reader that automatically appears on the screen monitor, as well as input the number of items purchased. The existing cash register system cannot produce report for General Manager and also evidence of payment for the customer. Logout menu, if the user already finished inputting the data and want to exit from the system. The picture below is a flowchart of existing cash register system at Hua Qin Minimarket.

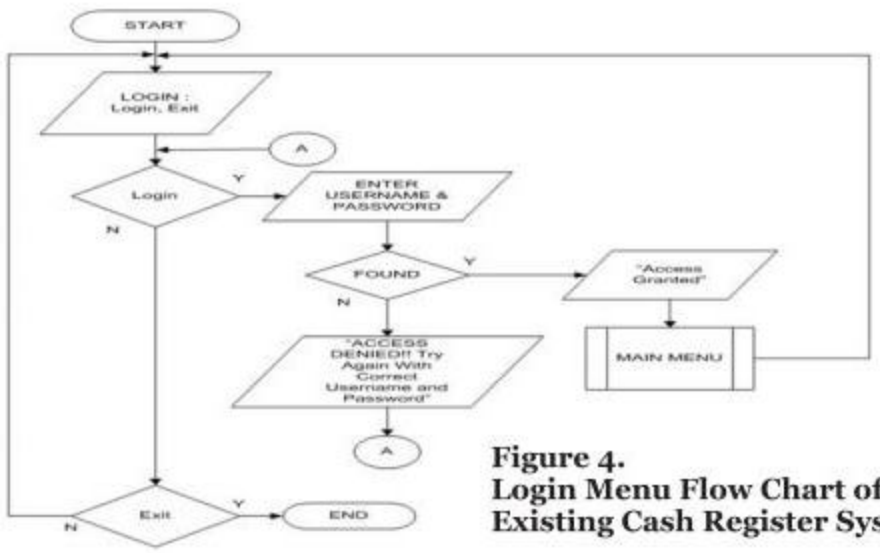

Figure 4.
Login Menu Flow Chart of Existing Cash Register System

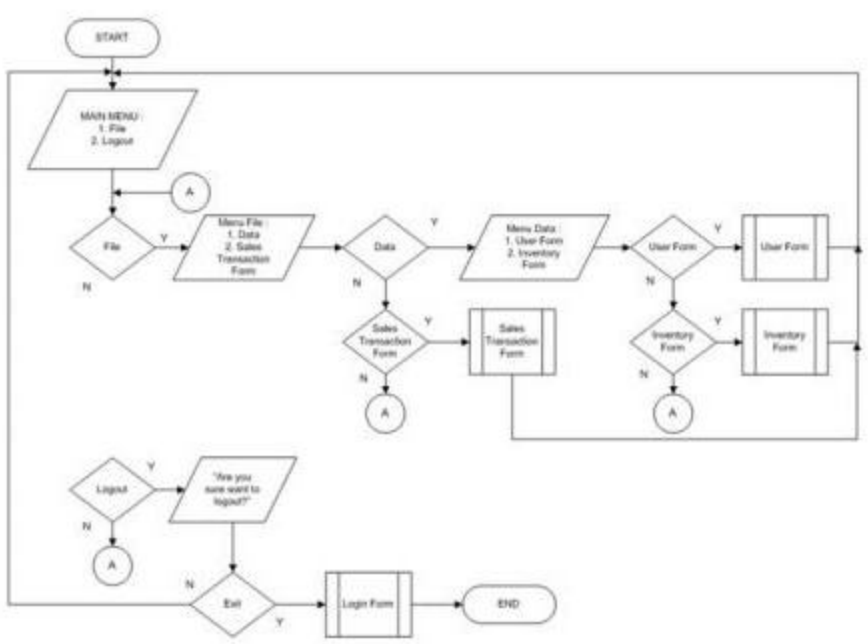

Figure 5.
Main Menu Flow Chart of Existing Cash Register System

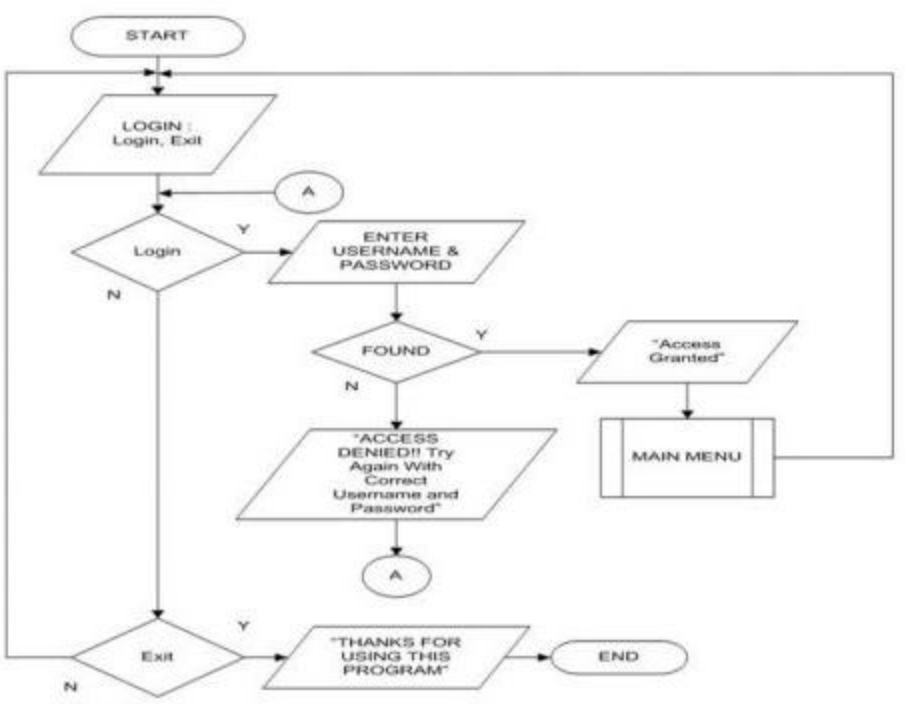

Figure 6.
Login Menu Flow Chart of New Cash Register System

The flow chart of the new system describes the design of new cash register system. Design of new cash register system used Microsoft Access for database, the maximum capacity is more than thousand inventory. The below is step by step to operate the new cash register system. Login Menu, starting by inputting the username and password, if both of them is correct, the user can operate the system. Each user has a unique password. Main Menu consists of File menu, Report menu and Logout. File menu, there is a User form, Inventory form and Sales Transaction form. User form, used to input the new user data to operate the system. Inventory form, used for updating the inventory database. Sales Transaction form, used to input the sales transaction by using a barcode reader that automatically appears on the screen monitor, as well as input the number of items purchased. If the barcode reader doesn't work, the cashier can choose the barcode name or the name of goods. Report menu, there is inventory report and sales report (daily, monthly and annual sales report) to be given to the General Manager and also evidence of payment given to the customer. Logout menu, if the user already finished input the data and want to exit from the system. The picture below is a flowchart of new cash register system at Hua Qin Minimarket.

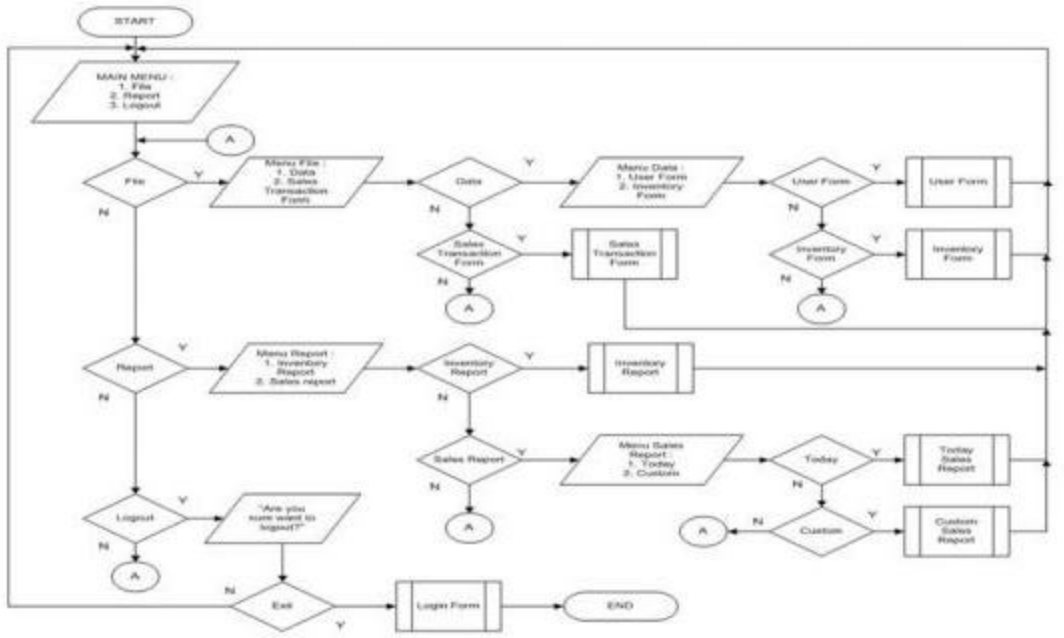

Figure 7.
Main Menu Flow Chart of New Cash Register System

Menu Display

This stage is a design system to improve the cash register system that has been running in Hua Qin Minimarket. Design of cash register system consists of the Design of input and Design of output.

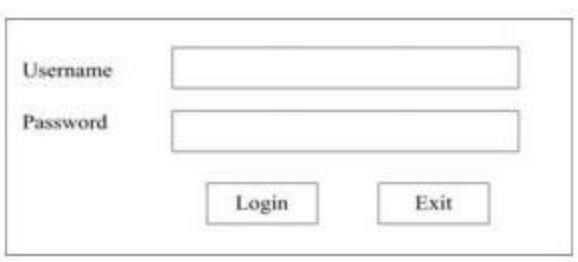

Figure 9.
Main Menu

Design of Input

Design of input produced in this cash register system is the User Form, Inventory Form, Sales Transaction Form and Custom Report

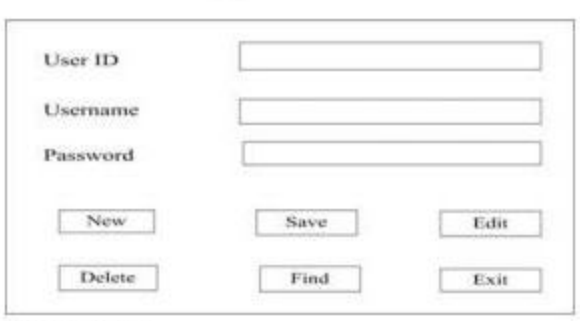

Figure 10.
User Form

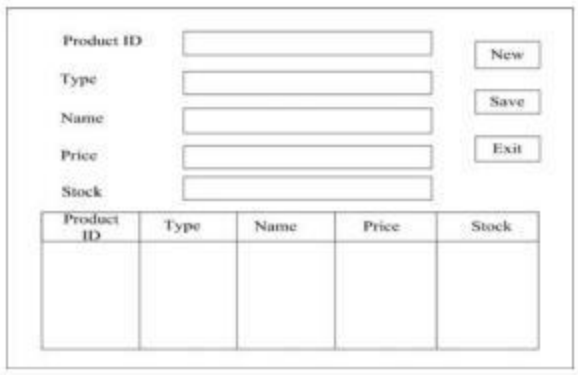

Figure 11
Inventory Form

Figure 16.
Monthly Sales Report

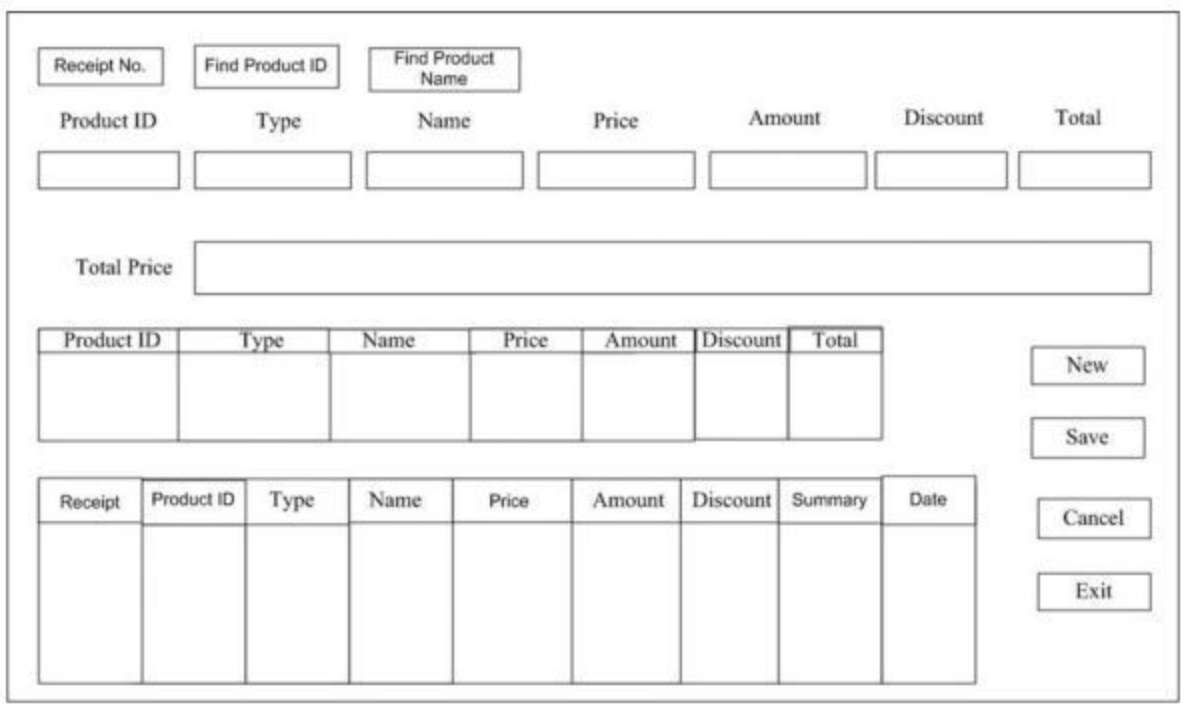

Figure 12.
Sales Transaction Form

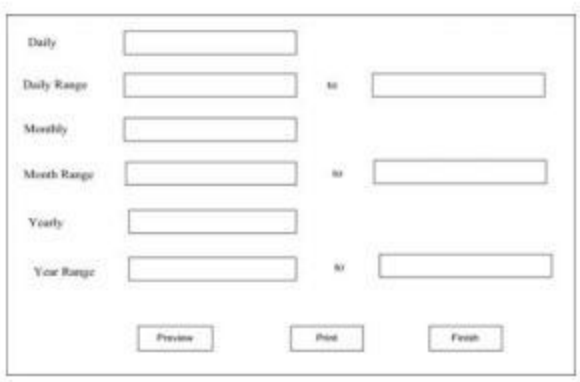

Figure 13.
Custom Report

Design of Output

Design of output produced in this cash register system, consists of Inventory Report, Sales Report (Daily, Monthly and Annual Sales Report) and also Evidence of Payment.

Figure 14.
Inventory Report

Figure 15.
Daily Sales Report

Figure 17.
Annual Sales Report

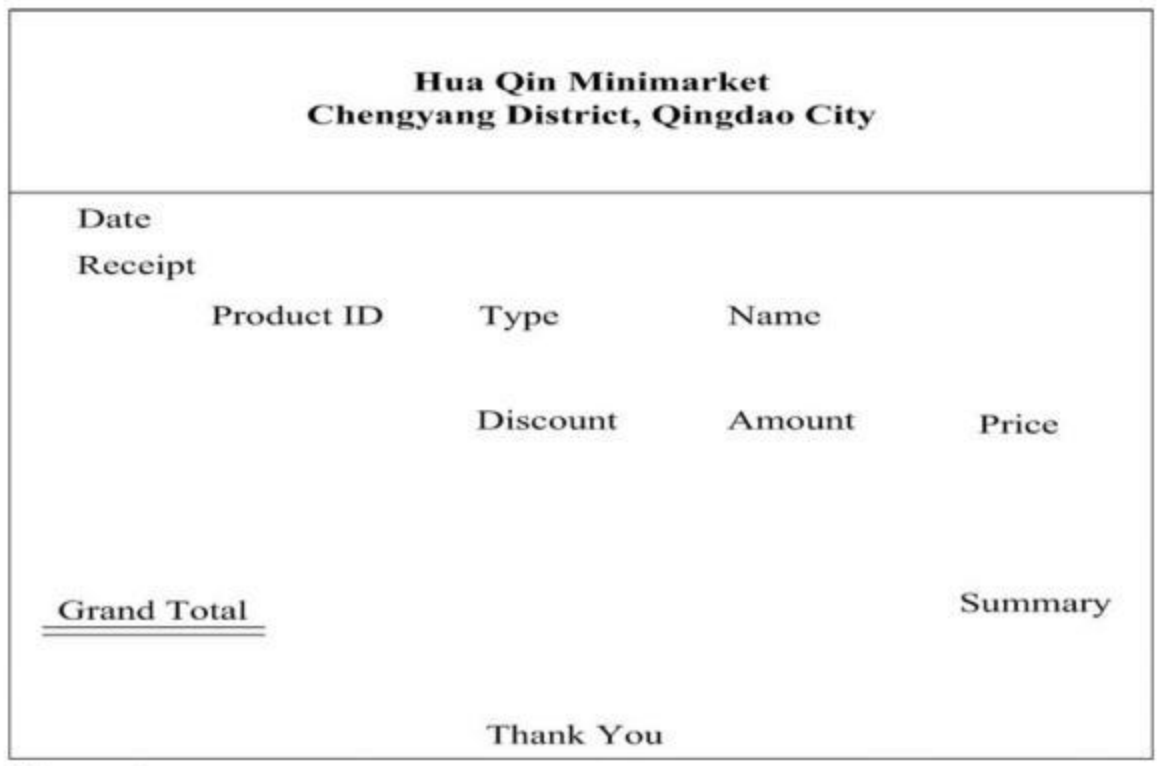

Figure 18.
Evidence of Payment

CONCLUSION AND SUGGESTION

Conclusion

The problems in the system that has been running at Hua Qin (华琴) Minimarket is that the cash register system still has some weaknesses, i.e. it could not produce reports required by the company. This of course can cause fraud that can be done by the user so it can be a disadvantage for the company's finance.

Based on existing problems, the authors find the appropriate solution to help the minimarket by improving the cash register system. The display menu of the cash register system consists of Login Menu and Main Menu. The design of input consists of User Form, Inventory Form, Sales Transaction Form and Custom Report. The design of output consists of Inventory Report, Sales Report (Daily, Monthly, and Annual Sales Report) and also Evidence of Payment.

Design of accounting information system is in accordance with needs of Hua Qin Minimarket. It is created by Visual Basic 6.0 as the programming language use and the database is built with Microsoft Access 2007. Hopefully, the improvement of this system can facilitate in producing reports required by the company precisely and accurately such as inventory report and sales report to be given to the General Manager as well as evidence of payment to be given to the customers. So that it can help management for decision making.

Suggestion

Based on the research that has been done, this research is only a small fraction of Accounting Information System. Therefore, in future research, hopefully the design for the menu system of inputs and outputs in cash register system can be added, so that the reports produced can be used for decision making and used as a component of the overall Accounting Information System.

BIBLIOGRAPHY

Afriyani, Erico. 2008. "Pengaruh Partisipasi Terhadap Kepuasan Pemakai Dalam Pengembangan Sistem Informasi Dengan Kompleksitas Tugas, Kompleksitas Sistem dan Pengaruh Pemakai Sebagai Moderating Variable" Skripsi. Universitas Muhammadiyah. Surakarta.

Agustini, Sri. 2010. "Analisis dan Perancangan Sistem Informasi Akuntansi Berbasis Komputer Pada Yayasan Pendidikan dan Kesejahteraan PT.PLN (Persero)." Tesis. Fakultas Ekonomi. Universitas Guandarma. Jakarta.

Aw, Bee Yan. 2001. "Productivity Dynamics of Small and Medium Enterprises in Taiwan (China". The International Bank for Reconstruction and Development The World Bank.

Bodnar, George. H. and William.S. Hopwood. 2006. *Accounting Information Systems.*

Chitkara, Mansi., Namita Khandelwal and Avinash Chaporkar. 2008."Project Report On Hospital Management System". International School of Informatics and Management. Formerly India International Institute of Management.

Chowdhury, Nahida Sultana., Muhammad Iqbal Hossain and et all. 2011. "A Voice Operating System Designed by The Combination of VB6 and SAPI Software". ISSN 2078-5828 (Print), ISSN 2218-5224 (Online), Volume 01, Issue 02, Manuscript Code: 110101.

Garcia, Walter and Fontes. 2005. "Financing Small and Medium Enterprises in China". University Pompeu Fabra.

Hall, James A. 2001. *Accounting Information Systems*. 3th edition. Cincinnati: Shout-Western College Publishing.

Hartono, M. Jogiyanto. 2000. *Sistem Informasi Berbasis Komputer*. Penerbit BPFE : Yogyakarta.

Hun, Pyae Pyae. 2008. " Design and Implementation of Secure Electronic Payment System". World Academy of Science, Engineering and Technology.

Jiang, Dahe., Yongsen Lu, and Fengting Li. 2008. "Green Accounting Practice in China". United Nations Environment Programme (UNEP). College of Environmental Science and Engineering. Tongji University.

Jumaili, Salman. 2005. "Kepercayaan Terhadap Teknologi Sistem Informasi Baru Dalam Evaluasi Kinerja Individual" *Kumpulan Materi Simposium Nasional Akuntansi VIII, Solo, 15-16 September 2005.*

Karyanto, Teguh Budi. 2003. "Mengoperasikan Mesin Cash Register". Direktorat Jenderal Pendidikan Dasar dan Menengah. Departemen Pendidikan Nasional.

Lin, Z. June, and Zengbiao Yu. 2002. "Responsibility cost control system in China: a case of management accounting application". Department of Accounting and Law, Hong Kong Baptist University.

Liu, Zongsheng. 2010. "Strategic Financial Management in Small and Medium Enterprises Sied". International Journal of Business and Management, Vol. 5, No.2.

Lundin, Nannan. Fredrick Sjoholm and Jinchang Qian. 2006. "The Role of Small Firm in China's Technology Development". Stockholm School of Economics & Örebro University.

Maksoud, Samer Sayed Abdel and Mohamed Abdel Aziz Youssef. 2003. "Information and Communication Technology for Small and Medium Enterprises in Egypt (Case study)." Cairo : SME Development Unit Ministry of Foreign Trade Egypt.

Mohammed, Asmau Sani., Hamman W., and et all. 2007. " Project report On Payroll System ". ABTI-American University of Nigeria.

Morrison, Wayne M. 2011. "China's Economic Conditions". Congressional Research Service.

Namara, Kerry Mc. 2008. "The Global Tectile and Garments Industry: The Role of Information and Communication Technologies (ICTs) in Exploiting the Value Chain". Enlightenment Economics.
Patrick. 2008. "Web Based Payroll System".

Weller, David., Alexandre Santos Lobao, and Ellen Hatton. 2004. "Beginning. Net Game Programming in VB.Net". ISBN (EAPs): 1-59059-401-1.

Xiangfeng, Liu. 2005. "SME Development in China A Policy Perspective on SME Industrial Clustering".

Xiaolin, Wang. 2009. "Chinese Budget System and Fiscal Expenditure Analysis". China Development Research Foundation.

Yos, Feto Daan. " Analisis Sistem Informasi Akuntansi Penjualan Tunai Untuk Meningkatkan Pengendalian Intern Pada PT. Gendish Mitra Kinarya". Fakultas Ekonomi. Universitas Gunadarma.