Design of Point of Sales (POS) Information Systems Based on Web and Quick Response (QR) Code

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Abstract: **Sales is the activity of trade in goods and services to customer. Process sales and service transactions should be properly Tawakkal Shoes Store is a business engaged in the sale of shoes and sandals that requires a system that can simplify the process of data processing sales transactions and making it more effective and efficient. This research will be designed a web-based system and QR Code that is used to process sales transactions, the recording of incoming goods, and report the results of operations. The method used in this research is the method of observation, interviews, documentation and software simulation. The design of the system done by using a MySQL database and software XAMPP. The process of creating a software program code using Visual Code, and the programming language used are PHP and HTML. From this research will produce a web-based system and QR Code that used to process sales transactions and processing data easier, safer, effective, and efficient.**

Keywords: Point of Sales, QR Code, Sales, Web Programming

I. INTRODUCTION

Over time, technology is growing so fast. Likewise, the technology in running trade or sale. Errors in recording, the calculation is less precise, speed in service is often constrained in the Micro, Small and Medium Enterprises (SMEs), particularly in trade or sale.

Shop resignation is Micro, Small and Medium Enterprises (SMEs), which sells fashion needs especially shoes and sandals. The store has been running since 2013 but still use manual recording (books) in a sales transaction and sales reports.

The main problem SMEs solutions can be help by providing training in terms of management and partnership, in addition to all aspects of marketing and production even is utilize by relying on technology penetration [1].

Using a Point of Sales application, we can gain some benefit by the add value that can be administered in the form of improved quality of service, improved business image, competitive advantage and conv late controlling and decision-making processes [2].

The use of technology can be a solution in the recording and processing of transactions so it is done by a computerized system, as it will speed up the transaction process and gives accurate results so that a more effective and efficient. Computerized transaction provides convenience in work and a definitive result for the buyer or customer.

Mechanical QR Code has advantages such as ease of use, readable machines and devices, and can store more data than barcodes and can be used in various fields for various purposes and applications with data capacity is high and could be an efficient way to share information [3].

Ease - conveniences provided in the application of computerized system in an effort would improve efficiency and effectiveness in carrying out the business process, especially for Micro, Small and Medium Enterprises (SMEs) such as shopping. Web-based system also can be used multi-user or multiple users so that on the one can perform sales transactions, on the other side enter the incoming goods and so on. Web-based systems have varied views and programs that vary according to user requirements. This system can also run in offline and online condition if it is to be accessed anytime and anywhere.

Based on the background described above, the researchers are interested in doing research entitled: "Design of Information Systems Point of Sales based on web and Quick Response Code on Micro, Small, Medium Stores resignation in Batam".

II. LITERATURE REVIEW

A. Information Systems

According Krismiaji (2015), the information system is an organized way to collect, add, process, and store the data so that the group / organization can achieve its objectives [4]. According to Laudon (2014), Information Systems is a set of interrelated components that collect, process, store, and distribute information to assist in decision-making and business management [5].

B. Sales

Sales is comprised of the sale of goods or services, either in cash or in the form of credits [6]. Sales is the activity of trade in goods and services to customer [7].

C. Point of Sales (POS)

Point of Sales or simply called POS, it can be defined as software that records sales transactions. Before the POS system is developed, many people use a cash register, or even manually, to manage their business. But the teller machine function itself is no longer sufficient, so that POS has been developed [8].

D. PHP

PHP can be used to create dynamic web pages thanks to one of its advantages: the ability to connect to a variety of

software database management system or DBMS (Database Management System) [9].

E. MySQL

MySQL is a database management system that uses SQL (Structured Query Language) as a common language used to add access and process data in a database [9].

F. Quick Response (QR) Code

Hiding data is one way to provide security. QR Code is a mechanism of data hiding and most efficient technique for encoding digital data among various data hiding techniques available. QR Code technique has many advantages such as: easy to use, readable machine, hold more data than a barcode. So QR Code can be used in various fields for various purposes and applications if the data capacity increases of usage will increase and could be an efficient way to share information. [3]

III.   METHODS

A. Design / Types of Research

Method study the researchers used in system design using waterfall method. Waterfall method or the so-called waterfall method is often called the classic life cycle (classic life cycle), in which it describes the systematic approach and also sequentially on software development.

Design research is used for planning, drawing and sketching or set of elements - separate elements into a unit that is intact and functioning properly. The study design is depicted in a flow chart (flowchart) as follows:
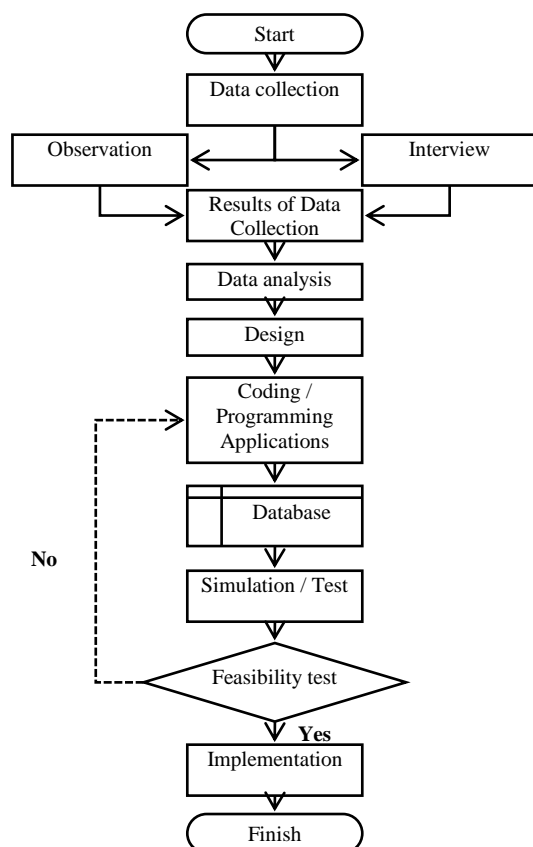

Fig. 1. Flow Chart (Flow Chart) Research Design

B. Object and Scope of the Study

Objects in this study is an information system point of sales or sales system on Tawakkal Shoes Store. The store sells goods - goods for the fashion needs, especially footwear and slippers.

Furthermore, to avoid deviation from the title and the purpose of the research, the scope of the study include:

- Studying or analyzing the sales process and the data - the data of goods sold to sales reports.
- Information system design Point of Sales (POS) web based can be accessed easily and using Quick Response (QR) Code in the labeling of goods that can be fast scanned.
- Simulation application of information systems Point of Sales (POS) and web-based QR Code safer and accurate transaction processing and sales reports from the previous manual system of registration in the book.

C. Types and Sources of Data

The research is exploratory research, and approaches used include: Point of Sales, information systems, web, HTML, PHP, CSS, MySQL, XAMPP and QR Code. There are two (2) sources of data in this study:

- The primary data obtained through interviews with business owners and two employees in the store resignation related to the study and direct observation of the object to be studied.
- Secondary data, obtained indirectly from the object of research.

D. Data Collection Technique

The study, investigators used are as follows:

- Observations, which collects data by observing the general requirements such as data items, the sales transaction data and other data needed to manufacture the sales application system on Tawakkal Shoes Store.
- The interview, which collects data by conducting a question and answer directly to the business owner and two (2) employees in Tawakkal Shoes Store regarding sales application system requirements needed in Tawakkal Shoes Store.
- Documentation, which collect existing data on Tawakkal Shoes Store as goods data, sales data, employee data, expenditure data items and data - other data.

E. Data Analysis Method

Data analysis methods that researchers use in this research is descriptive method that aims to find and organize in a proper way and sufficient object of all activities, processes and people. Processing of the data is done in the following way:

- Reductions
  Reduction, namely the electoral process, focusing on the object and the transformation of raw data that emerged from the written record in the field by way of summarizing, selecting subject matter and focus on the processing of sales data in Tawakkal Shoes Store.
- Data processing

Data analyzed and processed by grouping the appropriate problems respectively. Processing of this data will be analyzed related needs solving existing problems.

- Conclusion

  After outlining the various data have been obtained, the researchers conclude that produce design research into the concept of making the application system.

- Simulation and Implementation

  In the simulation will be explained how to use the application, what are the functions and features contained in the application to then be implemented or used in the system. As for the design or sketch design system display information Point of Sales (POS) Web-based and Quick Response (QR) Code to be made in research simply is as follows:

Fig. 2 Login / register menu

Fig. 3 Home Page

Fig. 4 Sales Transactions page (Point of Sales)

Fig. 5 Print sales receipt page

Fig. 6 Input Item page

Fig. 7 Print Label page QR Code

Fig. 8 Print reports
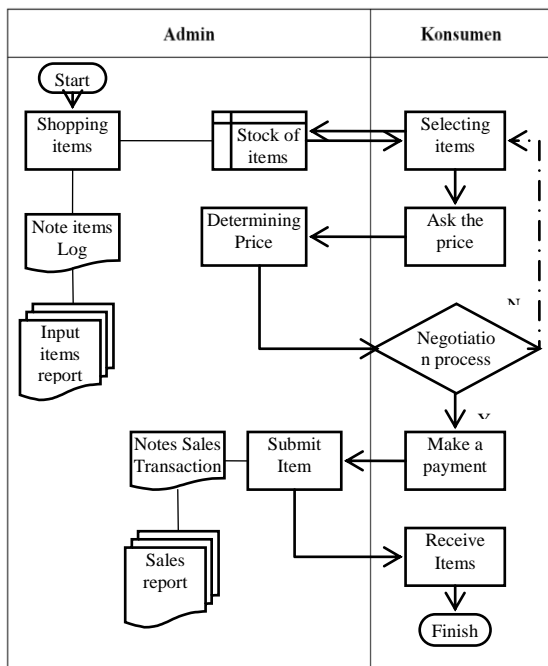
IV. RESULT AND DISCUSSION

A. General Description of the Company

Tawakkal Shoes Store was established in 2013 by Mr. Nurdin. Located in the commercial Tiban Center Block B14, District Sekupang, Batam City. Resignation stores focus on selling to the type of goods sandals and shoes.

B. Analysis of the Current System

Analysis system that runs aims to find out how the procedure or process operational activities on Micro, Small and Medium Enterprises (SMEs) Tawakkal Shoes Store so as to know the problems or deficiencies in the current system.

TABLE I. FUNCTIONAL NEEDS ANALYSIS

Consumer

C. Requirements Analysis of Information Systems

TABLE II. FUNCTIONAL NEEDS ANALYSIS

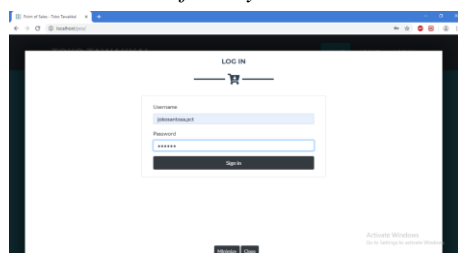| No.	Functional Requirements	Responsible
1.	Admin/ Owner	Adding user / user Renewed user / user Removing a user / user Adding incoming goods Renewed data items Deleting data items Correcting report spending on goods Correcting and evaluation reports sales of goods
2.	Seller / Cashier	Adding incoming goods Check the prices of goods Adding a sales transaction Printing a transaction memorandum
3.	Accounting/ Finance	Create reports spending on goods Print reports spending on goods Create sales reports Print sales reports
4.	Customer	Check the prices of goods Got an invoice

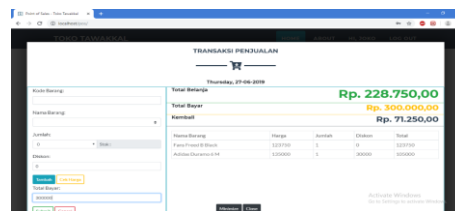*D. Implementation Interface System*

Fig. 9 Login page

Fig. 10 Sales Transactions
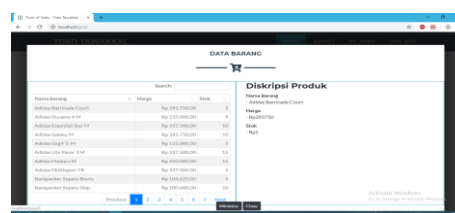

Fig. 11 Print Transactions
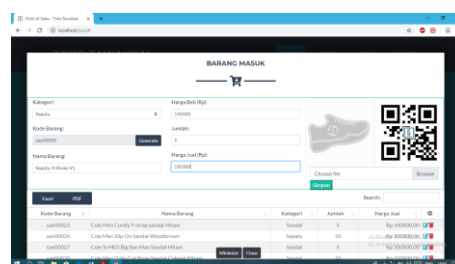

Fig. 12 Weather Data Items

Fig. 13 Input Item
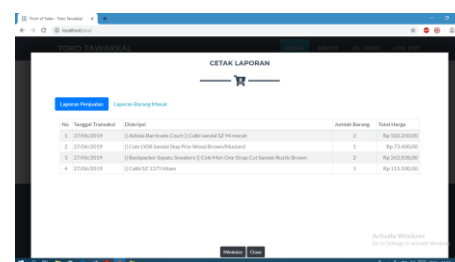

Fig. 14 QR Code Label Print

Fig. 15 Print page Reports

E. Discussion

Discussion of the current system at the Tawakkal Store so that it can be known the weaknesses or weaknesses of the system for the design of the new system. As explained by Brother Dody regarding the condition of the system that was run at the Tawakkal Store,"If it is for the beginning, yes, sometimes you have to ask via WA first, for example, there are items that have no known price or are forgotten. Especially for new goods, right? Of course the price is different again, but the truth is that the longer it can still estimate the price offered to the buyer. "

In addition, the system that has been running so far also has a lack of data security as explained by Nurdin as the business owner at the time of the interview, "Compared to computers, of course there are some drawbacks of recording using books, for example, what I experienced was burglary bag and my notebook when I put it in the car."

The explanation shows the need for a new system that is effective and maintains the security of business data that are run at the Tawakkal Store.

Discussion on the simulation of a new system that is a computerized information system Point of Sales web-based and QR Code which is expected to provide benefits, convenience, effectiveness and efficiency as well as solutions to the weaknesses of the current system. This is as explained by Mr. Nurdin that there is a need for a system that can support the business being run,"Oh, yes, mas, it's okay, I support, whatever data you need, I will prepare later. Please continue, I also want to make the data safer and easier to view reports. We only need two reports, an item shopping report and a sales report. The label might be installed later on one of the sample items, so it can be scanned. "

In addition, the computerized system also supports a variety of devices making it easier to run or operate. This is as explained by Mr. Fariz when trying to run an application system that was made, "Good, it looks pretty decent too. Can be run using a cellphone to be easier to use. The features provided are also quite complete and in accordance with the needs of our business. No problem implementing a system like this, hopefully it can run well".

V. CONCLUSION

Based on the results of research on the design of information systems Point of Sales Web-based and Quick Response (QR) code on Micro, Small and Medium Enterprises (SMEs) Store resignation may be taken some conclusions as follows:

- Evaluations have been conducted related to the system is running at the moment and found some shortcomings and things that become obstacles in the system. Among them is the recording of transaction data entered manually or goods, no goods or bookmark code label on the price of goods, and manufacturing reports manually. In addition, data security is also less assured with manually recording system into a book that can happen to lose or damage.

- This study has successfully designed a web-based system and QR Code for system sales. The design is

done by using software XAMPP, MySQL database, and the programming language HTML, CSS, Javascript and PHP. With this system transaction, sales process and data processing can be automated goods that process payment calculations, inventory, reports and more. This new web-based system that can be run using a variety of devices is also based on the QR Code which is easier in the process of being scanned items. For data security, the data on this system can be stored in the cloud storage (cloud) or online that can be accessed anytime and anywhere as well as stored on the computer itself.

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