

## **E-Card Stock Web Based Using Barcode for Fast Kitchen Concept**

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**Abstract:** E-Card Stock Web Based Using Barcode for Fast Kitchen Concept Sdn. Bhd. (FKC) is built to assist in the stock management of products and raw materials that are more efficient, systematic, and easy to use. It aims to upgrade the inventory management method that has been used by FKC using conventional system. The conventional system refers to the method by using stock-card for recording information incoming and outgoing of products and raw materials. The use of this old method leads to duplication of information or inaccurate information of product stocks and raw materials. Therefore, this project is developed to assist FKC to digitalize in stock management. The development method used was waterfall model to develop the system. At the end of this project, E-Card Stock Web Based Using Barcode for Fast Kitchen Concept Sdn. Bhd. has been developed and used by the FKC to manage their inventory of products and raw materials better and more efficiently. A survey has been conducted and found that 85% of the respondent totally agree that the implementation of the new system is better than the old conventional method. However, this project has minor drawback in which the interface for this system support only for Windows and it is important for this system to be able to run on android platform which is the main interaction for modern entrepreneur.

**Keywords:** Inventory, System Card, Barcode

### **1. Introduction**

Inventory is a system used by traders in business management which used for getting current quantity stock either raw materials or products. Traders in the retail sector are one of the largest sectors offering basic goods such as food and beverage products. As such, businesses require efficient and effective product stock management to ensure that the food chain is not disrupted or delays occur due to inaccurate stock items.

Typically, some retailers in the retail sector manage their stock manually, which is, counting and recording it in a book or stock card. A stock card is a card that contains notes and details on the available stock. Manual storage systems lead to various erroneous data recording possibilities such as information not being updated, unclear writing or loss of records books. Fast Kitchen Concept Sdn. Bhd. as known as FKC experiencing similar problems and requires computerized database system. Without application system it would be leads to great financial loss to FKC.

This project utilises barcode technology system for developing system stock information system that will stored into a database. Barcode technology is a Barcode scanning technology that can be translated into a code understood by the software system. Thus, the implementation of E-Card Stock Web Based Using Barcode for Fast Kitchen Concept was developed to provide digital stock record keeping system. The objectives of this project are to:

- (i) Design a E-Card Stock Web Based Using Barcode for Fast Kitchen Concept.
- (ii) Develop E-Card Stock Web Based Using Barcode for Fast Kitchen Concept.
- (iii) Test the effectiveness of E-Card Stock Web Based Using Barcode for Fast Kitchen Concept which has been developed to function properly.

Furthermore, methodology is an important method for the development and production of systems as well as more organized in planning for the development of a system. Therefore, to carry out this project, the methodology we used is waterfall model to develop this system which will be discuss in the section 2.1. The limitations for this system are, the system itself only specifically build for this company but if the size or function needed for other company, it still can be used. Second, it is suitable to be used on personal computer or laptop interface rather than on mobile phone because the interface used in mobile phone not good as in computer interface. Lastly, the system can only display and manipulate the data and not ready for printing the information.

This section discusses the literature review and the technology used in the development of this project. The study conducted to get the best idea to achieve the objective of developing E-Card Stock Web Based Using Barcode for Fast Kitchen Concept. A study of equivalent systems was conducted to compare the modules and programming languages used.

### 1.1 Study of the technology used.

To ensure that the project development can be realized, several studies need to be done on the technology to be applied in the E-Card Stock Web Based Using Barcode for Fast Kitchen Concept. The two studies are related to the Management Information System and the inventory system which are the backbone of the development of this project.

#### 1.1.1 Management Information System

The management information system is a system used in the process of collecting, storing, and transferring information needed to assist management in the organization. The information is provided in the form of diagrams, graphs, charts and reports that are easy to use and understand by all [1]. The information needs to be current, accurate, concise, timely, complete, well presented and storable. The MIS model consists of a Database, organizational results, report writing software, and a Mathematical model [1]. This model is a reference that will be used in developing E-Card Stock Web Based Using Barcode for Fast Kitchen Concept.

#### 1.1.2 Inventory System

An inventory system is a system used to manage the stock of goods along with some other information related to the stock of their goods [2]. According to the Dewan Bahasa Pustaka Dictionary Fourth Edition inventory refers to a detailed list of items found in a particular place such as stock, shops,

and offices. The inventory system is a management method that can be implemented manually through the defects in the book and digitally through the Linux, windows and android platforms [2]. All details related to the inventory system are taken as a reference in developing E-Card Stock Web Based Using Barcode for Fast Kitchen Concept.

## 1.2 Comparison of equivalent systems

To develop E-Card Stock Web Based Using Barcode for Fast Kitchen Concept, several equivalent systems was studied.

**Table 1: Comparison of equivalent systems**

System characteristics	Medicine and Dental Equipment Inventory System for Dental	E-Parts Inventory System for S'Can Support	E-Card Stock Web Based Using Barcode for Fast Kitchen Concept
Log in	Manager	Admin	All staff
Generation of vendor and supplier information	Yes	Yes	Yes
Record incoming stock/product recipients	No	No	Yes
Record outgoing stock/product recipients	No	No	Yes
Generating the latest stock/product list	Yes	Yes	Yes
Generating list of placement	No	No	Yes
Platform	Desktop	Desktop	Desktop
Using Barcode technology	No	No	Yes

**Table 1** shows the comparison of equivalent systems. There are two systems studied namely the Medicine and Dental Equipment Inventory System for Dental Clinic and the E-Parts Inventory System for S'Can Support. It can be concluded that E-Card Stock system are better than the other two systems in terms of saving incoming and outgoing stocks, displaying placement of stocks, and using barcode technology to ease recording of stocks.

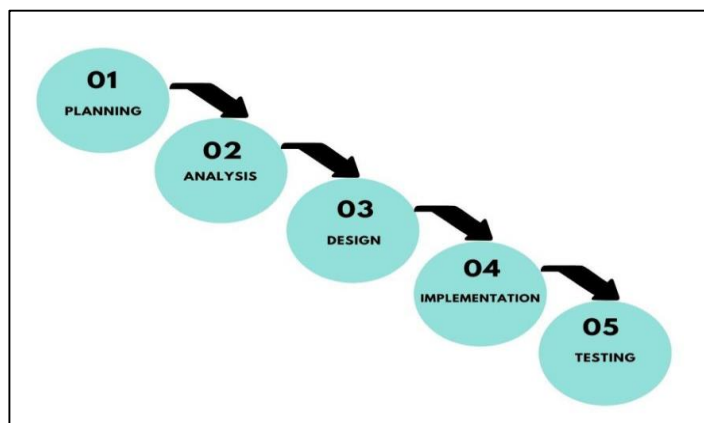
## 2. Materials and Methods

### 2.1 Materials

This system used PHP for data insertion, export, display and stored into MySQL. Xampp server also been used to make localhost website and for implementation purpose for user to see how the system will work.

### 2.2 Methods

**Figure 1** shows the waterfall model used to develop this system to make it easier to trace back any problem or error during project development.



**Figure 1: Waterfall model**

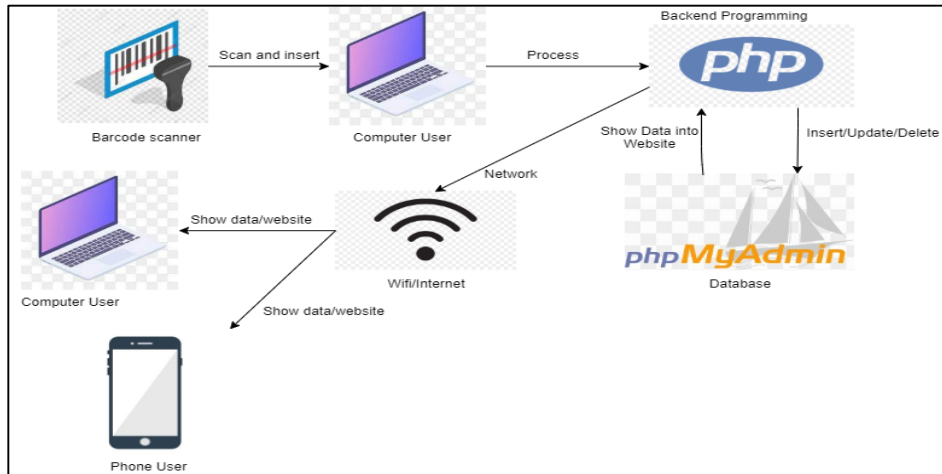
**Table 2: Activity for each phase**

Phase	Activity	Output
Planning	<ul style="list-style-type: none"> <li>● Recommendations and project selection</li> <li>● Work division, project objective, scope and problems.</li> <li>● Interview session</li> </ul>	<ul style="list-style-type: none"> <li>● Project Proposal</li> <li>● Obtain information during interview to solve particular problems.</li> </ul>
Analysis	<ul style="list-style-type: none"> <li>● Collect and analyze any information regarding to project development.</li> </ul>	<ul style="list-style-type: none"> <li>● Brainstorming idea to solve the problem.</li> <li>● Entity Relationship Diagram, Data Flow Diagram</li> <li>● Choose specific tool and software.</li> </ul>
Design	<ul style="list-style-type: none"> <li>● Sketch rough design for website.</li> </ul>	<ul style="list-style-type: none"> <li>● Design for each website’s pages.</li> </ul>
Implementation	<ul style="list-style-type: none"> <li>● Choose programming language that suitable</li> </ul>	<ul style="list-style-type: none"> <li>● Programming language been chosen are PHP, HTML, CSS and SQL.</li> </ul>
Testing	<ul style="list-style-type: none"> <li>● Test system with real data and gain information to fix any error.</li> </ul>	<ul style="list-style-type: none"> <li>● Feedback and suggestion from respondent from interview.</li> </ul>

As shown in **Table 2**, every phase has their own role and output during the project development. The process for each phase needs to be done in sequence in order to ease the project movement [3]. There are five phase that used which are, planning, analysis, design, implementation and testing [4].

### 2.2.1 Design

Schematic diagram is one of the way to show the system course from one process until it shows output from website pages [7]. This diagram also been used to see the full sequence between device and database also for displaying the output inside web pages. **Figure 2** shows the schematic diagram for this project. The process starts from scanning barcode obtained from stocks for recording process and will be inserted into database along with the quantity incoming or outgoing stocks. After that, output will be displayed from web either using a computer or smart phone after obtain data from database. The website is in localhost so other user like mobile phone user’s need to use the same connection that been used on server to watch the web page.



**Figure 2: Schematic diagram**

### 2.2.2 Implementation

This part will discuss about several page inside the website that had been developed. The main function for this website is to check the current quantity for product or raw material inside storage place in real time. The page for quantity product and raw material is used by worker can be checked as shows at **Figure 3**.

List Current Product

In Product Out Product

Show  entries Search:

No	Name	Barcode	Quantity	Store	Placement
1	Pizza Ayam	1712345789623	329	Store A	freezer 2
2	Pizza Daging	1712345789616	289	Store B	freezer 5
3	Pizza Cheezy	1712345789630	325	Store B	freezer 4
4	Pizza Cheezy Garlic	1712345789647	154	Store B	freezer 6
5	Pizza Seafood	1712345789654	225	Store B	freezer 3

Showing 1 to 5 of 5 entries Previous  Next

**Figure 3: Product details page**

The other function is to make data insertion for product or raw material. The data that will be inserted by worker is the barcode and quantity that either will in or out from the storage place. **Figure 4** shows the interface for key in incoming product barcode and quantity.

**IN PRODUCT STOCK**

Scan or Write any Barcode in the search box

Quantity Of The Product

1

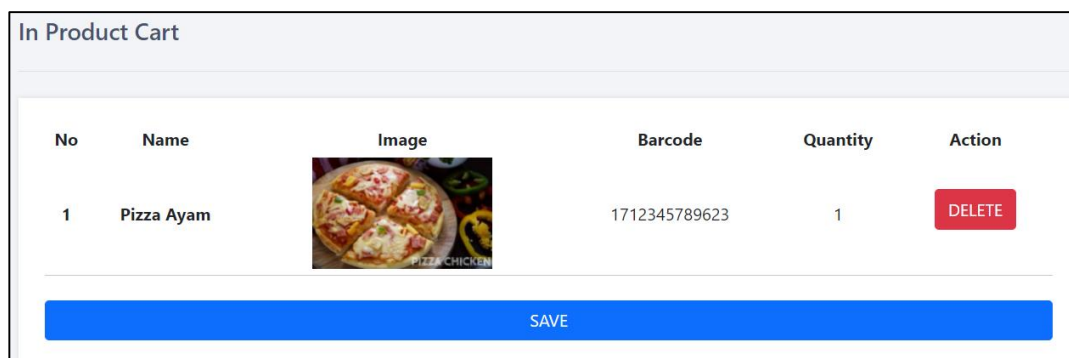
Barcode...

Add

**Figure 4: Product update page**

After key in the barcode and quantity, the data will be inserted into cart first before it proceed to save into history section and update the quantity that either incoming or outgoing from storage. After confirmation been made, the cart item will be inserted into history section and updated the quantity

based on the quantity been sent from user input. **Figure 5** shows the cart interface before stock quantity's been updated after user input by pressing save button.



**Figure 5: Cart page**

### 2.2.3 Testing

System testing is crucial to make sure that data will be stored is the real data, and will become the prove that the system works as smooth as it expected to be. Evaluation process also need to be done so the workers that used the system can see the result and give any comments to make website becomes more efficient. Evaluation process proceed by interviewed with company manager as representative for the company. The interview session is where the questionnaire for the system as shown in **Table 3** were asked. After done interview session, evaluation analysis carried out by using scale from 1 to 5 which scale 1 represent strongly disagree until scale 5 which is strongly agree. The analysis process carried out from respondent answers where the answers will be transfer into the scale for evaluation process.

## 3. Results and Discussion

### 3.1 Results

**Table 3: Result of testing**

Item	Testing	Actual results
1	Sufficient function for the system	Totally agree because provide the main function into the system
2	System difficulties	Agree if been used by the younger worker and neutral to used for elder employee because need time and help them to understand the system.
3	System Design	In total, the respondent agreed with the system design because of the arrangement of the elements inside website and the background of the system
4	System functionality	Totally agree because can see the main and other function of the system clearly and easily.
5	Ease of use for the system	Agree because every page for the system were brief and meaningful

**Table 3** shows the process for evaluation with the result that has been given by the respondent.

### 3.2 Discussion

#### 3.2.1 Advantages of the system

Among the advantages that can be obtained through the development of this system during system testing are:

- **Produce E-Card Stock Web Based Using Barcode**

The development of this system is use for Barcode technology that can benefit this stock e-card in receiving product information that will be stored into database.

- **Assist and facilitate SMEs in managing stocks**

Especially in bearing the high cost of buying an inventory system which is quite expensive in the market.

- **Display of the latest list of total stock**

Able to display the latest stock amount by store and storage place.

- **Selection of check in or out of stock from system**

Helps for identify incoming or outgoing stocks easily.

### 3.2.2 Disadvantages of the system

Among the shortcomings obtained through the development of a E-Card Stock Web Based Using Barcode for Fast Kitchen Concept during the testing of the system are:

- This system is only suitable on a computer (PC or laptop) because the website design will deviate when used on a phone.
- Unable to show the history of incoming and outgoing data on a weekly and monthly basis.
- Relevant data such as exit and entry history cannot be printed using PDF software.

### 3.2.3 Improvement recommendation on the system

Among the improvements and suggestions given by the business during the testing of the system to ensure that the system developed does not have any problems are:

- **Exchange into application**

This system can be used on mobile phones such as Android and iOS to make it easier for businesses use.

- **The designed interface can be improved**

This can attract the interest of businesses in addition to the development of the system develop looks sophisticated and can be sold to other businesses.

- **Add the system with a graph of expenditure and purchase planning carried out during the work process**

This can identify the frequency of sales that occur.

- **Add pdf system and print business information**

This can help businesses by providing softcopy and hardcopy information to business company files.

- **Add a link to the business e-mail**

Able to assist in getting notifications to the business e-mail without opening the web if the business does not want to open the web.

## 4. Conclusion

Overall, our project succeeds to achieve the set of objectives for solving the company problems in inefficient stock calculations, unsystematic, using conventional methods and inaccurate data to operate

business. As such, we have solved the company problems by creating a system that has been achieved to the set of objectives that can definitely help the company manage their stock calculations more efficiently, more systematically, easy to understand by workers and the data received is more accurate for the company. Therefore, improvement for the system are the company can adapt barcode technology in their products and stock calculations changed from conventional into digital plus able to fully utilize workers time to make production. However, every new system developed is bound to have its shortcomings, just like the systems we have developed. Among them, our system is only able to support by windows. The system can only be used in localhost and can show data among worker using LAN. Therefore, we have made improvements and recommendations to select our system in the future by making our system usable with mobile phones (Android and iOS) and applications online.

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