

INFORMATION SYSTEM DEVELOPMENT PLAN FOR THE RETAIL STORE RRJ/ MR. LEE (PANABO BRANCH)

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ABSTRACT

Management of Inventory and Sales are one of the most important parts of a business in order flourish and grow. It starts with helping develop the right products, setting the right prices, and distributing in the right places. The concept of Sales and Inventory Management System is to reduce paper works and ineffective ways of managing inventory; the system is expected to assist in making the right decision in the process of managing inventory aligned with the sales level in the store. Having a poor sales management can affect an entire business such as company's profits decrease in productivity, employer turnover and overall profits.

Seeing how important a management system is, the researchers proposed Inventory Sales Managements System in the store by integrating with their existing system (Point Of Sale System), which provides enhanced and more flexible function to the store. The proposed Inventory management system also improved decision making, not only that, any problems and events that is integrated within the system has been proactively identified and solved which allowed the sales manager to assign tasks to the right rep and priorities good leads, as well as improving forecasting and analytics

Keywords: Inventory management, business processes, sales management, point of sales system, inventory deficiency.

INTRODUCTION

1.1 Background of Company

The business started in year 2016 when the owner Eddie M. Sia decided to rent a lot in Brgy. Sustagen, Panabo City to create another branch of his RRJ/Mr Lee retail store business that is already widespread and has 7 other branches scattered in Davao Del Norte. Mr. Sia then took care of all the things that are needed to be done to open his branch in Panabo City and officially opened their branch on December 8, 2016.

The branch of RRJ/Mr Lee Ray is retail store business; they purchase branded clothes from famous brands, display them and then sell them to customers.

1.2 Current routines and business processes

1.2.1 Current Routines

The business has daily routines that are followed everyday such preparing, cleaning, selling, and making sure the store is neat and tidy. Communication of customer is also one of their routines. Also the store checks the

employee attendance everyday and must wear the uniform that company has

1. Event Table of Retail store: RRJ/MR. Lee

| Start Time | End Time | Task | Duration |
|------------|----------|---|------------|
| 8:45 AM | 9:00 AM | Preparing clothes, cleaning the store, and attendance | 15 minutes |
| 9:00 AM | 11:00 AM | Working time | 2 Hours |
| 11:00 AM | 12:00 PM | Lunch Break | 1 Hours |
| 12:00 PM | 6:00 PM | Resume Work | 6 Hours |
| 6:00 PM | 6:15 PM | Closing Time | 15 Minutes |

1.2.2 Business processes

The store opens 9:00 in the morning. The employee se 15 minutes reaches the official opening of the store preparations and cleaning for the customers. The business is in between self-services or customer-services where either the customer can choose for them and manage on their own, or they could ask the employee for assistance. The employees are also tasked to help customers immediately if the customers are taking their time longer than usual. The store also has some products displayed outside for passerby to see and has a sound system to play song that can attract people attentions.

1.3 Existing technologies

Table 2. Existing technologies of Retail store: RRJ/Mr. Lee

| System/Technologies | Description | Utilization |
|----------------------------|--|---|
| Point of Sale System (POS) | A system where the customer pays for the Items or services with receipt generated. | <ul style="list-style-type: none"> • Multiple payment methods (Include credit card, Paymaya and Gcash). • Customer Orders Management. • Reporting. • Item import. |
| POS Computer | The technology to record all significant data about the item. | |
| Barcode Scanner | A technology that can able to read printed barcodes and decodes the data contained in the barcode and sent the data to computer. | Scan the Item that had a barcodes and it automatically record and show all information about the item. |
| Receipt Printer | A device that print the customer receipts and credit card slips. | Connect to POS computer, it will receive the data from POS and it start to print the receipts. |

1.4 Problems Found

Inventory deficiency – Based on the interview conducted, one of the difficulties is the shortage of the inventory since their supplier is from Manila and as a result, the order can usually be canceled.

Sales – As we observe during the interview they are having hard time in their sales and sometimes they can't meet their quota a day.

Inventory Management - Based on our interview a problem that their company encounters that there is some of item missing in the inventory.

1.5 Goals and objective

The researcher expected to propose an information system that will serve and help company to manage and handle the inventory. Enhance and develop the business sales and other services.

1.5.1 Specific objective

The researchers proposed these specific objectives of the thought that it can be beneficial for the company and that could lead to a well-functioned business.

- Filling system in managing all transactions that are relevant as the aid in the stock tracking routines.
- To provide solution for the store by creating sales inventory management system.
- To help improve tracks low stock levels and set automatic re-ordering for each product.
- To manage stock loss due to theft and other attrition.

1.6 Organizational Structure



Figure 1: Organizational structure of Retail store: RRJ/Mr. Lee

The Panabo branch Retail Store: RRJ/Mr. Lee has business owner that run the business follow by supervisor who supervise the business flow, The Manager that in charge and manage of the company branch, and employee that who work in the store as shown in Figure 1.

1.7 Stakeholders

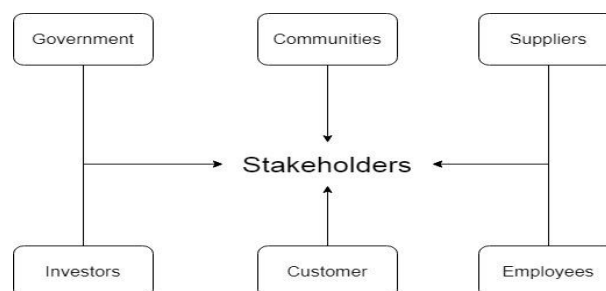


Figure 2: Stakeholders of Retail store: RRJ/Mr. Lee

Figure 2 shown that Government, Communities, Suppliers, Investors, Customer, and employees are considered stakeholders in Retail store: Rrj/Mr. Lee.

2. PROPOSED INFORMATION SYSTEM

2.2 Name of Information System I

Inventory Sales Management Software (ISMS) is a computer-based system that functions mainly as a tracker of the company's inventory and sales. It also manages and protects stocks and goods for being damaged when being delivered to the customers. The ISMS also help to avoid the product or outrages by integrating daily in Point Of Sales with the store inventory.

2.2.1 Review of the Related Study

The Ware-house Inventory Management System (WMS) is a requisite approach for every warehouse. A computerized warehousing system provides us less effort, more efficient and stable results are correlated with hand held manual system. In Warehouse there may be many zones, those zones are also called as Stockrooms. Depending upon the demand of the products, more products have to be stored. So Warehouse requires more number of stockrooms. The urge for automating the warehouses originates from the fact that manual handling systems may lead to human errors which may affect the warehouse utilization [1].

Supply Chain Management (SCM) manages the flow of goods, materials, and information and the production of goods and services across a supply chain from the furthest suppliers to customers in a way that increases the profits of the supply chain members and subsequently that of the chain. Inventory represents a significant portion of the costs of a supply chain, and managing it well is primary to the success of a supply chain management program. Many researchers have investigated different inventory situations, and developed policies and models or suggested methods to lower inventory costs, one of which is consignment stock (CS) [2].

The Order Management System is the heart of Omnichannel operations, every information related to orders, customers, inventory and locations goes through it, for it to play its central role in any Omnichannel scenario. In the Oracle Retail Suite that's no exception. Referred to as Oracle Retail Order Broker (OROB), this system running in the cloud, like most ORS products, has the challenge to enable, order anywhere, fulfil anywhere, and deliver anywhere Omnichannel strategy. OROB is a rules-based engine that makes decisions, based on sales velocity, proximity to shipping locations and other business defined considerations in order to minimize lost sales due to inadequate inventory status. OROB also has the option to work has a standalone product outside of the ORS since it counts with a Store Connect module to work with third party POS systems allowing to fulfill order like pickup, delivery and ship-to-store scenario [3].

Retail Inventory Management refers to the process of ensuring that you have the merchandise that customers desire on hand, but not too little or too much. Retailers meet client demand by controlling inventory so that they don't run out of stock or have too much on hand. Effective retail inventory management yields cheaper costs and a better grasp of sales patterns in practice. Tools and methods for retail inventory management provide merchants with more data with which to run their businesses [4].

"This Inventory Management System which includes RFID reader that is a system to facilitates the tracking of objects, instead of traditional barcode scanning technology to keep track of the items in the storeroom. Primarily RFID is used for inventory tracking, to track items using EPC (electronic product code), that is unique identifier stored within an RFID tag contain a string of numbers and letters, consisting of a header and three sets of data partitions"[5].

The study on 'How Inventory Management Systems Work' stated that inventory management system are the rule in knowing which products are selling and which are taking up shelf space for enterprises as well as smaller businesses and vendors. The system balance the goal of ensuring customers always have enough of what they want against a retailer's financial need to maintain as little stock as possible [6]. "To insure appropriate inventory levels in retail outlets, replenishment managers concern themselves with both timing of shipments and quantity of product available within the store. While organizations regularly use inventory management or enterprise resource planning systems to procure inventories, the researchers find that these systems can incorrectly manage a sizable group of products found within retail organizations [7]. "Software is rapidly changing to business management software is in the area of content management or going paperless. The change of accounting software to business management is the addition of analytics. The change of accounting software to business management is the addition of analytics. the change of accounting software to business management is the addition of analytics". Another evolving area that was evident at the tradeshow this spring was warehouse management and RFID (Radio Frequency ID) [8].

Today there are literally hundreds of inventory management systems available to distributors. Some are incorporated into Enterprise Resource Planning (ERP) systems that include sales, replenishment, general ledger, warehousing and other modules that can be used to process all of a distributor? Other packages are bolt-on? Solutions that provide an inventory management tool set which is seamlessly connected to the distributors ERP system. Bolt-on packages are utilized when a distributor is generally happy with his or her ERP system but would like more replenishment functionality [9].

As more and more businesses using management software's in aiming to having a well-functioned company. Supply chain software is growing in sophistication, but there are still weak areas. "Businesses want software that maximizes the profitability of interactions with customers and suppliers, by combining information from financial and supply-chain systems. Workers in factories, warehouses and call centers need better information about costs, so that they can make more cost-effective, and therefore profitable, decisions"[10].

The Barcodes, Sales And Inventory Control' stated that in the earliest days of inventory keeping, in order to forecast future needs, the merchants wrote down purchases or looked down at how many units were gone at the end of the day. However, this practice seems to be difficult to carry out after the Industrial Revolution as the mass production became the main goals of business together with improving customer experiences at the point of sale [11].

"According to the abstract posted by the World Intellectual Property Organization: "An inventory management system is connected to equipment and manages inventories of goods that are used when the equipment is in operation. The inventory management system comprises an acquisition device, a reception device, and a notification device. The acquisition device acquires inventory information indicating inventory quantities for two or more items. The reception device receives operation information relating to the operation of the equipment. If there are items for which the current inventory quantity as determined on the basis of the inventory information and the operation information falls within a first range, and the number of such items exceeds a threshold value, then the notification device provides notification that these items should be further stocked" [12].

2.2.2 System Functionality

- Track inventory levels in real-time.
- Provides the automatic sales report which includes item code, name, quantity, price, and amount.
- Track sales activity.
- Backup and security of the inventory data.
- It Prevents Stock-outs.
- Quality Management.

2.2.3 System Architecture

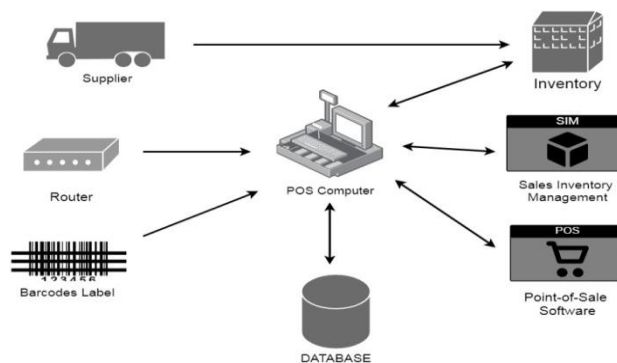


Figure 3: System Architecture of Retail store: RRJ/Mr. Lee

Figure 3 shown that the software use the Point of sale system (POS) to record the products of the store and the inventory. The POS computer is the one who run the system and serve as a center location for database, ISMS, POS. And also has Router that serves to connect multiple devices.

2.2.4 Cost Structure

Table 3. Cost structure of Retail Store RRj/Mr. Lee

| Cost description | Cost |
|-------------------|------------------|
| Operational cost | Php45,000 |
| Development Cost | Php10,000 |
| Maintenance Cost | Php8,000 |
| Total Cost | Php63.000 |

PROPOSED IT INFRASTRUCTURE AND PEOPLEWARE

3.1 Proposed Computer Hardware

The researcher proposed this computer hardware for the store to use and improve the transaction, track sales, track inventory, record sales.

Computer set

A device that has a designed to fit to the desk or table and has an ability to store data.

Receipt Printer

A printer device that prints text or graphic output from the computer and used to print credit card slips and customer receipts.

Barcode Scanner

A device that uses to capture and read information of the contained barcode.

Table 4. Proposed Computer Hardware

| Computer hardware | Specification | Unit Cost | Quantity | Total cost |
|--------------------------------|--|-----------|----------|------------|
| Computer set | CPU: Intel i5 Quad-Core | | | |
| | RAM: 8 GB | | | |
| | SSD: 128 GB | | | |
| | HDD: 500 GB | | | |
| | Monitor: 18" (1080x720) | 19,850 | 1 | 19,850 |
| | Mouse | | | |
| | Keyboard | | | |
| | Power Supply: RS PRO 500w | | | |
| | PC | | | |
| Receipt printer | EPSON TM-T70 | 8,500 | 1 | 8,500 |
| Barcode Scanner | Matrix Sumeber 2D Barcode Scanner Handheld | 4,399 | 1 | 4,399 |
| Overall Computer Hardware Cost | | | | 32,749 |

3.2 Proposed Operating System Platforms

The researchers proposed an operating system that can support this system that needs the latest windows update for compatibility.

Microsoft Windows 10

The Microsoft windows is a operating system that support for multiple devices such as desktop computer, tablet, laptop and other devices that support by Microsoft windows 10 it also support software applications and offer built-in security.

Table 5. Proposed Operating System Platforms

| OS Platform | System Requirements | Unit Cost | Quantity | Total Cost |
|-------------|---|-----------|----------|------------|
| Windows 10 | Latest OS: Make sure you're running the latest version—either Windows 7 SP1 or Windows 8.1 Update. | | | |
| | Processor: 1 gigahertz (GHz) or faster processor | | | |
| | RAM: 1 gigabyte (GB) for 32-bit or 2 GB for 64-bit | 6,000 | 1 | 6,000 |
| | Hard disk space: 16 GB for 32-bit OS or 20 GB for 64-bit O | | | |
| | Overall OS Platform Cost: | | | 6,000 |

3.3 Proposed Enterprise Software Applications

Enterprise software applications can help the business improve, and they are tools that use to run business successfully .

Enterprise Resource Planning Software

This software helps the business process to work easily because they provide tools that work in different ways and it integrates the business financials, supply chain, reporting, manufacturing, and others.

Table 6. Proposed Enterprise Software Applications

| Enterprise Software Applications | Specification | Unit Cost | Quantity | Total Cost |
|---|---|-----------|----------|------------|
| Enterprise Resource Planning (ERP) Software | <ul style="list-style-type: none"> Boost profitability Reduced wasted time Provide enterprise tools like customer relationship management(CRM) | 2,381.28 | 1 | 2,381.28 |
| | Overall Enterprise Software Applications cost: | | | 2,381.28 |

3.4 Proposed Data Management

Data management is very important in business since it's execute a large task like collecting, protect, processing, and secure the information. It also has Backup data or recover data in-case of corrupted drive.

MySQL

MySQL server is a software product with the primary function of collecting data and provides solutions to problems by retrieving the data.

Table 7. Proposed Data Management

| Proposed Data Management | Specification | Unit Cost | Quantity | Total cost |
|--------------------------|---|-----------|----------|------------|
| MySQL | Cross-Language support SQL Server Data Tools | Free | 1 | Free |

3.5 Proposed Network & Telecommunications

The researchers proposed these this/these Networks in order for the business/company to deliver high standards of customer service and communication. Since that our system requires an internet connection.

Router

Router is networking devices that connect computer and other devices to internet. Also you can use routers to create local networks devices these can be used if you want to share file or print a receipt.

Table 8. Proposed Network & Telecommunications

| Enterprise Software Applications | Specification | Unit Cost | Quantity | Total Cost |
|---|-----------------------------------|-----------|----------|------------|
| Router | Tenda AC11 2.4+5G wireless Router | 2,817 | 1 | 2,817 |
| Overall Network & Telecommunications Cost | | | | 2,817 |

3.6 Proposed Internet Platforms

Internets Platforms are recently become part of our live and it's very important for the clothing store to have this. It can attract the customer and provide them exact information of the item.

Social Media Platform

Social media allows you to share or exchange information it may ideas, career, and many others form. It can also use for business it is a great way to engage with customers like in Facebook, Twittter and instagram that you can use as a online business or product advertisement.

E-commerce

E-commerce is an online business that can allow you to sell or buy without a direct transaction. The customer transactions are going to process by the software operator and delivered and fulfilled.

Table 9. Proposed Internet Platforms

| Internet Platform | Specification | Unit Cost | Quantity | Total Cost |
|--------------------------------|------------------|-----------|----------|------------|
| Social Media Platform | Facebook | Free | 1 | Free |
| | Twitter | | | |
| | Instagram | | | |
| E-commerce | Lazada Shopee | Free | 1 | Free |
| Overall Internet Platform Cost | | | | Free |

3.7 Proposed IT Manpower

One of the important role to fill to play for the success for any kinds of businesses. The researchers proposed this manpower to ensure and help to build up the company's success.

Computer Analyst

Helps the owner use the computer efficiently and effectively write and publish technical reports and oversee installation of new systems.

Computer Technician

The one that maintain and repair computer hardware, software, networks and resolve computer problems.

Table 10. Proposed IT Manpower

| IT Manpower | Proposed Salary | Quantity | Total cost |
|---------------------------|---------------------|----------|------------|
| Computer Analyst | 10,000 per month | 1 | 10,000 |
| Computer Technician | 1,500 | 1 | 1,500 |
| Overall IT Man power Cost | | | 11,500 |

CONCLUSION AND RECOMMENDATION

4.1 Conclusions

The retail store RRJ/Mr. Lee is a branch in Panabo City that manages by Janieza L. Pecondo; the store has a 7 other branch in Davao del Norte.

In conducting the study we found out that the store have some difficulties about how they handle the track their inventory and sales, it will be more efficient and fast that our system will aid their business process.

4.2 Recommendations

This study will help the store grow, this following recommendation in Panabo retail store: RRJ/Mr. Lee. TO consider

- Familiarize the use of the system if you consider the proposal.
- Train the staff on how to use the modern technology.
- The researcher recommends hiring IT specialist.
- Upgrade the hardware components of the computer for faster transactions.

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