**CROWN PRINCE AUTO PARTS CENTER SALES**

**AND INVENTORY SYSTEM**

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**An undergraduate thesis outline submitted to the faculty of the Department of Information Technology, Cavite State University – Imus Campus, Cavite in partial fulfillment of the requirements for the degree of Bachelor of Science in Information and Technology with Contribution No. \_\_\_\_\_\_\_\_. Prepared under the supervision of Prof. Carlo P. Malabanan.**

**CHAPTER I**

**INTRODUCTION**

Technology is inevitable in almost every aspect in our daily lives. The impact of technology is higher than we expected in today’s dynamic world. So we are developing innovations to measure during a better and standardized life. One of the growing development technologies is transactions and interactions in a more convenient way. A business operates most efficiently when its processes are performed consistently. There has been also an exponential increase in smartphone applications made available by businesses looking for new ways to reach customers. POS and Inventory System are beneficial to the business and can be used for all kinds of business endeavors. According to Ravi (2010) that manual sales systems are time consuming, it is awfully tiresome, with plenty of paper work, slow data processing, it is not user-friendly environment and it is difficult to found records due file management system. With a POS and Inventory System, business relies on computers to do tasks that were once performed manually, such as inventory check and product sales

Technologies supporting the e-business initiative serve as a comprehensive primer to both traditional and emerging e-commerce technologies. Karen and West (2001), in a preferred model of the invention, individual users physically located at a geographic location may submit their reservation requests over the Internet. Electronic commerce acceptance is broadly defined as the customer’s engagement in electronic exchange relationships with web retailers. Therefore, online transactions can be viewed as instances of interactive marketing communications (Paul, 2003).

Growing online competition of the internet technology have supported the expansion of website factors, beyond extensive product offering, customer, convenience, ease of navigation, and security, that affect online marketing success.

Crown Prince Auto Parts Center sells different automobile parts and provides vehicle repair and services. The shop is using a manual system that caused some difficulties for keeping the records of their sales, stocks, as well as customer services. They need to write down all the records in a record book manually. Hence, they decided to change their present manual system. The proponents came up with an idea of proposing a system that is relevant to the needs of the shop, highly efficient to meet their needs. The proposed CrownPrince Auto Parts Center Sales and Inventory System aims to organize data in an easy way using website which is compatible to mobile phone that process of managing inventory, point of sale and reservation items with 3D viewing.

**Statement of the Problem**

**General Problem**

This study is conducted to develop a Crown Prince Auto Parts Center Sales and Inventory System**.**

**Specific Problem**

The lack of security of the data that needed to put to make the information safe and secured. "How to create security in terms of accessing the system?"

The intricate system that makes the business of the client in conflicts to monitor and fixing manually to detect the errors that results to time consuming and bother. "How to develop a system that will help the user to electronically monitor their stocks and inventory?"

The deficiency of having more client and providing an easy access for the items that they want. "How to design the process of reserving an item for the customer using an online system?

The suffiency of the business to provide a better service for the customers. "How to provide a system that will help the customer to decide for the better choice of their desired items?"

**Objective of the Study**

**General Objective**

The objective of the study is to develop an efficient internet-based system to replace the manual operation used by the Crown Prince Auto Parts Center.

**Specific Objectives**

The proposed system aims to achieve the following:

* To develop a security system that will secure your account accessing the system.
* To develop a module that generates real time reports, monthly sales and inventory.
* To design a module using HTML/CSS for the framework of the system.
* To create a reservation module with 3D viewing for the customer.

**Significance of the study**

The proposed project aimed to designed and provide a user-friendly Crown Prince Auto Parts Center Sales and Inventory Systemfor the benefit and convenience of the users. The proponents intend to develop a system that is better and useful replacement to traditional process that the business currently using.

**Client**. The client can monitor and access the system wherever he/she is. Less hassle, and less workload.

**Users.** The users can do their work easily done.

**Customers.** They can easily know if the item/s is available by checking the website or application.

**Researchers.** The study will serve as a reference for the future researchers that who would want to conduct related studies.

**Scope and Limitations**

The main purpose of the study is to develop a Crown Prince Auto Parts Center Sales and Inventory System**.** The system will consist of some significant modules in order to satisfy the needs of the client.

**Security Module -** The system will provide a security module which will have four accesses such as administrators, employees, customers and guests.

*Administrator* is fully responsible for monitoring, maintaining, and manipulating the website since they have access to modules which are hidden to others such as product management, sales and inventory reports, reserving management and others.

*Users*can access and monitor the selected modules that the admin enabled.

*Customers* can view and make a reservation of the items in the website or using android phone.

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**Sales Module -** This module allows the user to add/edit sales and insert details such as product/service, quantity, subtotal, date recorded of reservation. This module also displays the sales in tabular form.

*Add Sales-*it contains customer, product/service, quantity of the product, price, subtotal, and date recorded of reservation.

**Products Module -** User can add/edit products in this module and add details like name, description, capital price, retail price, quantity, and date.

*Add product-*it includes product name, description of the product, capital price, retail price, quantity and date.

**Services Module -** User can add/edit different services available and add details such as service name, description, price, and discount.

*Add Services-*it includes service name, description and price.

**Reservation Module -** This module allows the user to manage the reservation. The information includes the reservation date and time, customer information, details of reservation, status of the reservation if it is confirmed, cancelled or rescheduled and remarks.

*Add Reservation-* it includes date and time, customer information, details and status of the reservation if it is confirmed, cancelled or reschedules, and remarks refers to the explanation, comments or reason of the reservation.

The system’s website will only be accessed through internet and applicable in mobile devices.

**Time and Place of the Study**

The study was conducted in Crown Prince Auto Parts Center located in Real 1, Bacoor City, Cavite, where the business owner having a difficulty using a manual system and reserving real time order for his customers.POS and Inventory System is useful and common because of the advancement of technology today that has reached a higher standard of quality in technology. The proponents conducted morreal-the imetly to our client. In this system, it is accessible in website and mobile app. Customers can reserve the items that they want. The proponents conducted an interview to the client, the owner of Crown Prince Auto Parts Center.

For the time frame, the duration of the study was from October 2020 to March 2021. Throughout this given time, the researchers were able to plan the research flow, conceptualize the process of gathering data.

**DEFINITION OF TERMS**

**3D.** Process of generating three-dimensional moving images in a digital environment.

**3D Viewing.** Three-dimensional moving images that can view in a digital environment.

**Admin.** It refers to the owner of the shop who has the authority in regard to the system.

**Application.** Any software that uses or applies some particular technolog**y**

**Inventory.** Considered to be the central theme in managing materials.

**Point of Sale.** A system that handles the business transactions between the company/small businesses to be completed.

**Reserving.** Is a type of advance order.

**Sales.** Type of selling an item or product.

**Modules.** This is the functions of the system.

**CHAPTER II**

**REVIEW OF RELATED LITERATURE AND STUDIES**

This chapter includes some related literature that is used as a reference and a guide in creating this study. The following paragraph is a quotation from the related literature and studies that is deemed significant for the researcher’s study.

**Point of Sale**

Hayes Adam (2020) defined Point of Sale as an important part of the purchase. This is where the customer pays for the transaction of goods or services. There are two ways to process payment, using physical store and online payment using a computer or mobile electronic devices. The vital focus of the marketers tends to make a strategic plan to boost the purchase of customers and to make a better opportunity in a hassle-free to transact and purchase.

The integration of old Point of Sale system have been accentuate in the market as it provides security, digital signage, pricing of the products and inventory of goods or services (Kumar,2015). Due from increased demand pf POS software from business and even retail business, the impact in the market effectively grow.

As stated by Herbert et.al(2019) by holding with the settings in which we purchase media, Retail location reveals the hidden strains that characterize the contemporary culture enterprises. It affects to gain consumer and makes POS system grow faster.

As stated by Bruce (2019) when a payment is made by the customer, POS transaction happen using online transaction or in physical store in exchange of availing the products or services. It also involves the conversion of assets, liabilities or equity in general. The POS system keeps the number of transactions being made in every transaction. The monetary exchange taking place when you visit the store and pay in the counter. The POS system calculate all the data like inventory management, POS report generation, employee profile management, stock management etc. Using this system, it maintain reliable records and will monitor the progress of the business, will make you analyze and implement the procedure needed to improve the sales.

According to Carlson R. (2021) providing POS system in your business makes your business improve and less hassle for tracking every sales and other data. Using POS system in online business, it is possible to make transaction with the customer without holding their money or credit card. In retail stores, where customers come to your location to pay, POS system includes a terminal, barcode scanner, credit processor, and printer for receipts.

**Inventory System**

According to Padmanava,S. (2015)in American English, the word inventory is mostly used to describe the goods and materials that a business holds for the purpose of resale. The world stock described capital business invested in a business although the word inventory is commonly used as synonym of it.

Inventories are stored goods that are waiting for manufacturing or processing. In all sectors of the economy, they are ubiquitous. For example, observation of almost every business balance sheet shows that a large portion of its assets contain inventories of raw materials, components and sub-assemblies and finished products throughout the manufacturing process. Inventories of raw materials provide a reliable source of input needed for output.

A large inventory demands less replenishments and economies of scale are responsible. In-process inventories mitigate the effects of a plant's variability in production rates and protect against failures in ordering cost processes can be reduced. Inventories of final products allow for increased customer service. A significant marketing factor is the variety and easy availability of the commodity. There are other types of inventories, including repair inventories of spare parts and surplus capacity built into facilities to take advantage of building economies of scale. Questions need to be continually addressed as to when and how much raw material should be purchased, when a production order should be released to the factory, what level of safety stock should be stored at a retail store, or how in-process inventory should be retained in a production process.

**Inventory Management**

All roles are interlinked and related to each other in every corporation or organization and sometimes overlap. Some of the main aspects of the business delivery role include supply chain management, distribution and inventory from the backbone. These roles are also highly essential for both marketing managers and finance controllers. Inventory management is a very significant feature that defines both the health of the supply chain and the effect of the balance sheet's financial health. Each company is continually trying to maintain optimal inventory in order to be able to satisfy its demands and prevent over or under inventory that can affect financial figures.

The inventory is always complex. Inventory management requires continuous and comprehensive assessment by preparation and analysis of external and internal influences and control. Many companies have a separate department or job role called inventory planners who manage, control and review inventory and development, procurement and finance department interface on an ongoing basis (Palmanava,2015).

**POS system for Inventory Management**

One study conducted by Carlson,R. (2021) it is best decision to use POS system for managing inventory for improving the business. Inventory is the most important for a small businesses that can hold. If the inventory is too long, it becomes outdated. If the inventory is short, the reliability of your customer for you will be in danger. Using POS system for Inventory management will remind you if you are running out of stocks.

**Sales and Inventory System.**

The traditional way retailers hold their sales and inventory information is in spreadsheets that, as the size of the store gets larger, are no longer accurate. This is because more goods would be made available in a greater amount, so it will be challenging and time consuming for the retailer to monitor the sales made with the stock level in the store. The Sales and Inventory Management System is widely used by combining 'Point of Sales' with the store's inventory level to prevent product overstock or outrages(Acosta,et al.2020).

**Payment methods using POS**

As stated by Bruce (2019) each selling or purchase includes the exchange of money, but in various cases the medium through which this money is exchanged may vary. The following are the two main categories of POS transactions are online and offline. Online transactions occur while making a purchase from an online retail store. In this situation, the store is not physically present, but customers can access online product descriptions and order preferred items that will be shipped to their doorstep in some time. When the buyer enters his/her credit card details and the money is transferred to the seller in the online segment, the point of sale transaction occurs. In the case of unsatisfactory product quality or defective products, in certain cases, the balance is also refunded to the customers. Offline transaction is referred to as an offline point of sale transaction when a customer enters a shop, selects those items and makes payment at the cash counter on which a POS is placed. In this case, the transaction is direct.

**Fast and detailed transaction using POS**

As stated by International Journal of Advanced Research in Computer Science (2019), a Point-of-Sale System is an enterprise solution primarily based on software program used to tune sales pastime and inventory simultaneously. Manufacturers and outlets can both benefit from a comprehensive answer the place single transaction entry records; quintessential client details, purchased products; rate and date are also updated. The gadget would be of awesome assist to the entire procedure due to the fact it serves as many customers as possible at a speedy tempo and helps to screen all kinds of data faster, less complicated and extra conveniently.

**3D Visualization for Online Retail: Factors in consumer behavior**

According to Woodhouse (2016) a virtual shopping platform was created and implemented, with product categories projected in both 2D and 3D. The aim of this system was to assess the suitability for consumers of a 3D virtual catalog as a shopping outlet and the possible effect on the shopping behavior of consumers.

**Viewing Real-World Faces in 3D**

As stated by T. Hassner (2013) as web-browsers are integrated with 3D engines, and with the origin of 3D printers, there is an increased demand for accessible ways of creating 3D models. In response to this, it presents an efficient and competitive system for 3D estimation of faces, designed to sustain extreme variability’s in facial appearances. The system is designed around an optimization that uses the appearance and depth jointly to regularize the output depth. The method was tested method vastly, comparing it to existing alternatives, including commercial products, to evaluate its capabilities. It demonstrates how this process may be employed within a real-world system by offering a public system for on-line face shape estimation. The reconstructed geometry allows exploring the faces in 3D, with few noticeable artifacts. The system demonstrated its capabilities by designing an on-line system for web-based 3D viewing of real-world face photos, publicly accessible using modern web-browsers. It implemented a method as a server-side process, providing a simple interface for client-side applications. One such client application is a Google Chrome extension. It enables users to select photos appearing on web-pages with a simple mouse click. A selected photo is then automatically sent to the server service, the shape of the face is estimated on the server, and then displayed back on the Chrome browser. Users commonly wait about a minute before a surface is returned and can be explored in 3D, much of this time required for data transfer.

**3D image-based**

As stated by Daniel, et al (2003) an image-based rendering system and method are revealed for illustrating 3D images of a subject. A packed image file having multiple improved and calibrated images of a subject from various viewpoints from along a trajectory about the subject is develop. Before selected viewpoints of the object being disclosed, the packed image file is at least partially transcoded to a randomly convenient format such that individual or numerous images may be pulled for immediate display or further processing.

**Web-based Online Reservation: The Role of E- Service Quality**

Using the Internet as a reservation method has benefited businesses and customers by reducing costs and providing up-to-date information to both parties. Many researchers believe that online reservation, such as hotel and airline reservation, is considered one of the largest and fastest growing areas of B2C e-commerce (Buhalis & Licata, 2002; Ruiz-Mafe et al., phili). Studies have shown that hotel reservation is the second most frequently purchased travel product online and according to PhoCusWright, one-third of the world’s travel sales will be conducted online by the end of 2012 (Cezar & Ogut, 2012). Therefore, companies are investing a large amount of money and effort to deliver better online services, to improve customer satisfaction.

Despite this increase in the number of customers using the Internet to reserve online, relatively little research has been devoted to investigating user attitude towards this service in particular compared to the enormous number of studies about online shopping in general. For example, the study of Bigne et al. (2010) investigates the impact of motivation, opportunity, and ability of e-customers on ticket repurchasing intentions. Their findings have revealed that all three factors influence repurchasing intention, but that the influence of opportunity is relatively small compared with that of motivation and ability. Llach et al. (2013) examine the impact of e-quality on consumer loyalty in the context of online airplane ticket purchase. They have found that functional and hedonic quality significantly affects loyalty through perceived value. Al-maghrabi et.al. (2011) integrate the technology acceptance model with the expectation confirmation theory to measure continuance intentions of online shopping for airlines web sites. Their results have found that perceived usefulness, enjoyment, social pressure, and loyalty incentives are determinants of online flight booking continuance in Saudi Arabia.

The study of Li and Buhalis (2008) has revealed that the type of travel website most visited, self-efficacy, domain-specific innovativeness, and perception of the Internet, significantly influence online booking among Chinese customers. Kim and Kim (2004) have surveyed customers from eight hotels in Korea to investigate the determinants that explain a customer’s online reservation intention. They have found that convenience, safety, price, ease of information search, and transaction significantly affect online reservation intention and that ease of information search and transaction is more important than price. Wong & Law (2005) have examined the effect of information quality, sensitivity content, and time on online hotel purchase intention and have found that all three factors positively affect intention.

**Online Reservation**

Nowadays, Artificial Intelligence (AI) algorithms have been used widely for solving several difficult problems, such as image segmentation, medical image analysis, nurse roistering problem, Healthcare Monitoring, patterns recognition and information retrieval, Learning Management System and river flow forecasting. Many researchers designed and implemented booking and scheduling web system using AI algorithms and web technology for covering real booking and reservations problems. (Daniyah,et al.,2018)

As stated by Samar and Mohammad (2012) Online reservation has increased significantly in recent years. Understanding how customers behave towards this technology is considered to be important to interested parties, such as travel agencies and tourism marketing managers, in order to enable them to improve their marketing strategies, which would, in turn, allow them to retain their customers.

**Reservation Discount**

According to Nicole and Granucci (2013), different organizations give reservation administrations to shoppers wherein rewards, focuses, or limits are master vided to the purchasers if the customers use certain MasterCard’s, check cards, or other favored installment techniques. For example, eating projects may give credit cardholders eatery reservation administrations for use with taking interest eateries, and if the customer covers a tab of one of the partaking cafés with a liked or qualified MasterCard, at that point the purchaser is granted a feasting rebate gave by the café when shutting the supper exchange. Other reservation frameworks may furnish through affiliations with banks or credit or installment account organizations, prizes, focuses, or different limits to the customer if the purchaser uses a qualified charge card for installment. The responsible bank or installment account organization benefits by urging the buyer to use its installment represents the specific exchange; the vendor benefits in that more shoppers are brought to a business of the trader; and the customer benefits by getting a rebate or other honor just for utilizing an installment account that is qualified to finish the exchange. Usages are coordinated to correspondence with a framework that ascertains a motivating force. In one implementation, a first transmission having information to reserve a spot with a booking representative is framed at a compact shopper gadget Such as a hand held remote media transmission gadget. The information can incorporate a pointer of a first installment account related with an installment preparing framework, for example, a MasterCard number. A subsequent transmission including an affirmation of the booking is gotten at the compact buyer gadget. The affirmation may incorporate an identifier for the booking, Such as the name of an individual the reservation is made under, guidelines for respecting the reservation, or a period limit in which the reservation might be substantial.

**Smartphones compatibility**

According to Thomas et al (2010) smartphones are steadily gaining popularity, creating new application areas as their capabilities increase in terms of computational power, sensors, and communication. Emerging new features of mobile devices allow new threats. Android is one of the new operating systems targeting smartphones. While being based on a Linux kernel, Android has unique properties and specific limitations due to its mobile nature. This makes it harder to detect and react to mal lifecycle phases of Agile software development begin again afterwards, either with a new iteration or by moving to the next phase ware attacks if using conventional techniques.

**3D Modeling**

In computer graphics, 3D modeling is a technique for producing a 3D digital representation of any object or surface. In order to form a mesh, an artist uses special software to manipulate points in virtual space (called vertices): a set of vertices that form an object. By deforming the mesh, or otherwise manipulating vertices, these 3D objects can be generated automatically or created manually. For a range of media, including video games, films, architecture, illustration, engineering, and commercial advertisement, 3D models are used. A digital object capable of being fully animated is created by the 3D modeling process, making it an important process for character animation and special effects. The center of a model is the mesh that is best defined in space as a set of points Petty (n.d).

**Input** **Process** **Output**

Software Development

1. Requirements Planning
2. System Design
3. Implementation
4. Verification
5. Maintenance

POS and Inventory System

Online Reserving Item

For Crown Prince Auto Parts Center

**Knowledge Requirements**

Account (Admin/User/Customer)

Products

Ordering Systems

Inventory System

Point of Sale

Web Development

**Software Requirements**

Windows OS

Web browser

HTML/CSS

PHP

MySQL

XAMPP Server

**Hardware Requirements**

Intel—

Use memory ram 8gb

Mouse

Keyboard

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**Evaluation**

**Figure 1. Conceptual Framework**

In the provided diagram, the system contained the necessary requirements needed to continue planning and designing phase.

In the Input Phase, the proponents gathered information of system’s software. All the necessary requirement in this phase has been has done before proceeding to design.

In the Process Phase, the process has been done step-by-step. From databases to the Interface design, it is constructed thoroughly. When satisfactory met, the proponents proceed onto the output phase.

In the Output phase, the entire system will be presented for evaluation of the proponents in thesis defense. And that concludes the proponent’s conceptual framework.

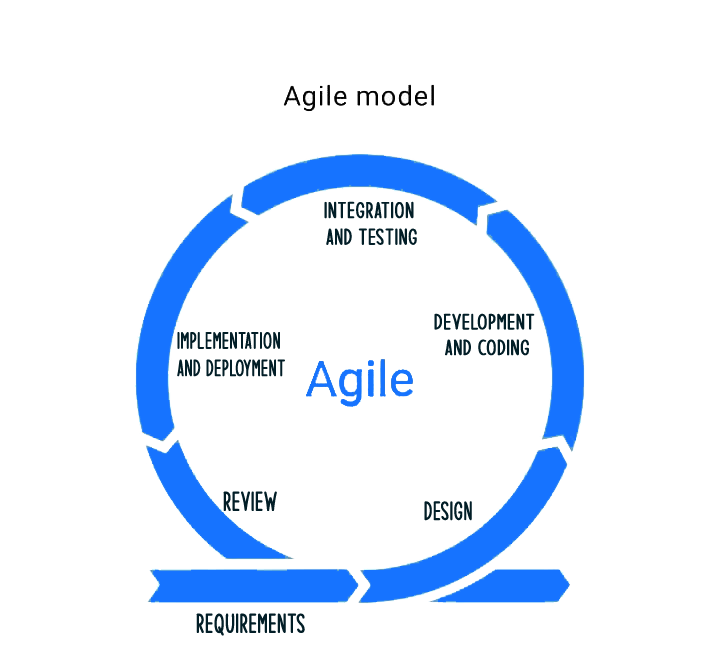
**CHAPTER III**

**METHODOLOGY**

In this chapter, the methodology used in the study is discussed and presented. All the requirements used by the researchers in developing the study including research approach and design, research setting, study of population and samples, data collections, instruments and procedure, and data analysis were included in this chapter.

**Research Approach and Design**

The proponents will use Agile Model in developing the POS and Inventory System with Reserving Item and Decision Support System in order to follow the sequential process. All the requirements used by the researchers in developing the study including requirements, design, development and coding ,integration and testing, and implementation and deployment were included.



**Figure 2. Agile Model**

**Planning Phase:**

The proponents gathered the information needed to meet the client’s requirement. The proponents interviewed the client to know the problem and come up for the solution of the manual system.

**Requirements Phase:**

The focus of this phase is to understand the existing itself and exploring the details of the problem domain. The proponents processed what needs to be built and how the system will be built.

**Design Phase:**

The focused in this phase on data are data requirements, the software and graphical user interface of the system.

In this phase, the proponents will design the flow of the system and decide its functionality and features with regards to the needs of the clients. By doing this the researchers can avoid unnecessary complexity to the system and decrease the clarity of the system. On further iterations, the developers explore the implementation of the function and the coming inner structure.

**Development and Coding Phase**

The development stage is about writing code and translating design documents within the software development phase into the actual software. This step normally the longest as it is the entire process's backbone. Between the iterations, there are not many improvements here.

The proponents will use the PHP for programming language, HTML/CSS for the framework of the system, XAMPP for web-server and SQL for the database to execute the program.

**Integration and Testing Phase:**

In this phase, the proponents will test the function and accuracy of the program to ensure the client that reliability of the system.

This stage is spent on ensuring that the software is bug-free and compatible with everything else that has been written before by the developers. In order to ensure that the code is clean, the proponents conduct a series of tests and the solution's business objectives are met.

**Implementation and Deployment Phase:**

In this phase, the proponents will deployed the system after the success testing. The program, either for demo or actual used, is deployed on the servers and supplied to the customers. Further versions upgrade the program that has already been installed, adding new functionality and fixing bugs.

**Review**

The lifecycle phases of Agile software development begin again afterwards, either with a new iteration or by moving to the next phase.

**Qualitative**

Sampling technique in qualitative evaluation is purposeful sampling, where proponents interview someone because they play a particularly important role in the project.

**Research Setting**

The study will be conducted at Crown Prince Auto Parts Center located at Real 1, Bacoor City, Cavite. The Auto Parts Center has more than 1000 items. They have different kinds of vehicle parts.

**Study of Population and Samples**

As stated by Kumar (2018) find the answer to your study as it focused your research. The research questions is not relate to the sample but it relates to the total study population. Nevertheless, while in the process of sampling, you will estimate the situation in the total study population.

**Data Collections, Instruments and Procedure**

The survey questionnaire will be given to the client to obtain the necessary information needed to the system. The instrument that was used for collecting data was made available to the client in both online and printed format. The questionnaires contain queries related to the current system of the client’s business.

**Data Analysis**

The proponents will analyze and conduct the necessary things procedure step-by-step.

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**SURVEY QUESTIONNAIRE:**

This research entitled “POS and Inventory System with Reservation and Decision Support System”.

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. How do you monitor the entry and exit of your product?

2. What system are you using for your product?

3. How do you handle your inventory?

4. How do you handle your customers?

5. What do you use to record your sales?

6. How do you record the arrival of a new product from your supplier?

7. Was there some cases where you got a problem because of manual system?

8. How do you monitor customer sales?

9. Do you have backup information in every transaction(s)?

10. How do you show the customer your best item?





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Adviser Date Technical Critic Date

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