

INVENTORY MANAGEMENT SYSTEM

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ABSTRACT

A vessel shop needs a stock availability management system to control inventory levels and make sure the correct materials and parts are accessible when required. The three main components of this system are usually Purchase and Sales, Stock Availability, and Reporting. Managers can follow the purchasing process, from the purchase order to the processing of the money, using the Purchase and Sales module. Managers can watch source performance, keep tabs on inventory influx and outflow, and make sure that inventory levels are kept at their ideal levels with the help of this feature. The Stock Availability function is in charge of continuously checking product levels and making sure they are higher than predetermined limits. Features like inventory monitoring, stock notifications, reordering options, and reporting tools are included in this section. Managers can minimize the risk of stock-outs and downtime by keeping an eye on inventory levels to make sure the appropriate components and materials are accessible when required. Managers can access thorough data on inventory movements, trends, and patterns through the reporting tool. This section has features like slow-moving inventory analysis, inventory turnover, and planning tools. With the help of this tool, managers can pinpoint areas for growth, maximize inventory levels, and cut costs associated with having inventory. In a nutshell, a vessel shop's Stock Availability Management System is a crucial instrument for controlling inventory levels, lowering stock-outs, and ensuring that the appropriate components and materials are accessible when required. Managers can increase productivity, cut expenses, and boost customer happiness by using the Purchase and Sales, Stock Availability, and Reporting tools to streamline the purchase process, optimize inventory levels, and lower the risk of stock-outs and downtime.

Key Words: Vessel Shop, Stock, Sales Employee

1.INTRODUCTION

Management of stock supply is an essential component of any vessel shop's activities. Vessel stores may experience downtime, manufacturing delays, and decreased client happiness if their stock amounts are insufficient. Therefore, it is crucial to have a strong stock availability management system to guarantee that the appropriate parts and materials are accessible when required. The Stock Availability Management System usually contains three major modules: Purchase and Sales, Stock Availability, and Reporting. Managers can keep an eye on the purchasing process using the Purchase and Sales module, from the generation of purchase orders to the handling of payments. While the Reporting module gives administrators in-depth data on inventory movements and patterns, the Stock Availability module continuously tracks inventory levels.

Managers of vessel shops can maximize inventory levels, lower the possibility of stock-outs, and boost purchasing process effectiveness by using a stock availability

management system. The system gives managers access to real-time inventory data, notifies them when supply levels are low, and assists in identifying trends and patterns to enhance inventory control. For vessel shops to control inventory levels and guarantee the availability of parts and materials when required, a stock availability management system is a crucial instrument. With the Purchase and Sales, Stock Availability, and Reporting components, managers can optimize inventory levels, streamline the purchase process, lower the risk of stock-outs and downtime, and increase productivity while decreasing costs and raising customer happiness.

1.2 STOCK MANAGEMENT

organizing and managing inventory levels to keep the store's stock levels sufficient to satisfy consumer demand while reducing the expenses of having excess inventory. In a vessel store, the following are necessary for effective supply management: Forecasting demand, establishing inventory amounts, and figuring out how frequently

and how much stock needs to be ordered are all part of inventory planning. To reduce the need for emergency purchases and prevent run outs, accurate demand forecasting is crucial. Stock control entails keeping an eye on inventory amounts, recording stock transfers, and spotting slow-moving or out-of-date merchandise. To make sure that supply levels are correct and that any discrepancies are quickly resolved, routine inventory reviews and audits are helpful. Storage and handling: To prevent product loss or harm, merchandise must be stored and handled properly. Products are effectively kept and recovered when there is adequate shelving, labeling, and monitoring. Management of suppliers: It's critical to keep positive working partnerships with suppliers to guarantee prompt and dependable product deliveries. Maintaining open lines of contact with suppliers makes it easier to guarantee that orders are made, supplied on schedule, and that any problems or delays are quickly resolved. Technology: Using tools like inventory management software, barcode readers, and point-of-sale systems can help to speed up and increase the precision of stock management procedures. In a vessel store, effective stock management makes sure that clients are happy and that the business runs smoothly and profitably.

1.3 SALES

2 Sales in a vessel store are important to the operation because they have a direct effect on income and success. In order to effectively manage sales in a vessel store, keep the following in mind: Customers' needs: Building relationships with clients and promoting sales depend on providing top-notch customer care. This entails introducing yourself to consumers, responding to their inquiries, offering advice, and resolving any problems or concerns. Recurring customers and word-of-mouth recommendations can result from a satisfying client experience. Product Information: Employees of vessel shops should be completely knowledgeable about the goods they offer, including all of their characteristics, advantages, and intended uses. They can better serve clients and respond to their inquiries thanks to this information. Additionally, staff members need to be taught how to respond to client complaints and provide substitutes when a customer's favored product isn't accessible. Discounts and promos: Providing discounts and promos can be a good way to draw consumers and boost sales. Discounts on particular goods, purchase one, get one free deals, and free presents with purchases are all examples of promotions. Discounts

may also be given to regular clients or to those who make large orders. Offering clients supplementary goods or services that enhance their initial purchase is known as upselling or cross-selling. This may boost revenue and enhance the purchasing experience for customers. A client purchasing a fishing pole, for instance, might also be interested in fishing line, lures, or other fishing gear. Sales can also be boosted by good merchandise marketing. In order to increase the appeal of goods to

consumers, this entails displaying them in an appealing and well-organized way. Sales can be boosted by designing aesthetically attractive displays, highlighting new or well-liked goods, and giving product details. In order to ensure that customers have a pleasant purchasing experience, are presented with pertinent products, and are motivated to make a purchase, effective sales management includes a mix of these variables.

3 LITERATURE REVIEW

A SMART UNSTAFFED RETAIL SHOP BASED ON ARTIFICIAL INTELLIGENCE AND IOT

Lizheng Liu¹, Bo Zhou **et.al** has **proposed** Unstaffed retail shop has been arising in the previous years and fundamentally impacted ordinary shopping styles. The traditional method, which is based on weighing sensors, is unable to detect what the customer is taking, so unmanned retail containers play an important role in this area. They can have a significant impact on the shopping experience for the customer. Based on artificial intelligence (AI) and the internet of things (IoT), this paper proposes a smart scheme for unstaffed retail shops to see if this model can be implemented. An

end-to-end classification model trained using the MASK-RCNN method is developed for SKU counting and recognition using a data set of 11,000 images depicting 10 distinct stock keeping units (SKUs). The proposed solution in this study is able to achieve 97.7% counting accuracy and 98.7% recognition accuracy on the test dataset, indicating that the system can compensate for the shortcomings of traditional unmanned containers. In today's world, more and more businesses and consumers are paying attention to the efficiency and experience of shopping Unstaffed retail shopping is becoming more and more popular as the Internet of Things (IoT) and Artificial Intelligence (AI) develop

and smartphones and mobile payments spread.

The Internet of Things (IoT) is a rapidly spreading concept that has influenced many aspects of human life. The background program is a shopping management platform. It allows sensors and intelligent hardware to connect to the internet. VIP management, order management, SKU management, and payment service are all implemented by it. This layer connects third-party services to the platform. The Apache server and the algorithm servo middleware make up the server and service layer. The fundamental HTTP service is performed by the Apache server. The connection between the algorithms and the background program layer is carried out by the algorithm servo middleware. The MySQL database and file storage services make up the majority of the database layer, which is used to store basic data, image files, and algorithms like facial recognition, SKU quantity statistics, and object recognition. [1]

IMPLEMENTATION OF LEAN PRINCIPLES TO IMPROVE THE OPERATIONS OF A SALES WAREHOUSE IN THE MANUFACTURING INDUSTRY

Atzori, L., Iera **et.al has proposed** The Internet of Things (IoT) envisions a future in which various applications and services can be made possible by connecting digital and physical things or objects (like smartphones, televisions, and automobiles) using the right information and communication technologies. The IoT's characteristics, such as an extremely large network of things, heterogeneity at the device and network levels, and a large number of events generated spontaneously by these things, will make it extremely difficult to develop diverse applications and services. By facilitating interoperability among the various applications and services and integrating heterogeneous computing and communications devices, middleware can generally facilitate an easier development process. IoT middleware has been the subject of numerous proposals recently. These proposals mostly focused on wireless sensor networks (WSNs), which are an important part of the Internet of Things. However, they did not take into account RF identification (RFID), machine-to-machine (M2M) communications, supervisory control and data acquisition (SCADA), or any of the other three fundamental parts of the IoT vision. In this paper, we present a comprehensive

analysis of the existing middleware solutions in relation to a set of requirements for IoT middleware. Additionally, open research issues, difficulties, and potential directions for future research are highlighted.

Many of the things we use every day are becoming wirelessly interoperable with attached miniature, low-powered or passive wireless devices (such as passive RFID tags) thanks to the development of numerous technologies such as sensors, actuators, embedded computing, cloud computing, and a new generation of smaller, cheaper wireless devices. These difficulties may be related to computation in general or concerns regarding communication. A middleware facilitates and coordinates some aspect of cooperative processing by providing a software layer between applications, the operating system, and the network communications layers. A middleware acts as a layer between system software and application software from a computing perspective. The IoT is likely to have a lot of different communication and system-level technologies, so a middleware should be able to support both perspectives if they are needed. A set of requirements for a middleware to support the IoT is outlined based on

previously described characteristics of the IoT's infrastructure and applications. These requirements are divided into two sets, as follows: first, the services that such middleware ought to offer, and second, the system architecture that it ought to support..[2]

IOT BASED INTERACTIVE SHOPPING ECOSYSTEM

Sharmila Anjumara K* and Wilson M et.al has proposed The Internet of Things aims to connect real-world entities and networked information systems. It connects things like smart phones, sensors, LED (light-emitting diode) displays, and even clothing via the internet, allowing them to communicate with one another and share information. The Internet of Things (IoT) is now used in virtually every aspect of life, including inventory management. As the variety and number of products and customers continue to rise at an exponential rate, inventory management is becoming increasingly complicated. Along with increased sales and decreased operational costs, store owners face the greatest challenge of optimizing the inventory management experience. It becomes extremely challenging for store owners to track and monitor a

product's performance in terms of sales, shelf life, cost, and customer response with such extensive product lines. The Internet of Things (IoT) makes it easier to use Wireless Sensor Networks (WSN) to connect all of the players in a logistics system. It is challenging to store and process the massive amount of data generated by this interconnected network of devices. In this case, cloud computing serves as a facilitator and is extremely helpful in resolving issues with storage and processing capabilities. We present an Automated Inventory Intelligent Management System (AIMS) and an Interactive Shopping Model in this paper. Both of these systems make use of the Internet of Things (IoT) and the cloud to monitor, track, and manage products in real time. Additionally, we propose an algorithm that illustrates how our system operates. The iFogSim simulator is used to simulate the proposed system and algorithm. In order to accomplish this, the simulated results and the operation of our proposed system are presented.

The Internet of Things (IoT) and cloud computing can be used to create an automated inventory management system, resulting in the development of a smart shopping complex. However,

there have been numerous proposals for inventory management systems over the past few decades, but none of them had features like real-time monitoring, traceability, on-the-fly stock data updates, epayment, data analytics, or secure customer authentication. Customary frameworks utilized manual strategies or scanner tag innovation for counting and overseeing operations yet neglected to adapt to the rising number of clients and enhanced coordinated factors..[3]

A LOCATION-BASED SMART SHOPPING SYSTEM WITH IOT TECHNOLOGY

lingfeng Shao! , Zhanyi Zhao, et.al has proposed Limitation is one significant piece of Web of Things(IoT) where the Area of Everything (LoE) framework assumes a significant part to work on most administrations in IoT region. When, on the other hand, we have a lot of data from IoT platforms, data mining techniques are essential for analysis. Indeed, a smart system service for IoT scenarios and applications can be created through the integration of location-based methods and the process of data mining analysis. A smart shopping platform with four components—the location of everything component, the data

collection component, the data filtering/analyzing component, and the data mining component—is designed for this purpose. Then, at that point, a clever exact limitation conspire named "area orbital" is fostered that gauges the ongoing area of portable items (clients or everything) in light of both current and the past areas. Finally, the experiment is carried out in a shopping mall to examine the performance evaluation of the location-based scheme in practice. The experimental results demonstrate that the proposed plan has the potential to achieve significantly higher precision than other methods of localization.

However, the majority of the services provided by the current data-driven management systems are based on a single source or consistent type of data. Because of this attitude, the developed systems that were already in use did not get the most out of big data analysis. In point of fact, improve the level of interaction that exists between a shopping mall and its patrons by providing them with benefits like individualized information and special offers in real time. A location-based and real-time system for predicting, customizing, and suggesting products and services combines the location of

things with heterogeneous data from a variety of sources and analyzes it. Subsequently an easy to understand, area based and ongoing savvy shopping framework associated with a PDA application can help clients through a shopping center [6]. Users will be able to efficiently navigate the shopping mall by using such an application on their smartphones. This study develops a location-based system that enables a store to interact directly and individually with its customers, providing them with customized information about establishments or activities of interest based on customers' behavior, location, and actual shopping mall experiences. [4]

IOT BASED SMART SHOPPING CART USING RADIO FREQUENCY IDENTIFICATION

Chandadevi Giri , Sheenam Jain

et.al has proposed The modern era of technology, when the majority of shoppers have to wait in line at the supermarket because doing so takes a lot of time. Due to the barcode-based billing process, a large crowd in the supermarket during discount offers and weekends makes it difficult to wait in long lines. In this regard, the Smart Shopping Cart based on the Internet of

Things (IoT) is proposed. It consists of an Arduino microcontroller, Bluetooth module, RFID sensors, and a mobile application. Wireless communication is necessary for RFID sensors. The RFID reader, which effectively reads the information about each product, and the RFID tag, which is attached to each product. After this, every item data shows in the Versatile application. The mobile application enables the customer to easily manage their preferences-based shopping list. The shopping data is then wirelessly transmitted to the server, where billing is generated automatically. The goal of this experimental prototype is to eliminate issues with service quality and the time-consuming shopping process. In the real-world scenario of the future, the proposed system can be easily implemented and tested on a commercial scale. The proposed model is therefore more competitive than others.

The most important part of supply chain management is promoting products to consumers and distributors through the merchandising process. The act of bringing a group of people together at a single location to make purchases of goods is known as shopping. There are supermarkets and shopping malls where

people can shop. There, retailers show off their products to customers, and customers purchase products based on quality, such as whether or not the ingredients are expired, the brand, a reasonable price, and how much they need. Traditional retailing is another name for this. When it comes to retail and urban planning, supermarkets are convenient. During the weekend, supermarkets are the busiest places. Making a list, typically with a pen and paper or on their mobile phone, is one of the fundamental steps in shopping, as the majority of customers have experienced. They are required to wait in long lines to pay their bills and spend a significant amount of time searching for items individually throughout the entire supermarket. The queues of people waiting have a negative impact.. [5]

RESEARCH ON PRODUCT PAPER PACKAGING CONTAINER AUTOMATION SYSTEM BASED ON COMPUTER BIG DATA

Min Yu¹ , Weimin Zhang , Peter Klemm et.al has proposed From three perspectives, China's packaging industry has developed a big data system for packaging: implementing information engineering, creating a

platform for a collaborative symbiosis network of packaging information resources, and creating a product chain-centered industrial chain knowledge map. Big data information acquisition, hierarchical division and management, problem and audience, visual transformation, and other thinking modes are utilized in packaging big data visualization design. Additionally, text information visualization, multi-dimensional information visualization, hierarchical relationship visualization, and other technologies are utilized in this design to realize the visual presentation of data from the packaging industry.

Based on the keywords extraction algorithm, the construction method of the product paper packaging container automation system is analyzed in this paper. After extracting keywords related to the key elements, the network data is analyzed. On the one hand, it emphasizes the significance of big data in commodity packaging design for online shopping; On the other hand, through the use of big data in online shopping commodity packaging design, it investigates novel concepts and approaches to the design of online shopping commodity packaging.. [6]

AN ADVANCED SYSTEM TO ENHANCE AND OPTIMIZE DELIVERY OPERATIONS IN A SMART LOGISTICS

Environment Michael S. Thompson, Scott F. Midkiff et.al has proposed

A major concern in supply chains, particularly for e-commerce, is the optimization of order dispatch operations and delivery time prediction. This necessitates the implementation of cutting-edge solutions to cut delivery times, cut costs, and improve customer satisfaction. In practice, as the number of orders grows, they fail to justify scalable and long-lasting solutions. For this reason, effective logistics management necessitates accurate prediction and optimization of delivery operations. In the context of a smart logistics environment, this paper presents an advanced logistics service that calls for constant coordination among all involved parties. There are two main components to the advanced shipping system that is proposed: the delivery prediction model to determine the anticipated time of arrival and a hybrid optimization model to address issues with the path. The advanced system consistently outperforms standard dispatching methods, as shown by our demonstration, indicating

that the proposed method effectively contributes to cost reduction and distribution chain optimization.

Products sold online are manufactured in various nations or regions in the context of e-commerce. As a result, logistics companies are primarily required to ensure the effective transportation of various manufactured goods to shipping centers over long distances. However, the current operations that are carried out in the shipping centers are still based on conventional approaches to providing the product delivery service. Additionally, it is necessary to guarantee a short delivery distance and a low average demand in shipping centers in order to fill shipping tasks for customers with large product demands. In addition to increasing delivery costs, these logistical characteristics also reduce delivery efficiency. As a result, logistics businesses can benefit from cost-effective and efficient solutions provided by the implementation of smart logistics environments. Smart logistics shipping methods were the subject of significant mainstream research [7].

CASE: A CONTEXT-AWARE STORAGE PLACEMENT AND RETRIEVAL ECOSYSTEM

Sidhartha Reddy Vatrappu et.al has proposed Arising cloud-local advancements, for example, holder runtime and compartment orchestrator offer phenomenal spryness in creating and running applications, particularly when joined with microservice-style engineering. The microservice paradigm is being applied to a number of existing 5G-Telecom network products, including the element Management System (e-MS), 5G Core, and 5G Access. In a cloud-based environment, businesses can easily and cheaply scale their application; However, utilizing containers without sacrificing numerous cloud-native technology benefits is frequently challenging. The e-MS is designed to systematically store terabytes of stateful data per second and orchestrate nationwide 5G network elements (5GNEs). Because containers have an ephemeral state, the "stateful-ness" aspect of e-MS complicates orchestration. Stateful storage selection, content placement, and content retrieval operations within e-MS microservices are all subject to a number of challenges that are discussed in this paper. We propose CASE, A Context-Aware Storage placement and retrieval Ecosystem, which enables context-based operations to be

intrinsically supported by the underlying e-MS application, as a means of overcoming these obstacles. By associating context information directly to 5GNE rather than fixed storage entities, our strategy ensures scalability and maintains the location-independent cloud-native philosophy. We show that CASE with e-MS can facilitate high performance despite dynamic 5GNE count agility, stateless e-MS replication, and stateful storage scaling without posing a significant signaling burden on the cloud environment through simulation with real data from one of the largest terrestrial telecom operators in the world. [8]

VESSEL MANAGEMENT EXPERT SYSTEM

T. Tran; C. Harris; P. Wilson et.al has proposed The Maritime Avoidance Navigation, Totally Integrated System (MANTIS) is a unified collision avoidance system that has been proposed to enhance the safety and effectiveness of maritime transportation. Its operation is based on the idea that a system structure that makes marine transport deterministic removes the challenges and unknowns associated with marine navigation. The complex task of management needs to

be automated in order for it to function properly. A blueprint of the MANTIS engineering is given, trailed by a detail portrayal of the vessel the executives Master Framework. The results of the simulation show how important the system is for using in the future.

Any ship computer can house the software for the vessel management expert system (VMS). From a technical standpoint, only one Expert System is required in any circumstance. Any vessel without an on-board Expert System receives advice from other vessels with one or, if available, from the VTS. As part of vessel planning and avoiding collisions while traveling, the Expert System must be able to handle complex encounters involving multiple ships, which is essential to the integrity and precision of MANTIS operation. The advice must be presented as a collection of journey waypoints (position and time) and must comply with collision avoidance regulations (COLREG), ship characteristics, and environmental constraints. The operator will be able to easily validate the solutions if the system is predictable and transparent. An expert system has been developed that can resolve complex encounters involving multiple ships. The MANTIS framework has

made it possible to know every ship's current and future path. As a result, uncertainties are eliminated, providing a brand-new perspective on collision avoidance science. Instead of the conventional viewpoint that each ship takes care of itself to reduce the risk that comes with it, while adhering to collision avoidance regulations, ship and environment constraints, and optimally scheduling the path of all ships offline (before their journey begins) and online (for unforeseen and dynamic events) is now the challenge.

Decision-support aids use the current states of their own ship and the target ship to estimate the likelihood of future encounters and then calculate avoidance maneuvers based on these predictions. This system, on the other hand, uses information from way points to figure out encounter situations and maneuvers to avoid. Because future changes in ship course, as well as state errors and fluctuations, are unaffected, this method is more durable. The only condition is that the ships must arrive at their chosen way points within the allotted time. [9]

CLOUD BASED SHIPPING MANAGEMENT SYSTEM

Vivek Sharma; Aamod Krishna Tiwari et.al has proposed Companies like Amazon, eBay, and even FedEx and DHL have, in fact, dominated the e-commerce sector for decades. Around the world, shipping companies have increased their operations in response to the ever-increasing demand. Costs for cyber-based management systems and maintenance have also gone up as a result. We might think about making some cloud computing projects with more features and less money. Cloud-based shipping management systems can streamline the entire ordering process, from placing the order to receiving the product and receiving positive feedback from the customer. In order to make the data more automated and centralized, its efficiency is improved.

The company saves a lot of money, and all parts of the business have better visibility and scope as a result. It enables us to perform more effective real-time monitoring, resulting in precise models of the process's merging. A significant portion of the automation that takes place through cloud-based networks is accessibility to the entire operational team regardless of location or time. Additionally, it connects all supply chain stakeholders,

providing a crucial strategy for inventory development. It prioritizes shipments that are moving slowly and aids in monitoring delivery networks. Because internal hardware is almost completely eliminated throughout the automation process, it is even less expensive to operate and maintain. Flexible, secure, and scalable best practices are readily available for businesses of all sizes. The enhancement of functionality once more improves connectivity, reliability, and ROI overall. Because the resources are located off-site in the cloud, it enables the businesses purchasing the technology to save money on IT infrastructure and management. You must be able to easily handle customer conversations if you want your business to grow to its full potential. Salesforce web services with integrated bots make it easier to communicate with customers one-on-one. [10].

3.MODULE DESCRITPION

3.1 THE PURCHASE AND SALES MODULE

In a store, the purchase and sales module is a crucial part of the stock availability management system. From the purchase order to the processing of the payment, this module enables administrators to oversee

and control the procurement process. Managers can watch inventory influx and egress and keep an eye on seller performance with the help of the purchase and sales tool, ensuring that the appropriate components and materials are accessible when required.

Managers can make and handle purchase orders, monitor order status, and get alerts when orders are prepared for delivery using the purchase and sales module. In addition to managing the sales process and generating invoices, this section gives administrators access to client orders, inventory levels, and payment processing. The purchase and sales module also assists managers in monitoring seller performance, including shipping times, product and service quality, and pricing. Managers can use this information to assess seller success and decide wisely on upcoming purchases.

In a nutshell, the purchase and sales section is a crucial part of stock availability management system. It gives administrators the resources they need to effectively handle procurement procedures, maximize inventory levels, and lower the likelihood of stock-outs and downtime. By utilizing this module, managers can increase client happiness and cut operational costs by ensuring that the appropriate components and materials are accessible when required.

3.2 THE STOCK AVAILABILITY MODULE

Another crucial element of a Stock Availability Management System in a vessel store is the stock availability module. With the help of this tool, managers can keep an eye on inventory levels in real-time and make sure that sufficient stock levels are always kept. Managers can monitor the current stock levels of different components and materials using the stock availability module. They can also establish minimum and maximum stock levels and receive alerts when stock levels drop below the minimum benchmark. Additionally, this feature offers real-time reports on inventory levels and enables managers to monitor inventory moves like stock purchases, transfers, and issues. Managers can successfully handle inventory with the help of the stock availability module's many features. For example, it can provide insights into inventory turnover rates, reorder points, and wait times, allowing managers to maximize inventory levels and improve the efficacy of purchasing operations. Additionally, the stock availability feature can assist managers in determining whether to write off or sell outdated or slowly moving merchandise. In a nutshell, the stock availability feature is an essential part of a vessel shop's stock availability management system. It gives

administrators access to real-time inventory information so they can maximize inventory levels and lower the likelihood of stock outs and downtime. Utilizing this module, managers can increase organizational effectiveness and cut costs by guaranteeing that the appropriate components and materials are accessible when required.

3.3 THE REPORTING MODULE

The reporting module is a critical component of a Stock Availability Management System. This module allows managers to generate reports on inventory levels, sales and purchase history, and supplier performance. These reports provide valuable insights into inventory management and help managers make informed decisions about procurement and sales.

With the reporting module, managers can generate real-time reports on inventory levels, including stock availability, stock turnover rates, and stock movements. These reports can help managers identify inventory trends and make data-driven decisions about inventory management. Moreover, the reporting module can provide insights into sales and purchase history, enabling managers to identify sales trends, customer preferences, and popular products. This data can help managers make

informed decisions about product assortment, pricing, and marketing. Additionally, the reporting module can provide insights into supplier performance, including delivery times, quality of goods and services, and pricing. This data can help managers evaluate supplier performance and make informed decisions about future procurement. Overall, the reporting module is an essential component of a Stock Availability Management System. It provides managers with real-time data on inventory levels, sales and purchase history, and supplier performance, enabling them to make informed decisions about inventory management, procurement, and sales. By using this module, managers can optimize inventory levels, reduce costs, and improve customer satisfaction.

4. SYSTEM DESIGN

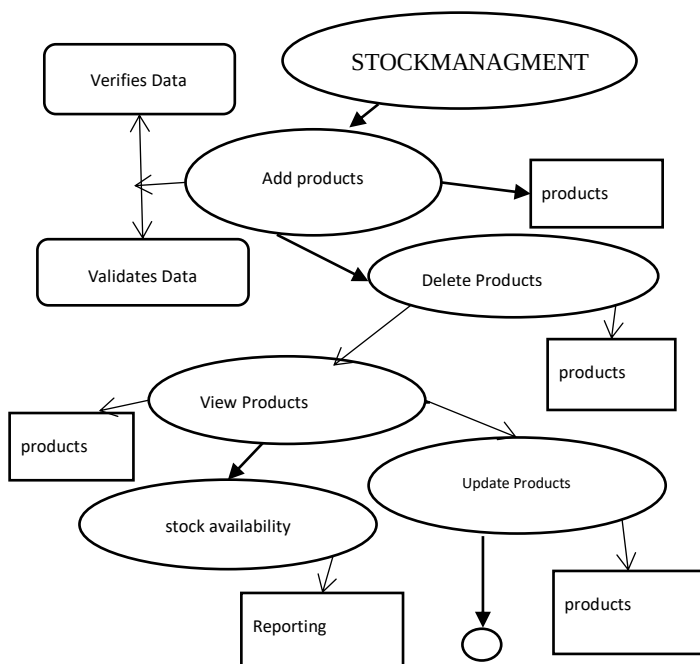
In order to guarantee effective inventory management, the system architecture for a Stock Availability Management System in a vessel factory includes a number of components. Managers can make and monitor purchase orders, handle supplier data, and monitor sales orders using the purchase and sales module. This feature enables managers to keep accurate records of inventory levels and track the flow of products into and out of the vessel store. Managers can monitor inventory levels, establish minimum and maximum stock

levels, and get notifications when inventory levels drop below the minimum benchmark thanks to the stock availability feature. Additionally, this feature gives managers access to real-time reports on inventory levels and allows them to monitor inventory moves like stock purchases, transfers, and issues. Managers can create real-time reports on inventory amounts, sales and purchase records, and supplier success using the reporting tool. These records offer insightful information on inventory management, empowering managers to choose wisely when it comes to purchases and sales.

A vessel store requires a reliable inventory management software system that combines all these components in order to execute a Stock Availability Management System. The software option must be adaptable, simple to use, and flexible enough to meet the specific requirements of the vessel business. Additionally, the system needs to have a central database where all inventory-related data is kept. This will allow managers to view up-to-date data on inventory amounts, sales, and purchase histories from a single location. The system should also have strong security features to guarantee that data related to inventory is shielded from loss or illegal access. To avoid losing important data, the system should only be accessible to

authorized employees and should frequently be backed up. A vessel shop can optimize inventory levels, cut expenses, and boost client happiness with the aid of a well-designed Stock Availability Management System. Managers can make wise choices about inventory management, purchasing, and sales by using the purchase and sales module, the stock availability module, and the reporting module.

5. DATAFLOW DIAGRAM



6. METHODOLOGY

Planning, system design, execution, and evaluation are all stages in the process for establishing a Stock Availability Management System in a vessel shop. Planning is the first stage of the process. The vessel shop management team specifies the project scope, creates a project plan, and determines the business needs for

the system during this period. To guarantee the project's success, the team should also find the important stakeholders and win their support.

System architecture is the next stage. The vessel shop management team develops the system during this step by deciding on a suitable inventory management software solution, determining the required modules, and defining the data structure. The team should also make sure that the system design complies with all applicable laws and rules and is in line with the business needs of the vessel store. The execution phase is the third. The vessel shop management team completes the required data structures, installs and configures the inventory management software solution, and instructs the staff on how to use the system during this period. The team should evaluate the system as well to make sure it satisfies the established business requirements and fixes any problems that may emerge. Evaluation is the last action. The vessel store management team monitors inventory levels, sales and purchase records, and seller performance during this period to assess the efficiency of the Stock Availability Management System. To find any areas for development and make the required adjustments, the team should also get input from the employees and customers. In general,

meticulous planning, system design, execution, and assessment are all part of the process for adopting a Stock Availability Management System in a vessel factory. The vessel store can make sure the system satisfies the established business requirements, increases inventory management, and raises client happiness by following these steps.

7. CONCLUSION

In summation, for vessel shops looking to optimize inventory levels, cut costs, and raise client happiness, a stock availability management system is a crucial instrument. The system is made up of a number of modules, such as the purchase and sales module, the stock availability module, and the monitoring module, which cooperate to let managers effectively control inventory levels. The stock availability module provides real-time reports on inventory levels and motions, while the purchase and sales module allows managers to monitor the movement of products into and out of the vessel store. Real-time reports on inventory amounts, sales and purchase data, and supplier success are generated by the reporting module, which offers insightful information about inventory management. A vessel store requires a reliable inventory management software system that combines all these components in order to execute a Stock Availability Management

System. The software option must be adaptable, simple to use, and flexible enough to meet the specific requirements of the vessel business. A vessel shop can optimize inventory levels, cut expenses, and boost client happiness with the aid of a well-designed Stock Availability Management System. Managers can make wise choices about inventory management, purchaseing, and sales by using the purchase and sales module, the stock availability module, and the reporting module.

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