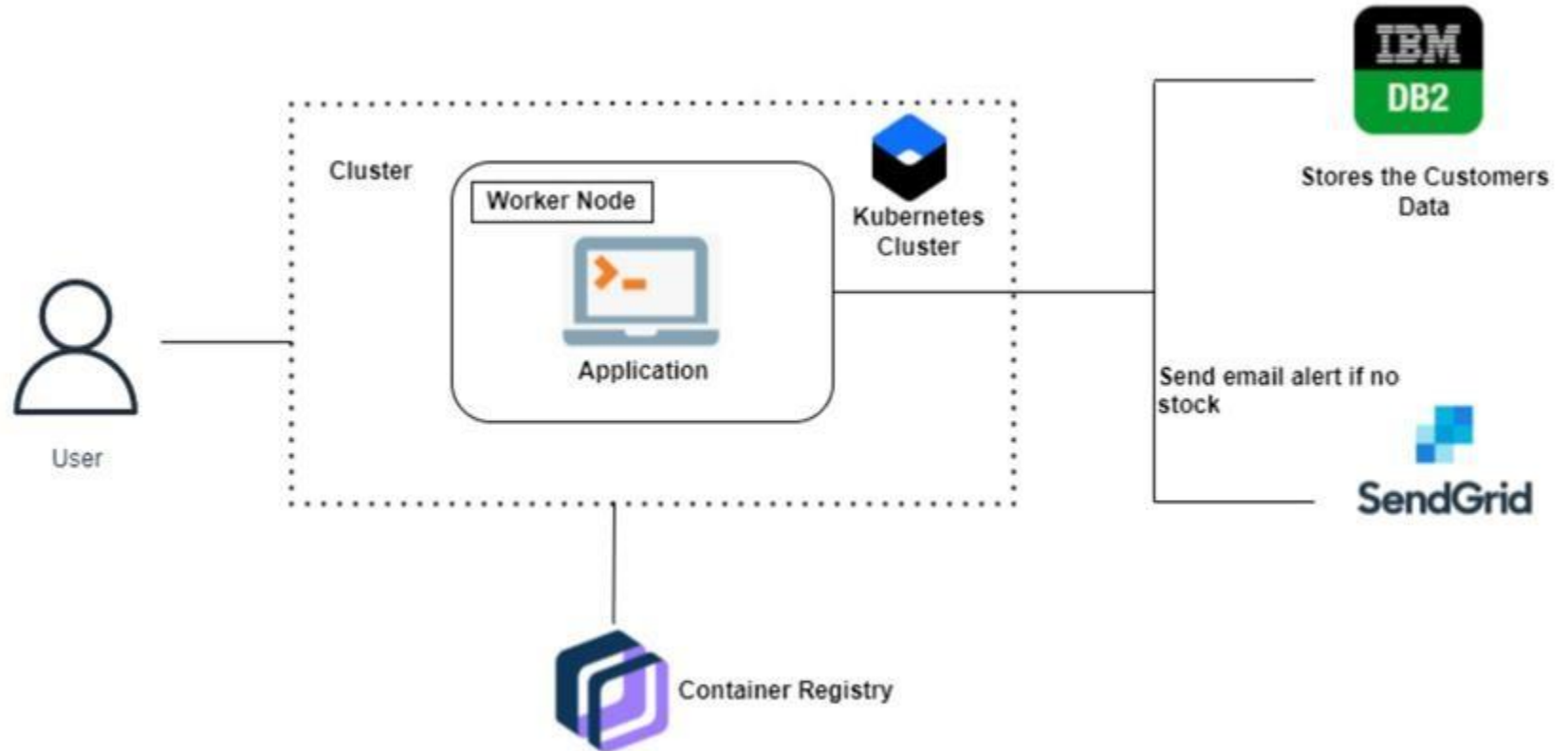# Inventory Management System - Literature Survey

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Architecture Diagram

Objectives

- To creating an application to efficiently manage warehouse inventory.
  - Create a flask app
  - Create an IBM cloud account and install IBM CLI
  - Docker CLI installation
- Setting up application environment
- Implementing Web Application
  - Create a UI to interact with the Application
  - Create IBM DB2 and connect with Python
- Create SendGrid account and Integrate SendGrid service
- Deploying the application in IBM Cloud
  - Containerize the application
  - Upload image to IBM container registry
  - Deploy in Kubernetes Cluster

Research paper on Inventory management system

Link: https://www.irjet.net/archives/V5/i4/IRJET-V5I448.pdf

- Stock administration frameworks are key to how organizations track and control inventories. Being able to quantify stock in an opportune and exact way is basic for having continuous business activities since stock is regularly one of the biggest current resources on an organization's accounting report.
- This paper's motivation if for better understanding in redefining requirement of retailer.
- Inventory Management System is software which is helpful for the businesses that operate hardware stores, where store owner keeps the records of sales and purchase.
- Mismanaged inventory means disappointed customers, too much cash tied up in warehouses and slower sales. This project eliminates the paperwork, human faults, manual delay and speed up process.
- Inventory Management System will have the ability to track sales and available inventory, tells a store owner when it's time to reorder and how much to purchase.
- Inventory Management System is a windows application developed for Windows operating systems which focused in the area of Inventory control and generates the various required reports.

Inventory management efficiency analysis: A case study of an SME company

- The research aims to examine factors that affect inventory mismanagement in a Small Medium Enterprises (SME), which is a market leader in the Heavy Equipment Spare part Industry.
- Despite its status as market leader, the company deals with various inventory problems, for examples slow-moving stocks, delivery delays to customers, and so forth. Those problems, at the end, may reduce company's profit. In order to determine the main factors, this study applies quantitative and qualitative methods.
- Quantitative methods, specifically Pareto diagram and Inventory Turnover Ratio (ITR), are mainly used to evaluate sales and inventory management. ITR is affected by spare part quantity, warehouse area used, and the material amount. The top five ITR ratings are examined further through observation, interview, and questionnaire techniques.
- Meanwhile, the qualitative method is applied to evaluate the company's inventory information systems, procedures and coordinations among departments, and human resources. Our findings suggest that the unintegrated company's information system and lack of qualified human resources are the main factors affect inefficient inventory management.
- The research benefits to industry by suggesting the importance of information systems and human resources to inventory management. As for academics, this research enriches inventory management literature.

A Study of Inventory Management System - Case Study

- This paper presents a case study for the steel manufacturing industry (Small Scale Industry)
- The relationship between the inventory management and company performance was determined based on inventory days and return on asset (ROA) analysis.
- The optimal cycle time is largely governed by the conventional trade-off between ordering and holding costs, whereas the reorder point relates to a promotions-oriented cost-benefit perspective.
- The optimal policy yields significantly higher profits than cost-based inventory policies, underscoring the importance of profit-driven inventory management. To work towards perfect order metrics, there has to be aggressive inventory management, restructuring supply chain operations, and updating standards to the perfect standard.
- The present research is focused on the dimensions namely identification of factors influencing inventory optimization among SMEs in steel sector through a structured and unstructured questionnaire and grouping them into two sets as internal variables and external variables and optimization by grouping the information for appropriate decision

Informative Review on Inventory Control System

Link: https://www.jetir.org/view?paper=JETIRA006108

- In supply chain management inventory control is a challenging problem.
- To fulfill customer demand, companies require to have sufficient inventories in stock meanwhile these inventories have holding costs and this is frozen fund that can be lost and burdens the company's account.
- To hold inventories at the least possible cost, given the objectives to ensure uninterrupted supplies for ongoing operations is the main purpose of inventory control.
- Management has to find a suitable compromise between the different cost components like the costs of supplying inventory, inventory holding costs and costs resulting from insufficient inventories, while making decisions on inventory
- Therefore, the task of inventory management is to find the quantity of inventories that will fulfill the demand, avoiding overstocks.
- This research paper is an attempt made to provide an up-to-date and complete review of existing literature, concentrating on descriptions of the characteristics and types of inventory control models that have been developed by Indian as well as Foreign authors.

Improvement of Inventory Management System Processes by an Automated Warehouse Management

- This study investigates the impact of a warehouse management system on supply chain performance that provides less resources effort, more efficient, and reliable inventory management system.
- The supply chain procedures carried out in the warehouse were reviewed before customizing a software that can handle the necessary transactions.
- The software was tested for enhancing the work flow and providing a timely and efficient handling.
- Data was collected from the warehouse of a leading telecommunications service provider in Jordan. Furthermore, the facility layout was studied and we introduced a production station within the warehouse, which resulted in better space optimization/utilization of the warehouse.
- The production station consists of three steps: bundling, labelling, and repackaging.
- The system handles three phases of product life-cycle: receiving, processing, and distribution of SIM and prepaid scratch cards. Each phase of the product life-cycle was discussed in detail and the process/procedure gaps were identified.
- This work can serve both as a practical guide and industrial example for some researchers to compare the software inventory management system with the traditional manual system in the telecommunications sector in Jordan.
- It also highlights the gap between theory and practice; to motivate researchers to develop and customize new systems for mitigating supply chain disruptions.

STUDY OF SMART INVENTORY MANAGEMENT SYSTEM BASED ON THE INTERNET OF THINGS (IOT)

- This paper presents a new type of intelligent Inventory Management System based on the IoT and explains the principles and structure of it.
- This paper technically suggests an approach of managing inventory using low energy device and does a statistical case research on two groups of the same organization. Statistically the users are much more efficient and accurate and save lot of time and costs in the short run itself.
- In developing enterprises, the constant demands of product diversity, traditional Inventory Management models can't achieve that, due to its heavy workload and low efficiency.
- This system has great advantages compared to the traditional mode, and we expect good prospects for its development. Inventory Management is a key area for customer service and cost optimization in any manufacturing setup.
- As companies turn global and have thousands of components and hundreds of warehouses the inventory becomes a nightmare and a lot of time is spend in tracking inventory and ensuring right shipments.

Research and Design of the Intelligent Inventory Management System Based on RFID
Link:https://ieeexplore.ieee.org/abstract/document/6804816

- This paper introduces the characteristics and basic application of RFID technology.
- It analyses the data flow of an intelligent inventory system from the perspective of business and function, then puts forward the specific framework programs and function modules of intelligent inventory management system based on IOT RFID technology.
- It focuses on elaborating the design and implementation process of the intelligent inventory system.
- The system realizes full control and management of all products, faster in/out warehouse and dynamic inventory, utilizes warehouse efficiently and improves the capacity of warehouse by effective combining with the ERP system in enterprise.
- The paper designs the smart inventory system by RFID combining with wireless networks.
- We can record and track products in each link of the enterprise internal logistics and help logistics manager to conduct a overall control and management of all products in warehousing, ex-warehouse, move, inventory, picking, etc.