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1/8/2022

SUNPURE

High Level Design (HLD)

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Ram

APSARA TECHNOLOGIES



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Overview

The Warehouse Management System (WMS) designed ground up for mobility enables the warehouse worker to perform his operations in seamless manner. The distributed architecture of the solution gives best performance with more flexibility. Capturing of data directly from the warehouse floor gives accurate visibility of inventory levels, storage utilization and motivated workers who don't have to worry about the accuracy of items. The worker now just has to focus on material handling and moving to desired locations rather than spending time on papers to ensure operations accuracy.

Our Warehouse Management System automates manual based processes from purchasing to shipping and delivery to customers, having complete visibility and control is a mouse click away. Warehouse Management Solutions has been deployed to customers across a variety of industries including logistics service, wholesale, distribution. manufacturing and automotive among others.

The mobile instance of application runs on portable mobile device for automating all operations like Quality Check of received items, put away of items to location, Pick & Pack from location, loading and stock take.

Requirement Summary

Whether you need to streamline your processes or want to assure timely, accurate information sharing among your business team, our integration solution can help transform your business significantly. Integrating best-of-breed applications improves your productivity, cost-effectiveness and service to clients and business partners. As a scalable and robust solution, ERP software provides the foundation for your business for now and for the future.

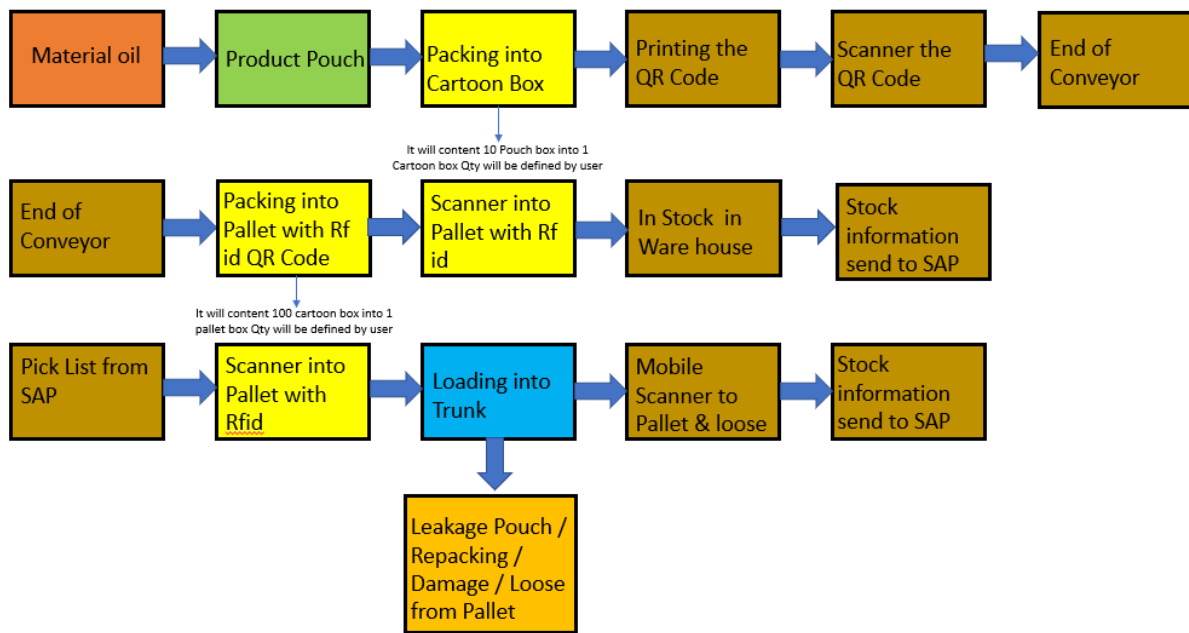
We specialize in integrating our middleware business solutions with leading ERPs like SAP and Oracle among other, using technologies like XML etc. Our team of industry experienced Engineers, understand the criticality and need of integrating shop floor data to the Enterprise through plant level controllers from various industry leaders in real time, thereby making a complete package for the customer.

Our application is developed on .Net Compact Framework and runs on mobile computer. It can be directly integrated with SAP, & Microsoft ERP over Wireless Network. It's also having a provision for system to work in offline mode in case WIFI is not available.

Prerequisites

1. Power supply of printer should avoid sharing power with other equipment. It is recommended to install an uninterruptible power supply (UPS)
2. Window based PC user, server with Database
3. Network
4. SAP Person
5. Help of person

Block Diagram with High Level



Benefits

Warehouse Management System (WMS)

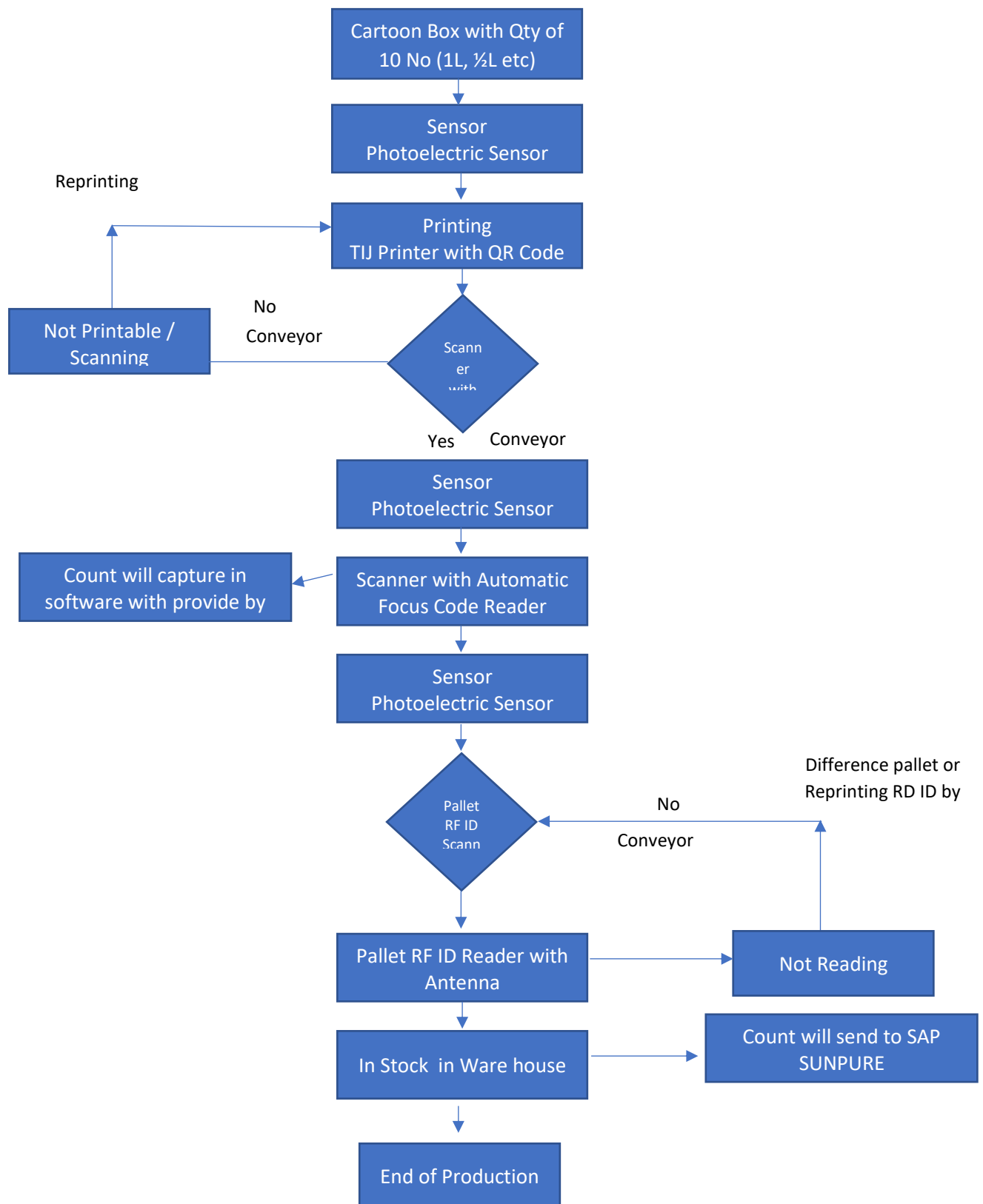
- Stock Management
- Inventory Movement
- Real time Production update
- Avoid work picking

Features

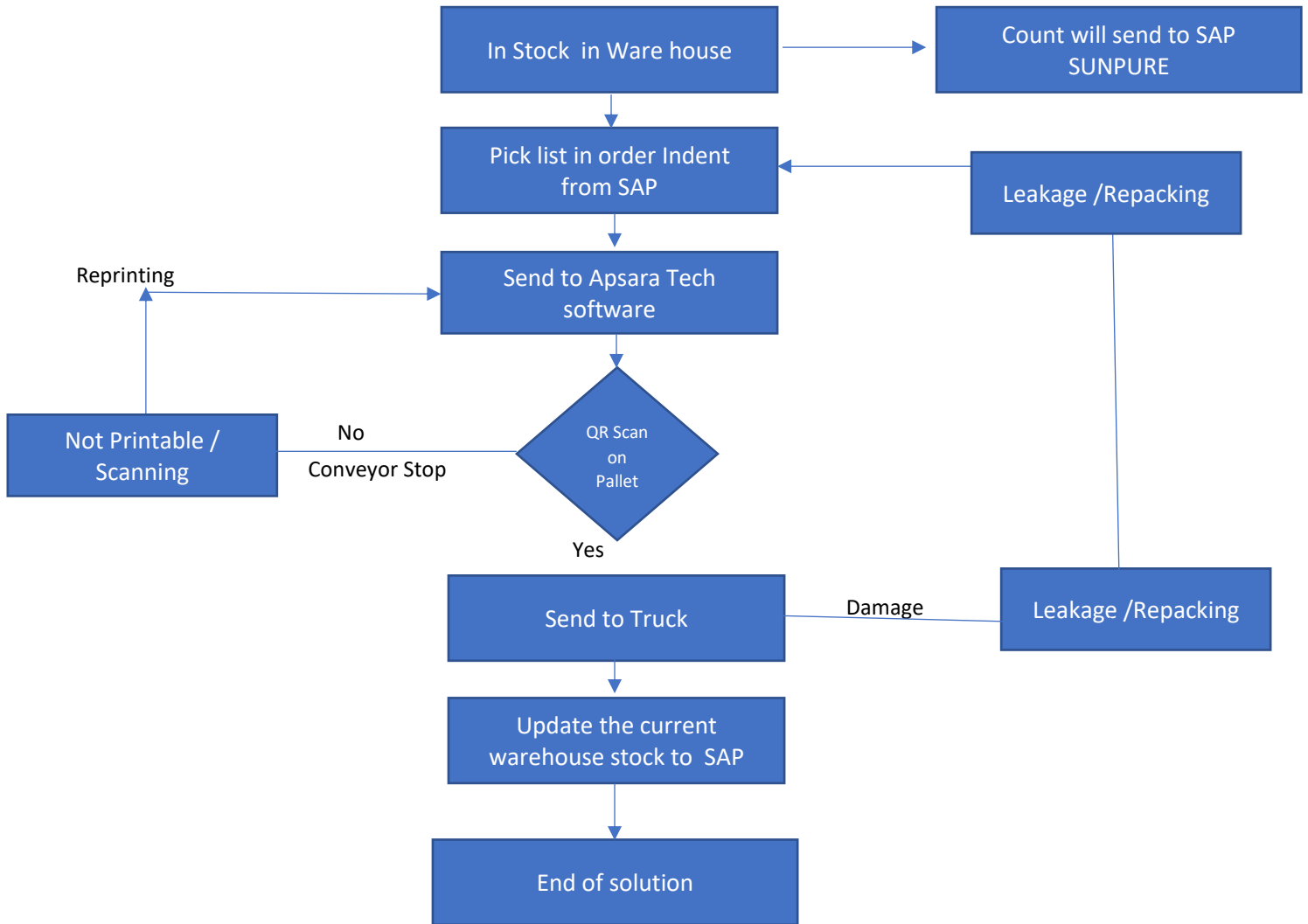
- Simple
- Budget-friendly
- Barcode Technology
- Eliminates error
- Enhanced security
- Inventory tracking
- Saves time

Architectural Solution Flow Chart

Production flow



Pick list flow

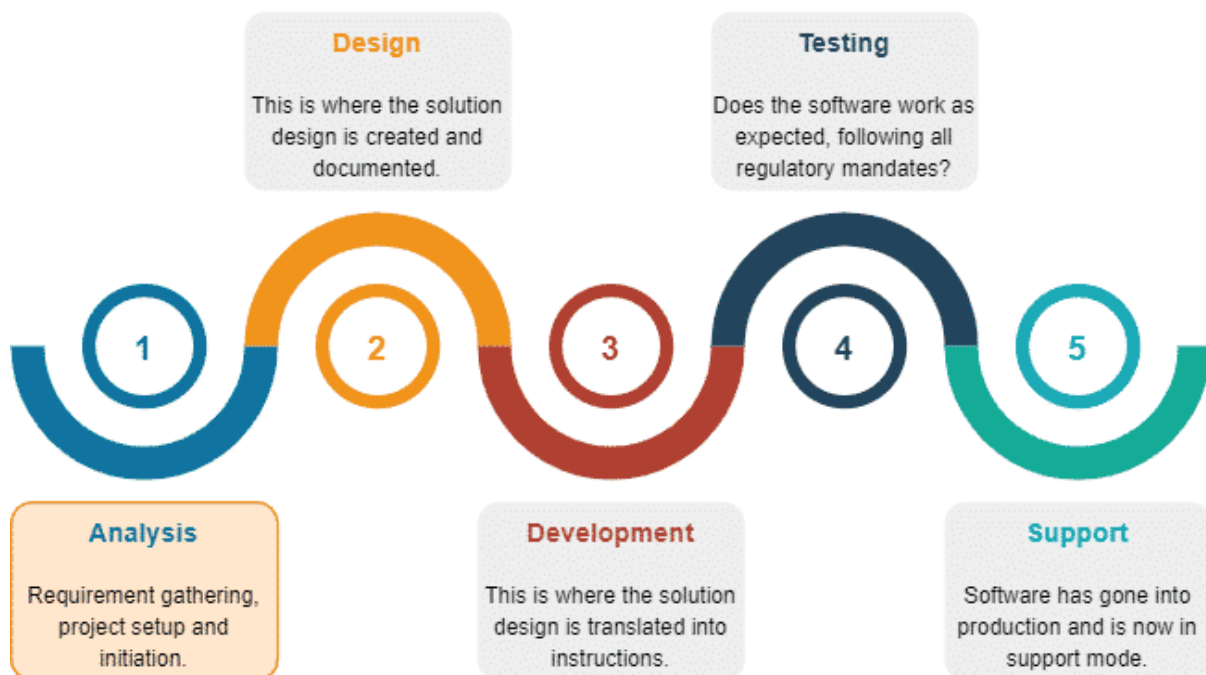


Challenges

Despite having a powerful planning & management system for warehouse operations, if the execution happens manually then any system can fail any time. Every area has scope of error which could be due to lack of knowledge or due to other operations constraints.

- **Inventory Movement:**
While moving inventories within the warehouse, a user can make the mistake of keeping an item in a different location which is not intended for that item. This not only affects the stocks of the item itself but also affects the bin capacity for the other item which could lead to further errors in binning.
- **Wrong Picking:**
This is one of the most common mistakes in similar looking items. In a manual system, the user records the accurate picking on the paper which goes into the system, however in real, he picks a different item. This creates a problem in the inventories of two items apart from material return from the customer.
- **Inventory accuracy:**
In the manual system, the level of accuracy always depends on the number of inefficient workers on the floor. A person doing wrong count, a person writing wrong number of items, a person skipping one item from count, all contribute towards inventory inaccuracy. Wrong inventory always results in either over stocking or order cancellation due to non-availability of items.
- **User Training:**
One of the biggest problems in the manual warehouse operations is the user training. While the old staff “remembers” warehouse locations, the new staff needs time to learn the same. In an unmanaged warehouse, the problem becomes more serious when there are no bin identification and people pick items on the basis of “experience” basis.

Project Life Cycle





Key Highlights:

Hardware

- Label Printing:
 - Label printing is done by integrated label printing utility in WMS.
- Receiving Stock:
 - Material Receiving can be against purchase order, transfer order or production order.
- Location Marking:
 - Location based storage of material increases the speed at which you can pick your orders, storage space utilization and the accuracy of your stock.
- Put Away:
 - Put away helps to know the location of all products. Through Portable Device, scan location barcode first and then material barcode.
- Picking:
 - At the time of Picking, WMS verifies that the right item at the right quantity is picked. System also facilitates FIFO and LOT No based picking.
- Dispatch:
 - At the dispatch point, through Portable Device, user can make sure intended products of intended quantity are being delivered to the customer.
- Physical Stock Taking:
 - Through Portable Device, stock count can be done by scanning product barcodes.
- Reporting Management:
 - The WMS is designed to provide a wide range of reports based on specific data analysis.
- Wi-Fi and QR Code System:
- Every warehouse function can benefit from the mobility solutions i.e. real time availability of information, from receiving to replenishment, picking and packing to shipping. If Wi-Fi is not available data can be offline synchronized with the system.
- Third party ERP Integration (SAP/Oracle/SQL etc.)

Integrated Solution:

- Access SAP/Oracle functionality from a mobile device.
- Customize forms based on user need without changing in SAP/Oracle.
- Unique validations and control on forms beyond SAP/Oracle on desktop
- Download from and upload data to SAP/Oracle.
- Wireless Support.

Limitation

- Damage print head – physical
- Moving print set up without authorized engineering
- Any type of physical and water
- Miss handled device
- Cartridge refilling or damage
- Interruptible by power
- Removing cartridge on printing stage