

# SaaS Based Remote Inventory Management System

**Client:** US Based Client

**Client Vertical:** Service

**Project Type:** Custom Web & PDA Application

**Technology Used:** **Web:** ASP.NET MVC, MS SQL,  
**PDA:** ASP.NET CE (Windows Mobile), Microsoft Sync Framework, SQL CE

## Client Overview

**About Client:** Client is a California based Software-as-a-Service (SaaS) provider for remote stock room inventory management solutions. Client was founded in 1994, has hundreds of satisfied customers in industries where it is critical to have good remote inventory management at the last step of the supply chain: the point-of-use (POU). Client provides organizations with real-time visibility into remote storeroom inventories and then automates replenishment. Whether the inventory is consigned or customer owned, client manages inventory at the point-of-use to increase sales and service levels, optimize inventory and eliminate stockouts. While items at the POU may be inexpensive or commodity products, the cost of a production line shutting down from a stock out or an inoperable machine is prohibitive. Client's service productively and cost effectively optimizes inventory while maximizing service levels at the remote stockroom, store, or service van.

No matter what their client's approach is to inventory ownership, inventory location or inventory replenishment, they can accommodate their Client's method and automate the process of tracking and replenishing their client's inventory at the POU. Industries that can benefit most from their service include: manufacturers; suppliers and wholesale distributors (electrical, electronic, fasteners, wire, industrial, MRO/spare parts, etc); food service; and fleet maintenance.

**Requirement Overview:** Client required a Web Based Application running on a Windows Server in place of their current Client-Server Based Desktop Application. They also wanted a Windows Mobile Application with scanning and high performance features to capture transactions at the Point-of-Use. With this new Web and PDA based application, the client had also planned many new features and functionality which were not available or not feasible in their current application. Below is the list of major features & functionality required by the client:

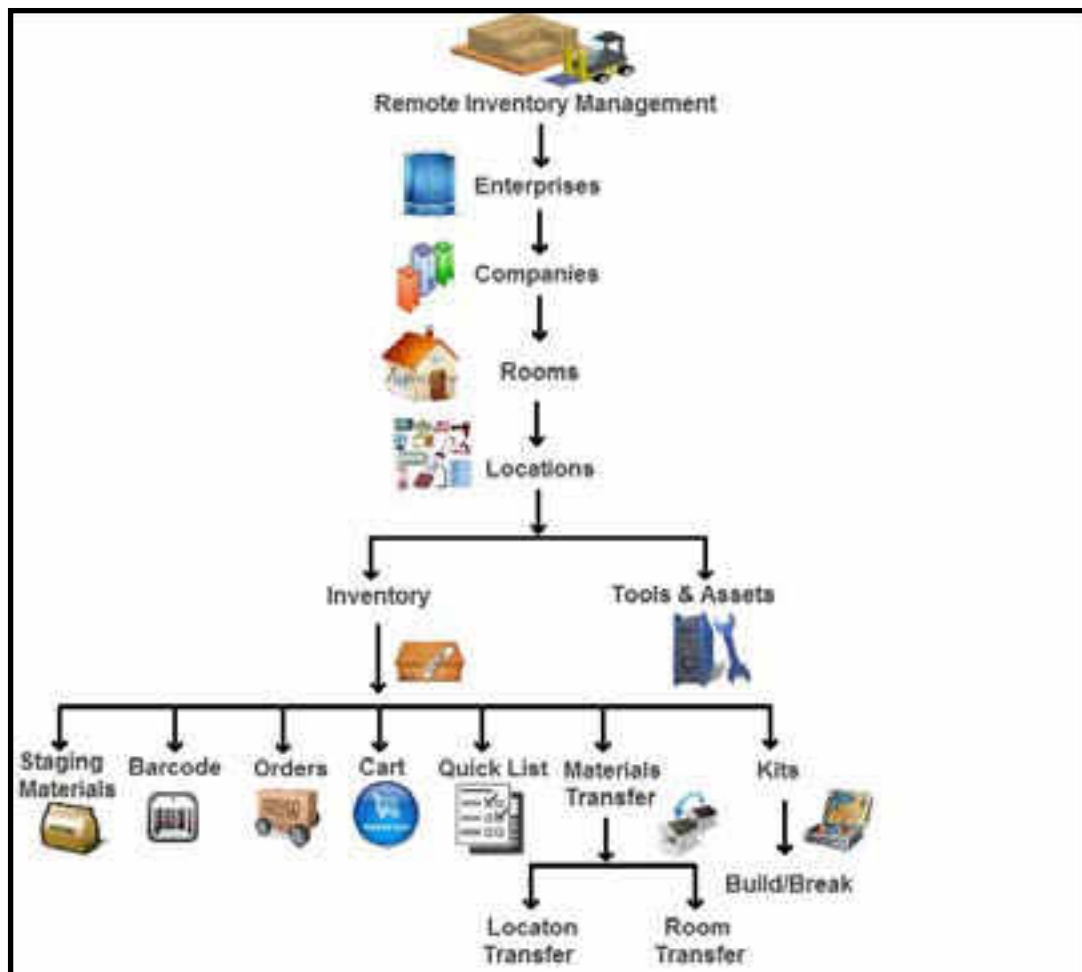
- Facility to manage inventory of multiple enterprises with the help of enterprise level administrator
- Total control with Super Administrator who can manage each and every function across all enterprises, companies, and stockrooms.
- Enterprise can create multiple companies under them
- Enterprise level users can only see information for their enterprise
- Visibility of inventories across multiple Enterprises and Companies
- Role based access for different level of users
- Log to be maintained for all transactions for Audit Trail purpose
- Off line storage for PDA device when network connectivity is not available and sync with the database when connectivity is resumed
- Sensor based automated stock taking process

# SaaS Based Inventory Management System

## Proposed Solution:

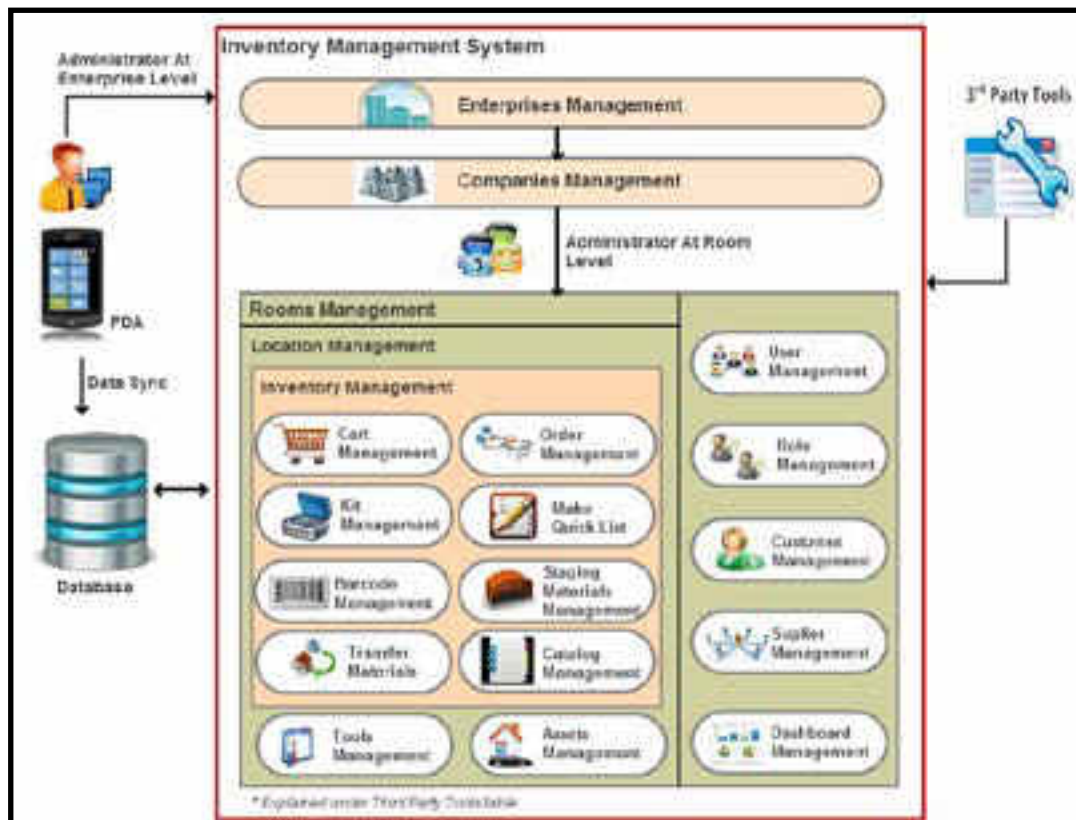
- Considering client's requirement Silver Touch proposed and developed stock room management inventory system in ASP.NET (Web Application) and Windows 6/6.5 (PDA (POU) Application) with Agile Methodology.
- Web Application was developed with MVC 4 which has many advantages that helps to develop great applications.
- As client was planning to sell this product to their end clients giving them facilities to manage their individual inventory, we have developed SaaS based application
- PDA devices were suggested by the client who was having scanning facility which was used to develop barcode scanning functionality for quick and easy stock management.
- Unique offline functionalities were developed for PDA so user can use PDA Application where internet connectivity is not available, so data can be stored locally on the device and whenever internet connectivity is available these data can be synchronized with the central database.
- 3rd Party Control (jQuery Data Tables) and 3rd Party equipment (Sensors) were implemented and integrated with this application for fast and accurate data management

## Application Flow

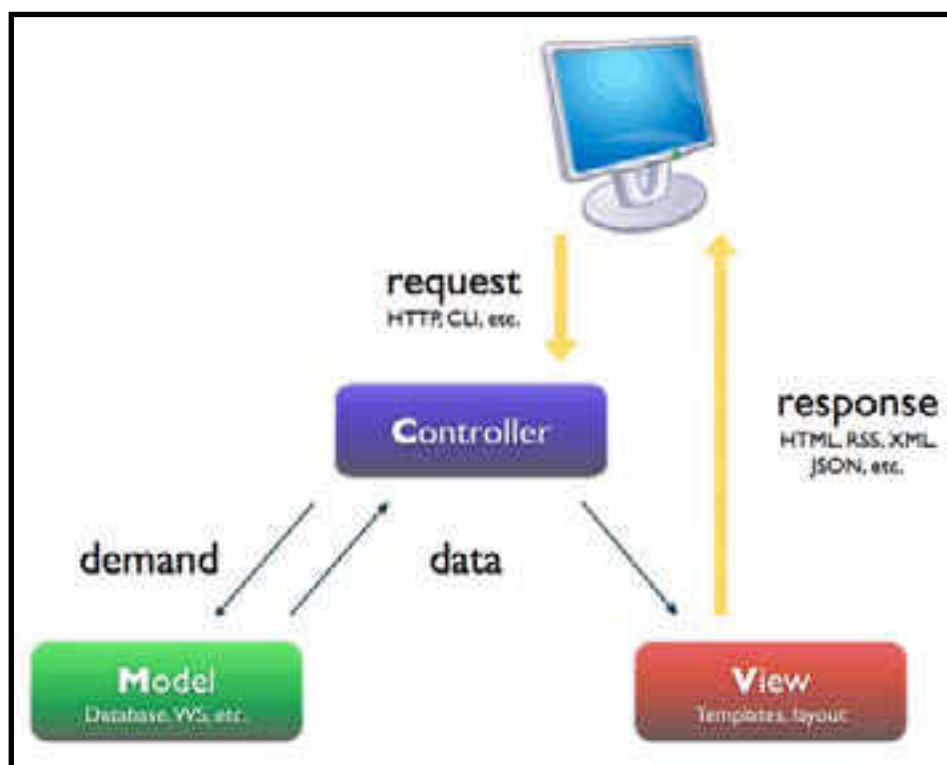


# SaaS Based Inventory Management System

## Application Architecture



## Technical Flow



# SaaS Based Inventory Management System

## Project Description

- This is a SaaS based Remote Stockroom Inventory Management System where their client's customers can manage multiple end-customers' inventory.
- Their client can create as many enterprises as they wish and each of them can have as many companies under them and then as many Stockrooms under that.
- End Client also has their own account from which they can manage their own inventory and generate reports.
- Items can be stored at single or multiple locations and they are also tracked through this application.
- Critical, Minimum, and Maximum Levels can be managed at item or location level and if on hand quantity of any item goes below its minimum level then application automatically adds that item into the cart for procurement process.
- A completely customized reporting capability was developed for Reports.
- Category, Supplier, Manufacturer and Cost filter and search functionality is available for items.

### Major Modules:

#### 1. Enterprise Management

- Client can create and manage enterprises. They can also create companies, rooms, and locations for the enterprise(s) as per requirement.

#### 2. Company Management

- The application allows the administrator at enterprise level to create and manage companies
- Users at company level can create or add items in company inventory list

#### 3. User Management

- Administrators will have rights to assign different roles and permissions to the users

#### 4. Room Management

- The application allows the company administrator to create and manage rooms
- Administrator can create locations and racks in rooms for easy maintenance of items

#### 5. Inventory Management

- It allows users to view inventory items and their attributes.

#### 6. Inventory Count:

- Allow users to setup cycle counts, perform cycle and manual counts..
- Users can set time to count the inventory and can select random or inventory classification cycle counting. They can define customized time setup

#### 7. Tool Management

- Module allows users to maintain tool cribs, setup tool maintenance schedules, keep track of tools using check in and checkout functionality
- Application displays consumed tools and available tools using checkout/check in functionality and tool's location value.
- Check in/checkout reports displays which tools are checked out and to whom.

#### 8. Tool Maintenance:

- Administrator can create maintenance alerts for tool maintenance. Alerts can be set as daily, weekly or monthly tool maintenance reminders.

# SaaS Based Inventory Management System

## 9. Asset Management

- Allow users to maintain asset lists and setup asset maintenance schedules.
- Company administrator can manage company's Assets using this module.

## 10. Asset Maintenance:

- Assets maintenance alerts can be created and application will send an email alert at time of maintenance.
- Each maintenance of the asset (Planned or not) updates the next maintenance calculation for the asset
- Allow users to update mileage or operational hours without performing maintenance.

## 11. Cart Management:

- User can create cart for items. After adding to the cart, user can order that item(s)
- Item will be automatically added to the cart when its stock goes below minimum level. After placing the order, the item will be removed from the cart

## 11. Quick List Management

- User at company level can create quick lists of items or manage frequently ordered items list as quick list.
- All the items in the quick list may or may not be inter-related.
- This enables the administrator to place order of frequently used /ordered items quickly.

## 12. Order Management

- Allow users to replenish inventory by submitting a list of items and quantities to a replenishing supplier.
- Users can select vendors and set delivery date for entire order.
- They can add items using quick list and create barcode label for order.

## 13. Change Order:

- Allow users to request changes to an order after it has been transmitted to the supplier.

## 14. Role Management

- Enterprise administrator can manage the roles and rights for different users. Administrator at enterprise level can assign Roles and permissions to various users for specific modules.

## 15. UDF(User Defined Field) Management

- Each module allows the users to capture transaction data based on their unique needs
- Users can create dynamic fields with dynamic values as per requirement.
- UDF is available for all modules for additional information.

## 16. Customer Management

- Enterprises can setup their customers using this module to track where material is consumed

## 17. Export/Import Management

- NPOI 3rd party tool integration allows the users to export the web data to excel files and vice versa.
- Users can save customized data from excel to application. After making the changes in the excel data, user can Import the data to application. Imported data will be stored in database
- Users can export current screen data in PDF format, CSV format, and Excel format and import changed data back to application to save it in database
- They can import an item, item location quick list, assets, and tools

# SaaS Based Inventory Management System

## 18. Pull Management

- Pull module allows users to track consumption of inventory.
- Users can select item, bin location, quantity and add specific information for each transaction.
- Pull All functionality allows user to pull multiple items with one click.

## 19. Supplier Management

- It allows the user to setup multiple suppliers.
- Users can create supplier orders
- After placing the order, supplier will receive an email for that order.
- Alternatively, orders can be sent via EDI, xml, or flat file to the suppliers

## 20. Catalog Management

- Allows the users to format and print inventory catalogs with barcodes.
- Allows separate catalog templates for Items, Assets and Inventory.

## 21. Barcode Management

- Allow users to cross reference barcodes to inventory items and assets.
- Administrator can create customized barcode labels for items with PDF format. After creation of label it will configure with specific item template.
- Barcode labels can include the Enterprise logo and an image of the item.
- Users will be able to determine which barcodes are associated to items and assets and tools.

## 22. Kitting

- Kitting module allows the users to group components together.
- Users can build kits or break them into individual components when needed.
- They can purchase whole kit from outside and then break it and divide it into different items.
- Kit inventory will be updated automatically when kit is built.

## 23. eVMI

- It allows client to automate the inventory management process through weight sensing scales.
- Allow users to poll any individual sensor from the location screen to determine quantity in the bin at that location.
- Allow users to poll all the sensors by clicking a "Poll All" button.
- User can set poll times per day or single elapsed time interval.

## 24. Dashboard Management

- Allows users to view turns, stock outs, recommended min/max levels, slow moving items and fast moving items.
- Only users with access to the dashboard will be able to view and act upon the dashboard data.

## 25. Material Staging

- Staging allows the user to reserve materials and set them aside for another use.
- User can move it into a separate location.
- User can Pull All of the material at one time in a single click.
- Unused material can be moved back into general inventory

## 26. Transfer

- Allows the users to replenish inventory by submitting a list of items and quantities to another replenishing room.
- Transfer materials from one room to another room.
- Moving Materials.
- Allows users to move material from one location to another within the same stock room.

# SaaS Based Inventory Management System

## Benefits

1. Web application instead of client server application so it eliminates manual work.
2. Users can manage inventory using virtual inventory system.
3. Users will be able to track their tools and assets as well as their maintenance on timely basis.
4. Users can build and break kit of items as per their requirement.
5. Users will be able to make quick list of items for quick orders of frequently used items and save lots of time.
6. Users can keep track on inventory using remote sensors and Poll functionality.
7. User can know about fast selling items and total inventory value using dashboard.
8. Users can get details of suggested order items using replenishment cart.
9. Customized barcode with PDF format can be generated dynamically for items, tools, assets, orders, and receipts.
10. Users can reflect offline changes using sync data with PDA.
11. Users will be able to filter, sort, re-order, and delete grid data .
12. Users can get email for tools and asset maintenance, sending orders and receiving etc..
13. User defined fields with dynamic dropdown are available in each module for additional information.

## Objectives

1. SAAS based implementation.
2. To create web and mobile application.
3. Remote Stockroom Inventory Management.
4. Sensor Based Replenishment.
5. Tools and assets management and maintenance for company.
6. To provide quick list and kitting for quick and easy consumption and ordering.
7. To export and import data in multiple formats.
8. To generate dynamic barcode labels for items and orders.
9. To keep track of current stock as well as out of stock items with total inventory value and turns.
10. Dynamic dashboard with graphical representation for all modules and sub modules.
11. Quick overview of critical items, minimum items, fast & slow moving items, un submitted orders.
12. To keep staging materials for special projects.
13. To move materials from one location to another location within room and transfer material from one room to another room.

## Project Approach / Activities

**Phase I:** As per Agile Methodology gather information for one module

**Phase II:** Analyze the system flow and database design for this module

**Phase III:** Designing

**Phase IV:** Development

**Phase V:** Testing as per client's requirement

**Phase VI:** Go Live

# SaaS Based Inventory Management System

## Technology

### Development Platform (Web)

Technology	Specifications
Technology & Framework	Microsoft .Net 4.0 Framework, Microsoft Asp. Net MVC 4
Languages	C#, JavaScript
Database	SQL server 2012 Express Edition
Web Server/Hosting Platform	IIS 7
Operating System	Windows 7 sp1

### Development Platform (Mobile)

Technology	Specifications
Technology & Framework	Asp. Net 3.5 CE (Windows Mobile), Microsoft Sync Framework 2.1
Languages	C#
Database	SQL CE 3.5
Operating System	Windows Mobile 6 & 6.5

### Deployment Platform (Web)

Technology	Specifications
Technology & Framework	Microsoft .Net 4.0 Framework, Microsoft Asp. Net MVC 4
Languages	C#, JavaScript
Database	SQL server 2012 Standard Edition
Web Server/Hosting Platform	IIS 7
Operating System	Windows server 2008 R2 Enterprise

### Deployment Platform (Mobile)

Technology	Specifications
Technology & Framework	Asp. Net 3.5 CE (Windows Mobile), Microsoft Sync Framework 2.1
Languages	C#
Database	SQL CE 3.5
Operating System	Windows Mobile 6 & 6.5

## Duration

1. Project Duration: 18 Months
2. Project Man Hours: 15000 Hours



# SaaS Based Inventory Management System

## Key Challenges

### 3rd Party Tool Integration

Name	Short Description
BarcodeLib	To generate dynamic barcode
CsvHelper.2.5.0	To read Comma separated value(CSV) files and generate new file
Elmah	To log errors in database
Jquery 1.7.1.1 and different plug ins	Jquery helper library
Signal R	Run time visual effect on web site on all clients
Newtonsoft.Json	Use to parse the json string to C# Objects
Dynamite	LINQ Query Helper Library
ItextSharp	To Export data in PDF File
NPOI	To read xls file and generate XLS file by Code
Jquery Datatable	To view data in list format same as grid view
FCK Editor	For maintaining mail template text
Microsoft Chart	To Show visual implementation of data in form of charts

### Other Challenges

1. Label Printing with customized Labels and Printing barcodes
2. SAAS Based remote stockroom inventory management
3. Jquery plug-in Data tables customization for filtering, sorting, re-order columns and multi delete data as per client's requirement
4. eVMI Sensor reading and inventory bins stock checking / counting
5. Agile methodology for module wise development as per client's preference
6. Offline PDA Sync and transactions
7. Multi Lingual web site with company wise resource label management
8. Email template management Language wise and room wise with FCK editor and fetching of same customized text on triggering the mail.
9. Dashboard with high level overview of inventory stock and Inventory tuning.
10. User Defined Fields in each module for additional information as per user's needs
11. Customized export and import data
12. Defining same architecture as desktop application
13. Drag & drop panel as per user's requirement in dashboard
14. Auto update notification for application update in PDA. It will update only latest changes instead of whole application

## Results Achieved

1. Client is now selling this SaaS based Remote Stockroom Inventory Management System to their clients and getting additional revenue.
2. This application has removed limitations of client's current client server Application.
3. eVMI Sensor based inventory counting increased speed and accuracy.
4. Online & Offline management from PDA device.
5. Dynamic Dashboard for all modules and stock status with graphical representation of data.
6. Automated Order and transfer creation based on Schedules improved performance.
7. Auto update functionality is available to give notification to PDA users to update application.

# SaaS Based Inventory Management System

## Login Page

### Login

SuperAdmin


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☒ Remember me

Login

Forgot Password

Use iPhone/Android, Scanner, Sensor or RFID to simplify ordering, track usage, and increase profit





*"Inventory Management Solutions:  
A Cost-effective Alternative to  
Vending for Automating VMI"*

## Dashboard I



# SaaS Based Inventory Management System

## Screen Shots

### Dashboard II



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## User Module

Narrow Search By:	User Name	Role	User Type	Email	Phone Number	Created On	Updated On	Updated By	Created By
User Type	ADMIN	ADMIN	Company Admin	admin@company.com		01/15/2023 09:00:00 PM	01/15/2023 09:00:00 PM	Admin	Admin
Role	SALES	Full Rights	Company Admin	sales@company.com		01/15/2023 12:00:00 PM	01/15/2023 01:00:00 PM	Admin	Admin
User Created By	ADMIN	Full Rights	Company Admin	admin@company.com		01/15/2023 09:00:00 PM	01/15/2023 09:00:00 PM	Admin	Admin
User Modified By	ADMIN	Full Rights	Company Admin	admin@company.com		01/15/2023 09:00:00 PM	01/15/2023 09:00:00 PM	Admin	Admin
Date Created	ADMIN	Full Rights	Company Admin	admin@company.com		01/15/2023 09:00:00 PM	01/15/2023 09:00:00 PM	Admin	Admin
From	ADMIN	Full Rights	Company Admin	admin@company.com		01/15/2023 09:00:00 PM	01/15/2023 09:00:00 PM	Admin	Admin
To	ADMIN	Full Rights	Company Admin	admin@company.com		01/15/2023 09:00:00 PM	01/15/2023 09:00:00 PM	Admin	Admin
Date Updated	ADMIN	Full Rights	Company Admin	admin@company.com		01/15/2023 09:00:00 PM	01/15/2023 09:00:00 PM	Admin	Admin
From	ADMIN	Full Rights	Company Admin	admin@company.com		01/15/2023 09:00:00 PM	01/15/2023 09:00:00 PM	Admin	Admin
To	ADMIN	Full Rights	Company Admin	admin@company.com		01/15/2023 09:00:00 PM	01/15/2023 09:00:00 PM	Admin	Admin
Clear									

# SaaS Based Inventory Management System

Deliver best products, software solutions and services, on time with quality, and as per customer expectations

## About SilverTouch

SilverTouch, a company established in 1992 is widely accepted for its IT solutions with a huge customer base in more than 20 countries across the world.

SilverTouch is actively engaged in Enterprise software development, enterprise content management, document management and IT consulting services such as Business process optimization, process consulting, implementation and customization of ERP. SilverTouch leads brilliantly in new technical developments such as: Mobile Application development services on iPhone, iPad, Blackberry, Android, J2ME and Windows mobile platforms. Even now, SilverTouch helps its global clients for major developments, deployments and managements of their mobility solutions and enterprise application development programs.

SilverTouch has alliance with several industry leaders such as Microsoft, Apple, Cisco, IBM, Oracle, SAP, Java, Dell, VM ware, Symantec, Sonic Wall which provides a competitive edge over other industry peers and targets to understand and cater to all types of requirements that concern our clients, thereby, leading to serve them precisely to their satisfaction.

For more information, please visit [www.silvertouch.com](http://www.silvertouch.com) or email [info@silvertouch.com](mailto:info@silvertouch.com)



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