SAG Engineering Services

- WAREHOUSE MANAGEMENT
- SUPPLY CHAIN
- LOGISTIC MANAGEMENT

SAG ENGINEERING SERVICES

EST. 1987

SAGTRACK is a track and trace solution ecosystem that enables tracking from point to point to ensure visibility, security and authentication. The SAGTRACK ecosystem include technologies such as Radio Frequency Identifi cation (RFID), Barcode, QR Code, GPS and Near Field Communication (NFC), together with hardware peripherals and mobile devices to provide tracking. One feature that makes SAGTRACK unique is its Electronic Product Code Information System (EPCIS) capability. This feature enables the sharing of important business information, such as the time, location, disposition and business steps of each event that occur during the life cycle of an item in the supply chain.

By implementing SAGTRACK solutions, organizations are able to increase operational/process efficiency and effectiveness.

Some advantages of SAGTRACK solutions include:

- Increase in visibility
- Authentication
- Increase in security
- Reduce human error
- Increase in productivity
- Cost reduction
- Improved data collection and sharing
- Automation

CORPORATE PROFILE

At SAG Engineering Services, we take pride in our unmatched expertise in steam boiler repairs and maintenance. Our team of highly skilled engineers and technicians is dedicated to ensuring the optimal performance of steam boilers, guaranteeing safety and efficiency for all our clients. We understand the critical role that steam boilers play in various industries, and we are here to provide reliable solutions tailored to your specific needs.

In addition to our repair services, we offer a comprehensive range of steam boiler parts and other engineering equipment sourced from reputable manufacturers. We prioritize quality and durability, providing our clients with access to the finest components in the industry. Whether you need replacement parts or new equipment, you can trust SAG Engineering Services to deliver products that meet the highest standards. At SAG Engineering Services, we prioritize our clients' satisfaction above all else.

Our customer-centric approach is reflected in our personalized services, timely deliveries, and attention to detail. We work closely with our clients to understand their requirements, offering tailored solutions that exceed expectations. With a focus on building long-lasting relationships, we are committed to delivering exceptional service at every stage.

Some of Our Clients

INTRODUCTION

What is traceability?

It is the ability to verify the history, location, or application of an item by means of documented recorded identification via identification tags (such as RFID tags and barcode). Technologies that can be applied in traceability solutions include RFID (Radio Frequency Identification), Barcode and GPS.

Application

Traceability can be applied in various industries to track and trace products or raw materials from point-to-point across the supply chain. By implementing traceability solutions, companies can achieve transparency, efficiency as well as enhanced security. The most common areas where traceability solutions are applied include logistics, supply chain, and food processing etc.
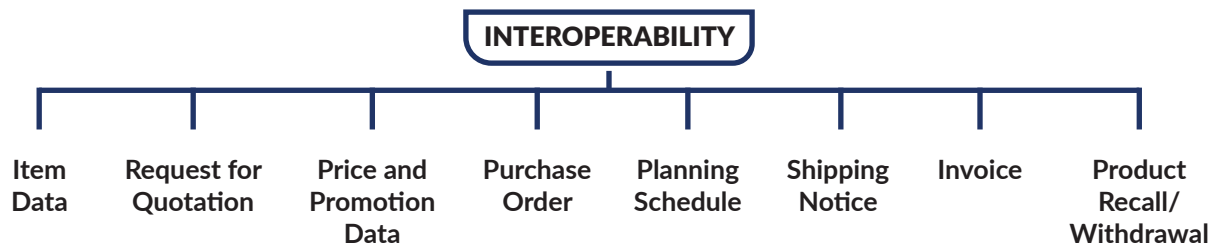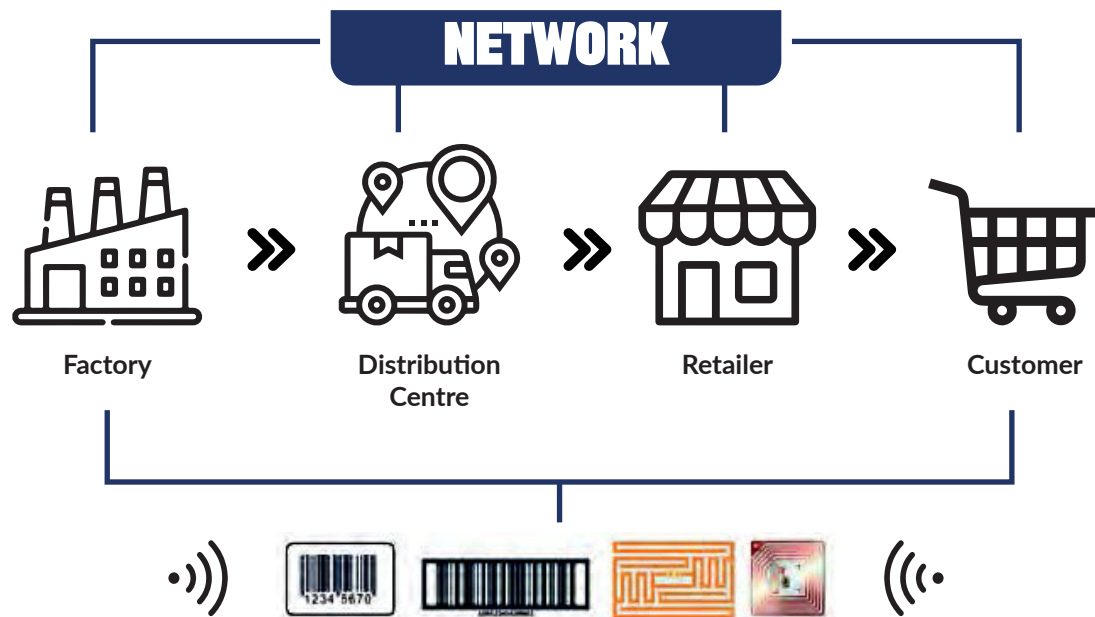
Logistics and Supply Chain

In logistics, traceability can be used for tracing goods along the distribution chain on a batch number or series number basis. Traceability is an important aspect for example in manufacturing, where it makes recalls possible, or in the food industry where it contributes to food safety.

The International standards organization EPCglobal under GS1 has ratified the EPCglobal Network standards (especially the EPC Information Services EPCIS standard) which codify the syntax and semantics for supply chain events and the secure method for selectively sharing supply chain events with trading partners.

Food Processing

In food processing (meat processing, fresh produce processing), traceability includes recording through means of barcodes or RFID tags & other tracking media, all movement of product and steps within the production process.

One of the key reasons this is such a critical point is in instances where an issue of contamination arises, and a recall is required. Where traceability has been closely adhered to, it is possible to identify, by precise date/time & exact location which goods must be recalled, and which are safe, potentially saving millions of dollars in the recall process. Traceability within the food processing industry is also utilized to identify key high production & quality areas of a business, and which areas in the production process may be improved.

NETWORK

Factory » **Distribution Centre** » **Retailer** » **Customer**

Electronic Commerce Information Flow

Master Data (GDSN) • Transactional Data (eCOM) • Physical Event Data (EPCIS)

INTEROPERABILITY

Item Data | Request for Quotation | Price and Promotion Data | Purchase Order | Planning Schedule | Shipping Notice | Invoice | Product Recall/ Withdrawal

IDENTIFY

At the manufacturing plant/ factory, identification tags are attached to products from its raw state, through manufacturing lines, right down to the finished product. This is to allow visibility throughout the manufacturing process. It also enables optimization and efficiency in production lines.

Advantages
1. Production line automation
2. Facilitates Just In Time production
3. Improves quality control
4. Reduces error in manufacturing lines

CAPTURE

By capturing the data/ information stored in the identification tags, it is possible to track and trace products from end-to-end in the supply chain. i.e. from factory to consumer. This ensures accurate and timely data which is critically essential for planning and executing daily operations.

Advantages
1. Improves data accuracy
2. Visibility across the supply chain

SHARE

Data/Information captured can then be shared across the supply chain. Information sharing improves visibility as well as supply chain management. Organizations can optimize daily operation efficiency through Data/ information sharing.

Advantages
1. Improves inventory management/planning
2. Increases productivity
3. Cost reduction mechanism

WAREHOUSE SOLUTION

How the System Works

- RFID tags are printed and labelled on the products and pallets upon arrival.
- RFID portal reads/captures the RFID tag information when products are pushed through.
- Fork lift equipped with RFID reader matches the RFID tag information on the products to RFID tag information on the storage rack.
- This information is updated in the ERP/database system.
- RFID handheld reader can be used for item searching and auditing purposes.
- RFID portal detects and triggers when unauthorized items are being removed from the warehouse.
- RFID tagged pallets can easily be located and sent for re-use in the warehouse.

Benefits of the System

Easy and fast location of items in warehouse.
- Reduced cost of rework.
- Improved inventory planning.
- Improved speed of handling process.
- Reduced manual labour/labour reallocation.
- Reduced human error in warehouse.
- Improved data accuracy.
- Automation of manual processes in warehouse.

SOLUTION OVERVIEW
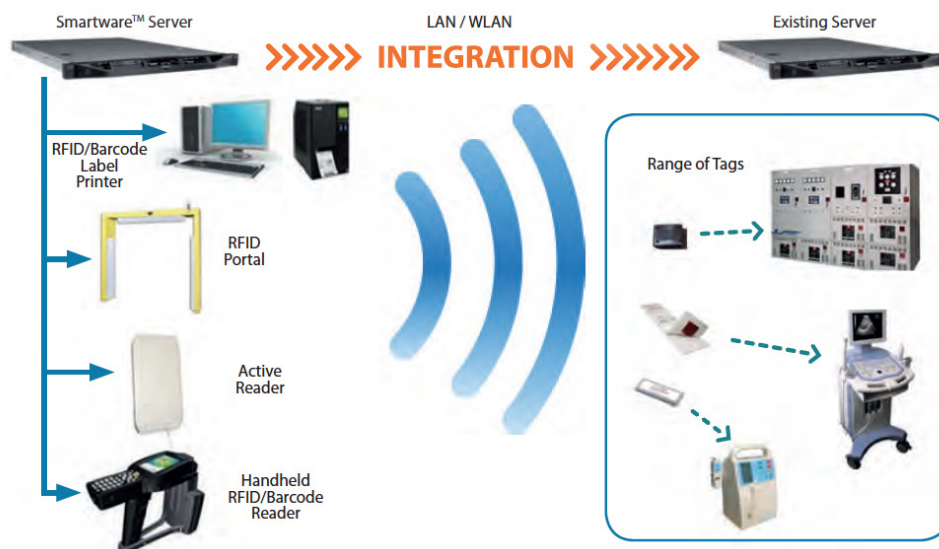
PROCESS FLOW

GENERIC SOLUTION PROCESS FLOW

Product → Interception Zone → Storage Rack → Docking Zone

STORAGE

RFID Metal Tag

Fork Lift Mounted with RFID System

ASSET MANAGEMENT SOLUTION

Benefits of the System

- Improved asset visibility and utilization
- Improved regulatory compliance
- Reduced capital and operational costs
- Improved asset maintenance and assured adherence to critical and routine maintenance procedures
- Reduced asset downtime
- Improved technician productivity.

System Modules

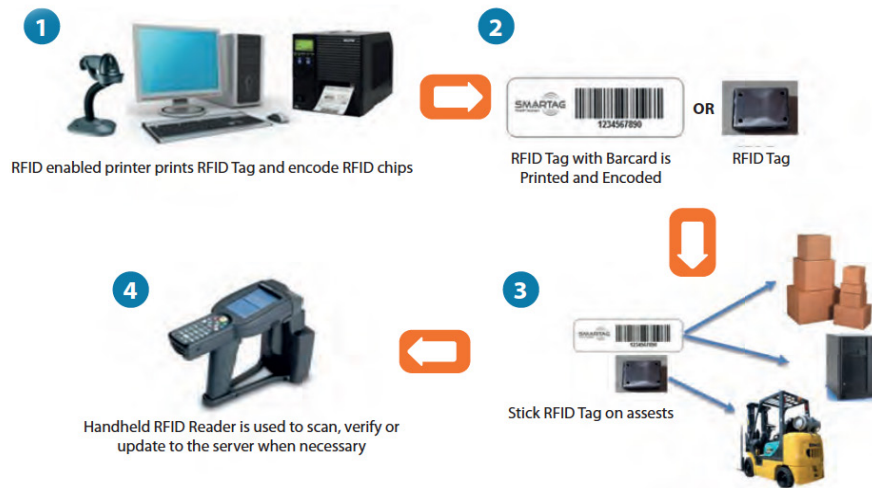The Asset management system consists of 2 parts. The core system.

- The core system is the basic function that a simple as-set management system should have. Such as vendor management, Location management, user management, location management, asset information management and activity. The core module comes with basic reporting.

The extension modules.

- The extension modules are those additional features such as bar code, RFID and etc.

PROCESS FLOW

GENERIC SOLUTION PROCESS FLOW

1 RFID enabled printer prints RFID Tag and encode RFID chips

2 RFID Tag with Barcard is Printed and Encoded — OR — RFID Tag

3 Stick RFID Tag on assests

4 Handheld RFID Reader is used to scan, verify or update to the server when necessary

STORAGE

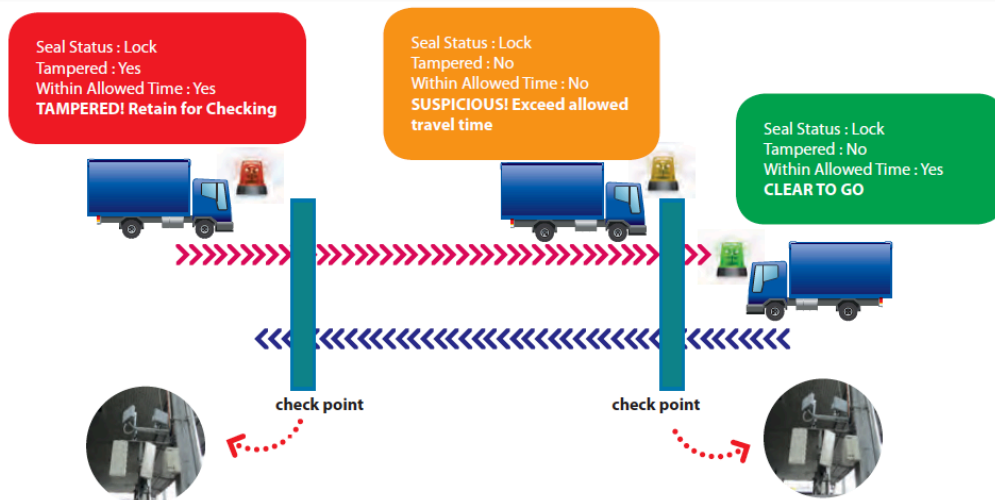SCAN

- Handheld with RFID reader, reads and captures information simultaneously by reading the RFID tag.
- Handheld can be used to perform asset auditing and management.

LOGISTICS MANAGEMENT

Seal Status : Lock
Tampered : Yes
Within Allowed Time : Yes
TAMPERED! Retain for Checking

Seal Status : Lock
Tampered : No
Within Allowed Time : No
SUSPICIOUS! Exceed allowed travel time

Seal Status : Lock
Tampered : No
Within Allowed Time : Yes
CLEAR TO GO

check point

check point

Outgoing Process

Outgoing truck is locked with RFID Seal at the warehouse after loading and a handheld RFID reader is use to initialize outgoing RFID container seals. As the truck leaves the station and passes through the checkpoint installed with RFID readers, the RFID seals are read and the timestamp is captured and stored in a RFID Server.

In addition, as the truck leaves the station, images of the truck's number plate will be captured at the exit point. The number plate is automatically recognized and verified against the truck registration number.

Receiving Process

When the truck arrives at the receiving station at the destination, the truck passes through a checkpoint equipped with RFID readers. The information stored in the seal's memory are read into a RFID Server. The RFID Server then validates if the seal matches the expected truck and container information.

Again, the surveillance camera with Automatic Number Plate Recognition (ANPR) systems recognize the truck's number plate and is verified against the declared vehicle registration number.

Once the information contained in the RFID seals and the expected container information matches, an auto-complete process will triggered to complete the transaction.