SIEMENS

Locating in real-time

Use case applications in the Food and Beverage Industry

Ensuring food and beverage safety

Description

- Equip employees with tags to enable location/time tracking for possible contact tracing with food products.

- Isolate spoiled products more easily by tracking their location/time through the plant in relation to discovered sources of contamination.

- Avoid entire plant shutdowns or large-scale product loss through full contact tracing of employees and products.

Examples

- You discover one employee has a transmittable pathogen that can pose danger to other employees or food and beverage products. With RTLS, you can use contact tracing to identify specific food products or other employees that had contact with this possible contaminant source.

- You can enforce social distancing guidelines proactively using RTLS tags that will display an alert when employees stay too close together or gather for too long in proximity to one another.

Benefits

- Mitigate exposure to large-scale food production loss.

- Reduce risk of full plant shutdowns.

Promoting employee safety

Description

- Through provision collision, machines recognize the location of employees and automatically switch off if worker safety is at risk.

- Robots can move freely without protective fences through a simultaneous localization in real-time.

- Social distancing can be enforced to protect employees using RTLS tags that displays alerts if they stay too close together or gather for too long in proximity to one another.

- Controls over heavy machinery requiring special training for operations can be integrated with RTLS with wearable tags to know if an employee is trained and/or authorized to operate specific equipment.

Examples

- A production facility has, naturally, tedious places and corners. With RTLS, potentially dangerous situations of machines colliding can be entirely prevented.

Benefits

- Enables higher automation for manual activities.

- Prevention of potentially dangerous situations through optimal route choices and machine communication.

- Easier compliance with safety standards within your production.

- Real-time employee mustering.

- Social distancing and contact tracing.

- Lone worker and visitor monitoring.

Reducing search time for assets
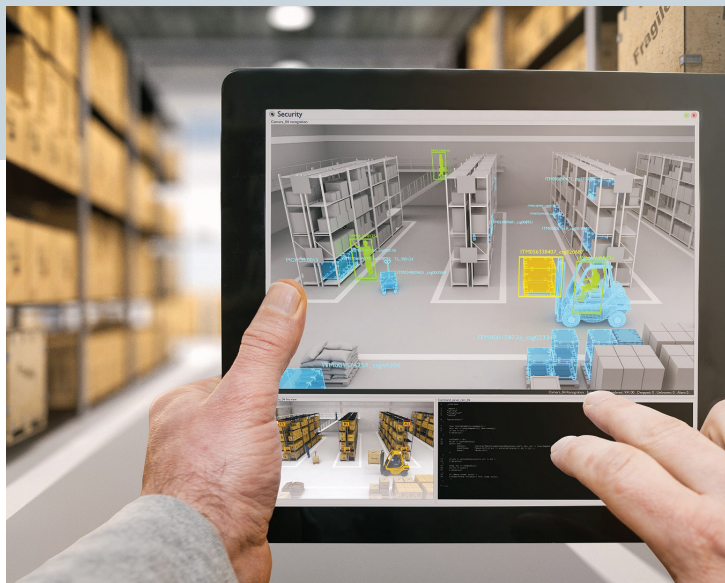
Description

- Equip assets with transponders that can be tracked and localized in real-time.

- Imagine production with a three-shift rotation. How much time is wasted on unnecessary searches for tools, workpieces or equipment that are no longer in their assigned place? With SIMATIC RTLS, this problem can be easily solved. You will always know where your objects are located.

- Monitor any downtime and service intervals and measure improvements as assets are more easily found for use or service.

Examples

- Production facility in Germany has to look for tool boxes 327 times a day for three minutes. This adds up to 3,900 hours a year which can be reduced by installing RTLS.

- Another production facility in Germany calculated that they can save 4.400 hours of search and handling time by installing RTLS.

Benefits

- Locate any object with precision.

- Eliminate time-consuming search procedures.

- Optimize material stock and avoid loss of inventory.

Elimination of material loss
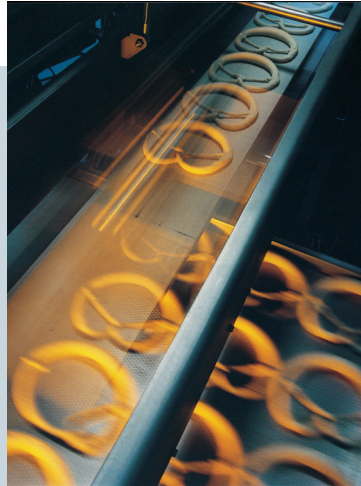
Description
- Track inventory with an accuracy of up to 1 foot reliably in real-time.

- Equip containers or pallets with transponders or have them integrated into your assets.

- Enables reliable and precise localization of any missing materials within the warehouse/factory.

- Besides tracking to avoid loss, RTLS optimizes the ability to correctly utilize inventory/materials in the order they were received (First In, First Out).

Examples
- An inventory consisting of 50.000 articles with an average inventory value of 100 USD and a loss rate of 3% per year results in costs of 150.000 USD per year.

- Mark-up costs for having to order short term replacement inventory (for this 3% loss) with an additional "expedite" fee of 10 USD results in an additional cost of 15.000 USD.

Benefits
- Optimal inventory utilization by leveraging the First In, First Out principle.

- Prevention of additional mark-up costs due to replacing lost parts.

- Save money by locating inventory reliably and quickly.

Identify and prevent bottlenecks and quality problems

Description
- Identify bottlenecks reliably by monitoring your production and visualizing pain points in real-time and act immediately.

- Reduce and prevent future production errors and related products defects by using RTLS to trace the source of these errors and improve your processes.

Examples
- A factory used Garvey Line Analysis to estimate operations to be 20-30% below capacity through bottlenecks. A production volume of 1.000.000 USD with just a 10% improvement rate would generate an additional 100,000 USD if RTLS had been utilize to identify inefficiencies.

- Manufacturers can install RTLS to track every asset through production, creating transparency and enabling analysis of production workflows to identify potential bottlenecks or other impediments relating to the flow of people and assets in production.

Benefits
- Prevention of a decrease in product quality.

- Increase your output and material flow by preventing bottlenecks.

- Have exact information about where each key asset is in your production facility.

- Eliminate manufacturing delays and avoid higher production costs.

- Automation of complex processes.

- Have full transparency on your entire plant floor.

- Guide employees efficiently to their task.

Simplifying process documentation
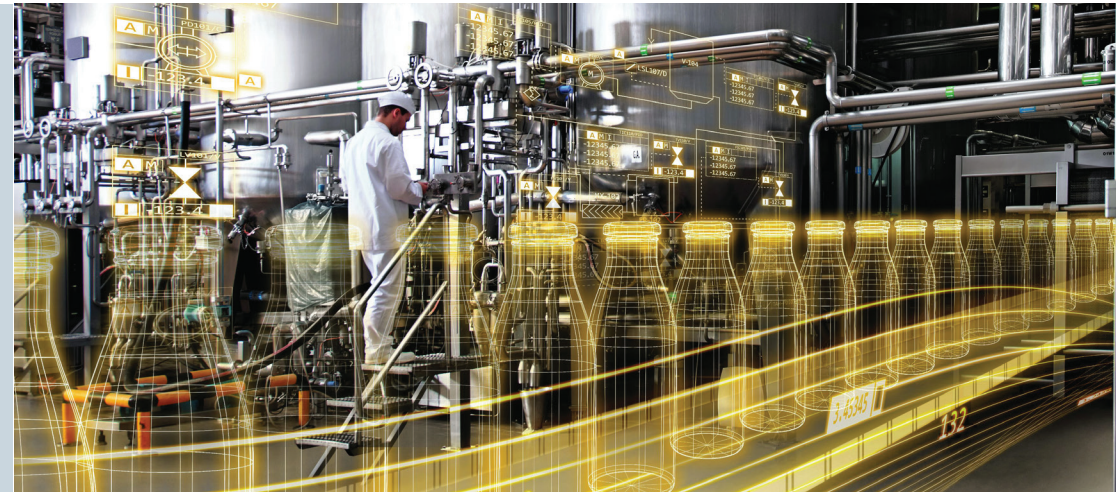
Description

- Avoid time consuming documentation processes as RTLS captures all data that allows manufacturers to go completely paperless.

- Document and understand your production as never before as RTLS provides clear documentation to examine and study.

- Generate and analyze information in a digital twin environment to create and test improvements to your processes.

Examples

- In one facility, a manual scanning process of 3,000 boxes takes two seconds for each box. RTLS eliminates the need to scan as the system tracks and maintains all documentation, resulting in a $18,000 USD (estimate) savings in scanning time.

- A factory worker documents the floor plan of 700 machines by hand, consuming about 50% of that employee's time. With RTLS, this information is readily available, thus saving 50% on labor cost.

Benefits

- Save valuable time through eliminating manual documentation procedures (reduce labor cost).

- Reduction of error rate with built-in documentation.

- Immediately react to potential quality problems.

- Automatically inform other departments about changes in the production.