Digitalization with RFID and RTLS – Laying the Groundwork for the Future

Presented by: Nicole Lauther and Jeff Snyder - Siemens
Manufacturing in America | March 20-21, 2019
Create full transparency with RFID and RTLS

Get to know your global assets and make smart decisions
Digitalization

OFFICE

CORE

MANAGEMENT

PRODUCTION

Industrial RFID

MACHINE / CELL

Code Reading

ID# 12739

ID# 7641

Digitalization

Unrestricted © Siemens 2019 All rights reserved.
RFID (Radio Frequency Identification): Wireless communication technology to track items

**Tag**: A passive (no battery) device attached to the item being tracked

**Reader**: Wirelessly reads and writes to tags

**Reader with External or Integrated Antenna**

Location is known, identity is not known

**Tag (internal: Antenna, memory)**
RTLS – How it Works

- A battery powered tag communicates wirelessly with four “base stations”
- The exact location of the tag is calculated by triangulation
- Accuracy down to 11 inches
- Repeatable layout, allowing for large coverage range
- Gateway is connected directly to locating server via Ethernet, anchors are connected wirelessly to gateways via mesh network
RTLS – How it Works


Locating Information

Real-Time Locating System

Anchor  Gateway  Anchor

Mobile Production Equipment

Transponder  Distance / Route  Position
Work in Progress – Monitor your production progress and use the data to optimize your processes

- Detailed information about production progress
- Precise documentation and traceability
- Intelligent process control
Tracking of tools – Document your production and use the data to make manufacturing more efficient

- Precise localization within inches
- Tool tracking – based on flexible geo fencing
- Document production steps automatically
Container Locating – Know where your assets / goods are and shows current status information

Location based status information

Elimination of time consuming searches and loss

Gets warehouse stock information in real time
Container Locating – Know where your assets / goods are and shows current status information

- Location based status information
- Elimination of time consuming searches and loss
- Gets warehouse stock information in real time
Locate automated guided vehicles (AGVs) or fork lifts – Get route information and transparency in your supply chain

- Detects the position of moveable objects
- Optimizes material flow
- Route optimization
Inbound and Outbound logistics
Fleet management

- Eliminate time consuming searches
- Documentation of arrival and departure times
- Monitor availability of fleet
Tracking of large parts –
Optimize production and logistics

Documentation of location

Eliminate long searches and loss

Optimize processes
People Tracking –  
For workplace safety and intelligent maintenance processes

- Intelligent and efficient manpower planning
- Access control
- Ensure safety of employees
Container Sterilization

Application Solution

In some manufacturing production processes containers require sterilization on a cyclic basis, and to have that data reliably verified and reported to both internal and external users.

- UHF Tag (RF640T)
- UHF Antenna (RF680A)
- UHF Reader (RF680R)
- Operator Panel (SIMATIC HMI)
- PLC Controller (SIMATIC S7)
Production Control

Application Solution

Constantly increasing number of variants, shorter lifecycles, unpredictable demand fluctuations – SIMATIC Ident enables flexible production control and individualized product manufacturing, even down to unique item runs, without changeover times.

UHF Tag (RF640T)  UHF Antenna (RF680A)  UHF Reader (RF680R)  Code Reader (MV540)  Operator Panel (SiMATIC HMI)  PLC Controller (SiMATIC S7)
RTI Verification

Application Solution

In manufacturing facilities that utilize Returnable Transport Items (RTI) the tracking and managing of these assets can not only reduce loss, but inform and improve the process itself.

UHF Tag (RF610T)  UHF Antenna (RF680A)  UHF Reader (RF680R)  Operator Panel (SIMATIC HMI)  PLC Controller (SIMATIC S7)
Ingredient Verification

Application Solution
Many manufacturing processes involve the mixing or blending of different ingredients. This is applicable in a wide range of industries such as food, beverage, dry goods, chem/pharm and more…

Verify correct ingredients have been added allowing container to move to next location
Tool Identification

Application Solution
Fast, reliable tool identification and data storage eliminates errors and provides greater transparency which, enables optimization of expensive tool inventory while increasing quality and productivity.

Tool and holder assembled and assigned unique ID, then Tool is inserted into CNC machine.
Logistics

Application Solution

Automation of manual processes and detection of incoming/outgoing goods and parts. Avoid production and supply-chain bottlenecks, downtime reduce incorrect deliveries and optimize inventory.

Detection and tracking of sales and receipt of goods

UHF Tag (RF610T)  UHF Antenna (RF680A)  UHF Reader (RF680R)  UHF Tag (RF620T)  User Application (Workstation / PC)
Intelligent Container Management - RF600 and MindSphere
Flexibility with Container as a Service application
Questions?

Nicole Lauther  
*RTLS Business Manager*

Address  
Phone: 678-294-1628  
E-mail: nicole.lauther@siemens.com

Jeff Snyder  
*IID Sales Specialist*

Loveland, OH  
Phone: 513-658-8735  
E-mail: jeffrey.snyder@siemens.com