FALKEN
Secure Networks

RFID in Museums and Art Galleries

RFID, or Radio Frequency Identification, is a well-established technology whereby small flexible labels—"RFID tags"—can be read and *uniquely* identified by a special device—the RFID reader. Many tags can be read at the same time, and no line-of-sight (unlike barcode) is necessary when reading the tags.

RFID's ability to simultaneously read even hundreds of tags in a few seconds provides a unique advantage for tracking Museum and Art Gallery exhibits. It allows collections staff to track movement and take inventory of artifacts without physically handling them, thus greatly reducing damage to collection items. For example a hand-held reader could easily read 20 or more items stacked on top of each other in a storage drawer. Besides the reduced handling, the ability to scan multiple items also has a positive impact on staff productivity.

When properly applied, RFID technology can achieve a 100% read accuracy providing obvious advantages over manual methods.

RFID tags come in various sizes, from quarter-sized, to the size of a hand

Every RFID tag manufactured in the world gets a globally-unique ID, which is impossible to change or duplicate. This has significant advantages for Museum and Art Gallery collection tracking, both from a records-keeping (unique) and security (impossible to duplicate) points of view. Such features enable real-time, continuous inventory record keeping and are especially valuable for Museum and Art Gallery Exhibit road trips from city to city.

Finally, RFID's ability to be read through other materials means that artifacts can be scanned touchlessly even while on display. In contrast, a barcode would have to be visible and within very short distance range in order to be scanned, which would be unacceptable for esthetic reasons.

RFID for Movement Tracking

Busier Museums and Art Galleries that re-arrange their exhibits with some frequency can greatly benefit from RFID to help them track movements of their collections. The actual method of tracking could take on any combination of the following forms:

- Gate readers installed at key doors could monitor the movements automatically
- Hand-held RFID readers could be used by staff to record the movements as

exhibits leave or re-enter storage.
- Hand-held readers could be used by staff to record location of exhibits in their final position

RFID for Museum and Art Gallery Exhibit Inventory

Imagine taking inventory of 15,000 works of art, including updating their exact location in your computer system, in two hours. Sounds impossible? Here's the breakdown:

What?	How Many/How Long?
Artifacts	15,000
Artifacts per drawer	20
Number of drawers	15,000 ÷ 20 = 750 drawers
Time needed to open a drawer, pass a scanner over it, and close it again	5 seconds/drawer
Time spent scanning	750 drawers x 5 seconds/drawer = 3750 seconds (just over 1 hour)
Time spent walking between shelves, resting, etc	About 1 hour
Total time	**2 hours**

Physical inventory of 15,000 items in 2 hours

If the last time you did physical inventory of your collection was two years ago, consider the tremendous benefits of the astronomical improvement in speed of this process when using RFID. Something that you couldn't afford to do before any more than yearly, you could now do weekly. The result? Discrepancies between your collection management system and your physical inventory would be discovered *much, much* sooner, while the whereabouts of the object in question was still fresh in everyone's mind, and the object could therefore be tracked down much easier.

As staff pass the RFID reader over the contents of the drawer, in addition to scanning the tags attached to each artifact, they also scan a special *location tag* that is affixed to each drawer. In this way, the system is 'location aware' - it knows *what* is located *where.*

Data collected in this way would be automatically downloaded to your Inventory management software, either on-the-fly through a wireless network, or afterwards, by dropping the RFID reader into a cradle.

RFID for Instant Access to Information

Once a Museum or Art Gallery collection is labeled with RFID tags, any staff member with a hand-held reader can get instant access to information about any piece of interest. Information such as its home location (needed when putting items away), maintenance history, artist, or any other piece of information that you already have in your database can instantly be displayed.

RFID Can Help Find Misplaced Artifacts

If a specific artifact turned out to have been misplaced, a portable RFID reader can be used to search for that artifact (or artifacts) in your stores. Note that this is also done automatically during the inventory process: the scanner instantly indicates to the user when it detects an artifact with a previously unknown location.

Locate Documents and Ensure Authentication with RFID

Identifying and locating critical files and documents is one of the greatest problems in offices today.

Time is wasted chasing misplaced files, deadlines are missed while searching, and everyone is interrupted by broadcast emails. When combined with employee identification systems using cards or fingerprint sensors or tags, the RFID system will enable real-time recording of which employees are removing or replacing which documents, whether authorized or not, from a filing cabinet or room. By equipping document archival cartons with passive RFID tags, and the use of specially RFID readers throughout the facility, our system offers Real-Time 100% annual inventory and audit reporting for clients, auditors, and authorities.

In addition, FSN offers an optional (non-RFID)authentication security feature which will indicate if a label has been tampered with thus ensuring authentication of a document. MIKOH's technology from FSN, can be used to authenticate and track high-value document library assets for secure storage and transportation, and to ensure reliable identification of borrowed books and multimedia.

Data and documents survive thanks to careful strategic planning and storage. Once stored, these volumes must be tagged, catalogued and tracked appropriately. FSN understands the importance of document tracking and its crucial role in the successful operation of information structures. Using RFID technology, FSN provides a thorough check-in/check-out solution so valuable data volumes are tracked successfully.

RFID Enables Exciting Potential Future Uses

RFID tagging of your Museum or Art Gallery collection opens the door to exciting new possibilities, such as self-guided Museum or Art Gallery tours. Users could access detailed multimedia information on works of art via an RFID-equipped PDA simply by scanning an object of interest. Individual exhibits and locations are marked with tags; when a patron approaches with a museum-issued PDA with an integrated RFID reader, the PDA plays multimedia content associated with the exhibit.

As well as offering visitors an enhanced museum-going experience, it allows the museum to compile and analyze data such as how long a visitor spends at each exhibit. This could help the museum plan future exhibits to better suit their audience's interest.

FSN Provides Built-In RFID Security

RFID tags, barcodes and labels are in common use today as corporations and governments seek to cost-effectively track and trace assets throughout their lifecycle. As organizations rely more heavily on tracking via these methods, human interaction with assets is decreasing. Without proper security measures, these new technologies and processes create even more vulnerability to instances of tampering, counterfeiting, theft and fraud. Improperly implemented without full consideration for security, RFID can actually disguise theft and counterfeiting.

FSN works with its customers to design and implement physically secure solutions to track, seal and/or monitor valuable assets. These solutions ensure that the proper business processes and labeling technologies are implemented in order for users to be certain that their assets are effectively managed and secure.

Smart&Secure is a patent-protected, tamper evident RFID technology developed and patented by MIKOH. It addresses tag physical security issues by detecting if an RFID label has been tampered with or moved and provides a one-to-one relationship between a tag and an asset. Various choices of adhesives are available to ensure conservation and preservation practices are not compromised.

MIKOH Smart&Secure technology disables an RFID tag if tampering occurs. This prevents tags from being removed and reapplied, as well as tampering from solvents, heat and other malicious practices. A functioning tag indicates the item has not been compromised. A more advanced version of tamper-evident Smart&Secure technology alerts an RFID reader that the tag has been compromised without disabling RFID functionality, enabling ongoing retrieval of data stored in the tag. While MIKOH's technologies are patent-protected, all solutions are standards-based, enabling simple integration into EPC or ISO-compliant systems. A proprietary adhesive chemistry and multi-layer manufacturing process result in reliable tamper indication even when sophisticated tamper methods are used, including:

- Temperature Extremes (e.g. Liquid Nitrogen Freezing, Heat Guns)
- Chemical Attack (e.g. Solvents, Corrosives)
- Mechanical Attack (e.g. Razor Blades, Knives)

Secure Container for Artifacts on the Move

FSN also provides the innovative Mikoh SecureContainer for use in transporting smaller but valuable artifacts, which makes use of the company's existing Smart&Secure RFID tag incorporated in a seal. As long as SecureContainer's RFID tag can be read and its seal hasn't been tampered with, a company can be confident that 100 percent of items being shipped are inside the container—even if the system is unable to read 100 percent of the item tags inside it.
FSN offers two types of seals: one in which the RFID tag continues to send data to readers throughout the supply chain even if the container has been opened or the seal has been damaged; and a second option in which the tag stops working as soon as someone tampers with it.

The SecureContainer is a reusable plastic container typically measuring 15 by 12 by 5.5 inches, athough other sizes are available. The container includes one point of entry, in the form of two doors at the top of the container, which are closed and secured with an adhesive seal integrated with a Smart&Secure passive RFID tag.

FALKEN Secure Networks(FSN)—Your partner for RFID automation

If you choose to pursue RFID implementation in your organization, here is the FALKEN Secure Networks commitment to you:

- FSN will provide solution architects to work with you to define system requirements for your particular installation. Multiple locations can be networked together for a central and real-time view and centralized management. We assure full consideration for security.
- FSN will do a RFID site survey to validate radio frequencies, tag types, system design and performance
- FSN will provide all necessary hardware and software to make the system work for you
- FSN will integrate the system with your existing enterprise management software
- FSN will provide documentation for the system, including operating procedures
- FSN will train your people
- FSN will provide warranty and continued system support

FALKEN Secure Networks (FSN) recommendation of Omnitrol Networks next-generation, network appliance for such applications is based on its superior near "plug and play" capability, built-in middleware, networking strength, superior ability to manage a broad range of devices, including mobile and fixed RFID readers as well as RFID printers that are deployed at different locations around the world, and integrate these into existing IT systems.

FSN adopts a vendor-neutral position with regard to both Readers and Tags since there are virtually as many specialized tags as applications. Thereby our sole uncompromised focus as a RFID solution architect and specialized system integrator is cost-effectively solving the customer business issue and optimizing the RFID physics variables in our recommended solutions versus pushing one particular vendor's hardware.

Contact Us

FALKEN Secure Networks is a specialized System Integrator, RFID Solution Architect, and Value-Added Reseller with focused expertise in the RFID site survey, design, and turn-key project implementation.

Contact FSN at sales@falkensecurenetworks.com

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