



Leading leasing and finance company pilots a RFID-enabled DOCUMENT TRACKING SYSTEM

Efficient tracking system for documents in safe-keeping

Enhanced security through tagging and automated
access verification procedures

Systematic child-parent storage grouping in boxes

Automated search process and minimized staff handling



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TECHNOLOGY

Solution:

EPC Gen2 compliant document
and personnel tracking solution

Tag Type:

Personna™ UHF Passive
Metallica™ UHF Passive
Libra™ UHF Passive

Reader/Antenna:

Xtenna Proximity™
Xtenna Hybrid™
HandyScanna™

Method:

Multiple Tracking via Integrated
Reader/Antenna modules
Single Tracking via hand-held

Integration Platform:

RFID Middleware:

Xtenna™ WebToolkit
Xtenna™ Studio

Application: Essen RFID's
Document Tracking System

Database: SQL Server 2005 Exp. ed.

Tag Manufacturer/Supplier:

Essen RFID, with US based chip inlay

Reader/Antenna Manufacturer:

Essen RFID, with US based module

Systems Integrator:

Essen RFID

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CASE STUDY

KEY REQUIREMENTS:

Infrastructure Leasing & Financial Services Limited (IL&FS) is one of India's leading infrastructure development and finance companies, having expertise in an array of services. Amongst these, it offers custodial services in keeping and managing documents and securities of banks and financial institutions in storage and safe custody. These documents require organized arrangement and proper management for accurate storage and retrieval.

Financial documents and files are created for specific purposes as evidence of transactions, such as loan documents and title deeds. These documents are often kept as security and surety. IL&FS stores and manages these documents on behalf of other institutions and agencies. Each document is kept in a file pertaining to an individual customer of the client bank or institution. Multiple files are kept in a storage box, which is stored in a warehouse containing hundreds of thousands of boxes. This requires proper maintenance of storage records and regulated handling by authorized persons only, in order to avoid misplacement, mix-ups and lost documents. This is a time-consuming and tedious process even with computerization and there is still scope for human error due to the absence of automated checks and validations.

Main challenges are:

- Proper management of documents.
- Validation of documents received at warehouse.
- Correct placement in storage, based on correct grouping.
- Allowing only authorized persons to place the files in their assigned storage location within the warehouse.
- Efficiently searching the required document from storage.
- Allowing only authorized persons to retrieve the files from their location.
- Keeping detailed records of retrievals of a particular document.

SOLUTION:

Essen RFID proposed a RFID-based solution as the most effective system for managing document storage and retrieval. This system tags documents, files and boxes in a child-parent database association. It permits only an authorized person to place or retrieve the specific documents to and from storage. Along with document tagging, the Runner (authorized person) also carries an ID tag. Documents and Runner are tracked through a RFID reader which reads the tags. The document storage data is maintained using SQL Server as the back-end database, while the HandyScanna™ hand-held device using Essen RFID's mobile application is used to search and locate documents in the storage area. Wi-Fi networks are utilized to send the data from the hand-held devices to the server. There is also connectivity between the document management office and the warehouse.



CASE STUDY

IMPLEMENTATION:

A Xtenna Proximity™ is placed at the RFID tag issuer's desk in the company's document management office for tagging of documents and files, and for validating returns from the warehouse. The warehouse has a Xtenna Proximity™ placed at its incoming desk for validating incoming files and tagging boxes and a second one placed with the outgoing desk which validates retrievals. Each storage room is equipped with its own HandyScanna™ device for document search. A Xtenna Hybrid™ mounted at the doorway of each storage room, also controls a document conveyor machine. Each employee transferring files from the office to the warehouse as well as each Runner within the warehouse carries a PERSONNA™ tag on his ID. METALLICA™ tags are affixed to each storage room and on all the shelves within the rooms. A LIBRA™ tag is attached to each document, file and box.

WORKING:

Essen RFID's Document Tracking System provides an efficient solution that manages, searches and retrieves documents easily, accurately and securely.

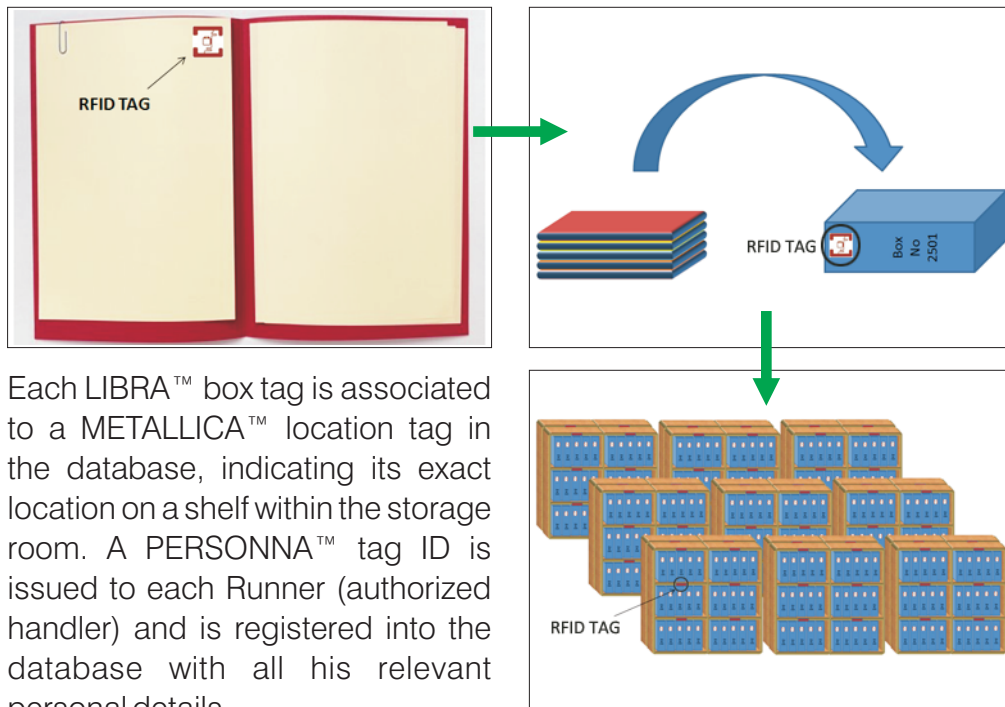
Process Flow - Incoming:

1. A METALLICA™ tag is affixed to each storage room in the warehouse and on each shelf within the storage rooms, and these locations are entered in the database.
2. At the document management office, a LIBRA™ tag is attached to each document and file. The tags are then registered to their corresponding documents and files in the database along with their individual details. The tagged file (containing the tagged document) is then sent to the company warehouse for storage.
3. At the warehouse, the received file goes to the incoming desk where its document and file tags are read and validated by the Xtenna Proximity™ as confirmation of receipt. The file is then to be placed in a box according to criteria such as the company's client from whom the documents have been received, etc. The box has a LIBRA™ tag affixed to it, with its associated details entered in the database such as company's client data, storage period, number of files inside it, type of files within it, etc. Each file tag is then associated with its box tag in the database.





CASE STUDY



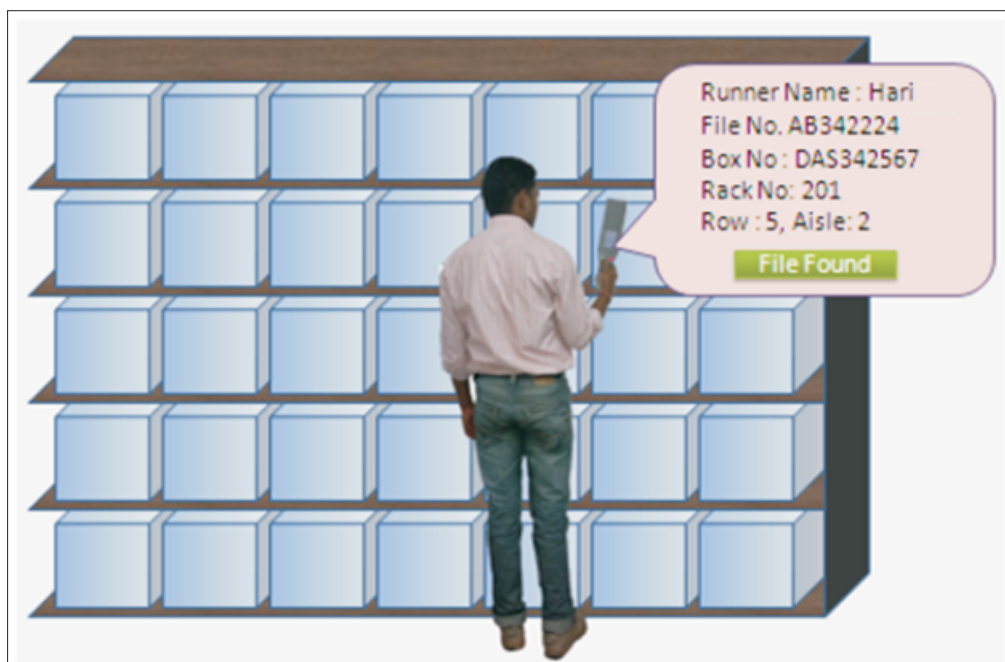
4. Each LIBRA™ box tag is associated to a METALLICA™ location tag in the database, indicating its exact location on a shelf within the storage room. A PERSONNA™ tag ID is issued to each Runner (authorized handler) and is registered into the database with all his relevant personal details.
5. Incoming files at the warehouse are placed according to the appropriate box meant for them based on client criteria. The incoming desk staffer searches the storage location of the box in the database. The search result indicates the location of the box in a particular storage room or area.
6. The search result is sent by the server to the HandyScanna™ associated with that particular storage room. The incoming desk then allots this location result to one of the Runners and hands over the file to him. More files going to the same storage room are allotted to the same Runner to save time and effort.
7. The Runner flashes his ID on this particular HandyScanna™ which then displays the location results already downloaded on the device, on its mini-screen.
8. The Runner's ID is verified by the Xtenna Hybrid™ at the entrance portal of the storage room. Inside the room, the Runner using the HandyScanna™ searches the indicated shelf location for the allotted box. When the HandyScanna™ approaches and scans the box tag that matches with the current search, the screen on the device indicates that the box has been found.
9. The Runner then places the file in the box and points his HandyScanna™ at the file to confirm its location as having been placed inside the box on the specified shelf. This data is updated in the central database. The Xtenna Hybrid™ at the storage room portal confirms that the Runner is returning without the file still with him.



CASE STUDY

Process Flow - Outgoing:

1. When a file retrieval request is to be sent by the office, the file tag in the database is searched and associated with the PERSONNA™ tag ID of the courier employee to be sent to the warehouse to collect the file.
2. When the file retrieval request is received at the warehouse and a courier employee from the office comes to collect a file, his PERSONNA™ tag ID is read in order to verify his authorization.
3. He then goes to the Outgoing desk to request the file. He hands over his ID tag to the Issuer who places it on the Xtenna Proximity™ reader on his desk. The device reads the tag and displays the file retrieval request for a particular tagged file in the database.
4. The Issuer searches the file in the database. The search result references the file's tag with the box tag and the location tag indicating the file's exact location in a particular storage room.
5. The search result with details such as file number, box number and exact location within the storage room are sent via Wi-Fi to the HandyScanna™ device associated with that particular storage room. The Issuer then allots the search result to one of the Runners through the software. If an additional file is sought by the same employee and is located within the same storage room, it is allotted to the same Runner who will bring both files thus saving time and effort.
6. The Runner flashes his ID on this particular HandyScanna™, which then displays the details related to the document location which are already downloaded on the device, on its mini-screen.





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7. The Runner's ID is verified by the Xtenna Hybrid™ at the entrance of the vault. Inside the storage area, the Runner using the HandyScanna™ searches the indicated shelf location for the file requested. When the HandyScanna™ approaches and scans the box tag that matches with the current search and also reads the file tag, the screen on the device indicates that the file has been found.
8. The Runner takes the required file and proceeds with the second search if it is within the same storage room. The files are then placed alongside each other on the RFID-enabled conveyor system. The Runner then steps out of the room.



9. The Xtenna Hybrid™ verifies through the database that the correct file requested has been taken by the correct authorized handler (Runner), and then allows the files to be moved out.
10. In case any files are incorrectly taken by the Runner, the conveyor automatically reverses its motion and does not allow the files to be moved out. The Runner has to then take these files back to their shelves. This process eliminates human error on the part of the Runner.
11. The file reaches the Issuer at the Outgoing desk.
12. The courier employee once again hands over his RFID tag to the file Issuer. The Issuer scans the his tag and the file tag with Xtenna Proximity™ to register the file as having been issued. The system logs in that the file is issued and is simultaneously deducted from the box in the database.



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13. The courier employee brings the file back to the document management office. The file tag is read at the office to confirm its arrival there and is then disassociated with the courier employee's tag ID in the database.



14. The file is then returned back to the client. In case the file has been retrieved for any documentation changes to be made, the file is afterwards resent back to the warehouse following the same warehouse-incoming process.

BENEFITS:

- Proper maintenance of document and file placement.
- Easier record keeping and information retrieval.
- Security enhanced through tagging and automated verification.
- Systematic file storage organization and grouping in boxes and shelves based on child-parent client data association.
- Requested documents and files can be quickly searched and retrieved in an efficient and systematic manner.
- Automated search process reduces need for manpower.
- Minimized handling of important documents by staff. Only an authorized person can handle the files.
- Quick search and referencing made possible due to precise file location.
- Record of retrieval history is maintained.



CASE STUDY

LINKS:

Hardware:



Tags:



Software:



Reference Example:

<http://www.essenrfid.com/Mailer/library-flash-demo.pdf>