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Ray Madaia, engineer manager

Project Summary

Company
Motorola

Market
Various – solution providers

Location
Holtsville, New York

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Motorola RFID equipment tracking

Motorola nets immediate $250,000 return for internal RFID tracking project

Opportunity: eliminate loss of mobile laboratory equipment

Motorola's (formerly Symbol Technologies) Engineering Shared Services electrical lab in Holtsville, New York uses equipment worth more than $3 million comprising of oscilloscopes, function generators, multimeters, callipers, power supplies and other equipment to design, develop and test Motorola's enterprise mobility products. The lab's oscilloscopes are worth over $1 million alone making tracking of the lab assets extremely important.

To manage lab equipment, Motorola used to staff an equipment room with a person who would maintain the inventory each day, manually signing equipment in and out from engineers. Especially when staff were absent during weekends and evenings the equipment room was locked and the equipment was out of reach, hindering productivity.

Since lab equipment requires routine maintenance, searching for equipment within the sprawling facility was a habitual hassle. Commonly, missing equipment was assumed to be lost triggering the requirement to purchase a replacement to ensure customer service is maintained, only to be found some time later.

"Lab equipment moves about," said engineering manager Ray Madaia. "Our process was too cumbersome; manually tracking who was supposed to be using equipment was not working logistically or economically."

Motorola, a company that works extensively with RFID technology, knew there should be a better way to manage lab assets, so they got to work designing a system that would automate the process, self-service issuance and return of lab equipment.

Solution: RFID automates the tracking of laboratory equipment

RFID tags assigned to each piece of lab equipment are at the centre of the automation process, and the equipment room doorway hosts the data exchange.

When a Motorola engineer comes to the equipment room door, they are standing on a pressure mat that prompts them to swipe an HID badge on a reader authenticating their ID in the lab's access control database and allowing them to validate entry on a touch screen panel.

After the engineer gains entry and steps through the door, they are standing on another pressure mat that confirms their entry, and they are free to select whatever lab equipment they require.

With lab equipment in hand, the engineer reverses their path through the doorway hardware pressure mat and touch screen inside, pressure mat outside. When exiting the room, the RFID tags on the equipment are read by antennas on both sides of the door and associated with the engineer's ID. At that point, Motorola knows who has been issued lab equipment.

Returning equipment is simply a reverse of the process. "It's very easy," said Ray Madaia. "The ID doesn't slow you down much at all."

Beyond the automated issuance and return of equipment, Motorola wanted to address maintenance. The system can schedule regular maintenance of the equipment and generate e-mails notifying users that their equipment is due for maintenance. The company's mobile RFID handheld readers can also identify equipment in use within the lab as needed.

Much of the system was developed using in-house equipment, Motorola antennas, readers and more. WinWare software manages the data and provides the applications – room access, equipment issuance and return, assigning RFID tags to equipment and maintenance schedules. **METAL***craft* developed the RFID tags using Motorola inlays.

"It was a challenge to place RFID tags on more than 100 pieces of equipment," said Ray Madaia. "There are so many shapes and sizes, and nearly all of the equipment is metal which can be a challenge for RFID."

METAL*craft* designed and produced RFID hang tags to increase the range of attachment options and provide some stand-off from the metal equipment. " **METAL***craft's* engineers exceeded our required read range with their custom tags," said Ray Madaia.

Result: RFID enables easy and dependable visibility of laboratory equipment

Ray Madaia says Motorola initially captured a $250,000 return on the investment in this internal RFID asset tracking project, this number is now far exceeded with boosted productivity and prevented asset losses.

The early calculation accounted for eliminating the staff hours required to staff the equipment room and the associated time engineers spent signing out, returning or helping to find equipment. Additional value comes from the hours and dollars saved by securing equipment for maintenance more efficiently, especially with the automated emails and avoiding the cost of replacing expensive equipment.

Next, Motorola is looking at a new phase of the project – Last Point Read – as a means of tracking equipment as it moves throughout their facility. The plan is to install fixed Motorola readers on stairs, elevators and doorways, especially building exits, to enhance visibility and prevent loss.

"Nothing lost is everything gained," said Ray Madaia. "RFID provides visibility, confidence and, most importantly, efficiency. Our engineers are very satisfied with what we've accomplished."

Contact Peter Laws for more information on idtracon's barcode and RFID custom solutions.