

Florida State Attorney's Office Uses RFID Tracking System

The Problem

The State Attorney's 15th Judicial Circuit Office, located in West Palm Beach, Florida, is a typical, modern office building owned and operated by Palm Beach County. On any given day, there are about 21,000 active felony case files, traversing three different floors, accessed by staff in multiple divisions, and occasionally leaving and entering the building as cases wind through prosecution.

The State Attorney had a business problem -- how best to handle this volume of case files, so they could be quickly located, monitored, and tracked, especially given that court calendars and case hearing and trial dates can unexpectedly change. The demand of the courts and the ability of the office to react to those demands are critical business processes to the State Attorney and his staff.

Locating case files was a systemic problem. It was estimated that approximately six percent of the felony cases required staff to stop what they were doing to locate a file. At times, as many as five people might be involved in locating a case file. The time involved varied for locating a file, but it was estimated to average 20 minutes, at an annual cost of about \$54,000.

The Solution



In 2006, the Florida State Attorney's Office sought out systems integrators to help with a case file tracking system feasibility study. After initial discussions with a number of companies, InnerWireless was selected, based on its integrated RFID, RTLS and Wi-Fi asset tracking expertise.

"InnerWireless had successful active tag implementations in hospitals and pledged to provide the engineering and testing to determine if passive RFID tags could be accurately tracked in our large facility," said Dan Zinn, CIO for the Florida State Attorney's Office. "InnerWireless explored passive RFID reader technologies from ThingMagic and proposed a solution. The preliminary test results were encouraging, so we planned a pilot test in our building."

Record Tracking with RFID

Testing & Development

System and application testing was done onsite. Using one dozen preprogrammed labels attached to case files and two ThingMagic Mercury5 fixed RFID readers with two antennas each, Zinn and his team:

- Conducted extensive testing of Zebra RFID printer label batch runs. This proved to be an acceptable and cost-effective method of generating RFID labels.
- Moved tagged files in groups of five, and in smaller groups, to test how accurately the readers worked. The test exceeded expectations.
- Completed the information exchange module for the STAC system, demonstrating overall information accuracy.
- Conducted a field trial, scanning the RFID labels into STAC, transmitting the information to the InnerWireless platform, and locating a file by having STAC launch the system to identify the file location on a building floor plan.

To support the project, Zinn brought together a team consisting of 10 colleagues from the Felony, Information Resources, Intake, and Investigations divisions of the Florida State Attorney's Office. The team was tasked with ensuring the project would benefit the office and respective internal divisions and critical business functions. Zinn and his team worked with representatives from: InnerWireless, representing ThingMagic's RFID technology leadership; Jade Communications, for the system installation; and SimplyRFID, to address label printing and programming, and, the potential addition of a staff ID card location system.

Working together, the team determined the optimal solution would:

- Use the InnerWireless solution as the underlying RTLS platform, allowing users to locate files and personnel, in real time, for increased overall efficiency; and
- Use passive RFID tags and ThingMagic UHF RFID readers for case file tracking, and active tags and Wi-Fi access points to read personnel badges. All tags were confirmed compliant with the DoD-96 identity type, and NIST RFID security standards could be satisfied by isolating RFID network traffic to a Virtual LAN.

The team selected ThingMagic Mercury5 UHF RFID readers for their 100 percent read rates and market-leading performance. ThingMagic Astra readers, to be added in a later stage of the deployment, were chosen for their unobtrusive form factor, Power over Ethernet (PoE) functionality, read accuracy and high performance.

Alien Squiggle Generation 2 passive tags were selected for 1" x 4" case file labels using a Zebra R110xi printer/programmer, while Alien active RFID inlays were chosen for personnel badges, to be produced on Zebra P430i printers.



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Deployment

Using the Zebra printing system, 18,000 passive RFID tagged labels were applied to individual case files, while over 300 active tag personnel badges were produced later in the deployment. Each tag's unique ID number was programmed into STAC (an SQL Server-based case management system used by State Attorney and Public Defender offices throughout Florida) and related to the case ID and case number, or specific staffer, respectively. ThingMagic Mercury5 readers were installed onto the concrete within dropped ceilings and connected to 115V AC outlets and CAT5 cables. Antennas were mounted, and attached to the readers with plenum-rated RF cabling.

ThingMagic RFID readers and Cisco Wi-Fi access points were integrated with back end systems including the InnerWireless system, STAC, Cisco Catalyst 6509 switches, and an HP cClass blade server hosting a BEA reader application and the InnerWireless PanGo Locator application.

With the integrated system in place, case managers were now able to access the document tracking system on their PCs, locate files in real time, and ensure cases were no longer delayed due to missing files.

Following the initial deployment, SimplyRFID, a Virginia-based developer of supply chain logistics and asset management systems, assumed management of the solution. In a follow-on deployment phase, SimplyRFID installed the ThingMagic Astra readers, to capitalize on their Power over Ethernet (PoE) functionality and Wi-Fi integration. The program was then expanded to track about 350 staff, attorneys, and authorized contractors, so they could be located to advance pending cases in a timely manner.



Solution Components

- ThingMagic Mercury5 RFID readers
- ThingMagic Astra RFID readers
- Zebra R110xi printers
- Zebra P430i printers
- Alien Squiggle passive tags
- Alien active RFID inlays
- InnerWireless PanGo platform

Benefits:

- Decreased costs related to missing files and personnel
- Greater availability of felony case files
- Improved staff efficiency
- Compliance with DoD-96 identity type, and NIST RFID security standards

The Results

“The breadth and performance of ThingMagic’s UHF RFID reader product line were key in our decision to select them for our document management initiatives. The Mercury5 reader integrated easily with our existing infrastructure – both environmentally and with our back end systems. As our project has expanded, the ThingMagic Astra reader has provided an elegant solution that blends in with our facilities, simplifies installation, and lives up to the high level of performance that is needed for our project to deliver ongoing value.”

- Dan Zinn CIO for the Florida State Attorney’s Office

Office email requests, for staff to check their respective work areas for files, have dropped from an average of five or more requests per week to less than one per week.

Zinn asserts the expanded \$100,000 system paid for itself in less than 18 months, and that staff morale improvement has been obvious. “We think that this project was an industry breakthrough. The State Attorney took a risk on a new technology. We addressed a mission-critical business problem with an RFID solution that has exceeded the goals identified at the onset of the project. We involved our customers (the staff of the office) and worked with industry leaders, like ThingMagic, to create a successful RFID-enabled document tracking solution,” Zinn said.



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