RFID:
From Strategy to Implementation

Limited Enrollment
Register Today!

An objective, hands-on workshop

- ✓ *Radio frequency identification (RFID) fundamentals*
- ✓ *Small group lab exercises*
- ✓ *Case studies of real-world applications*
- ✓ *Systematic methods to assess, justify and deploy RFID*

October 4–5, 2006
Madison, Wisconsin

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UNIVERSITY OF WISCONSIN-MADISON
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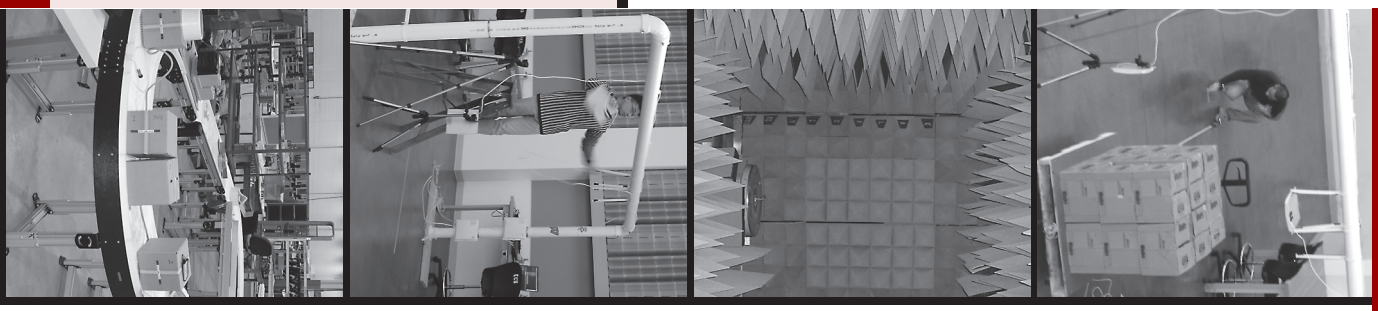

College of Engineering ■ Department of Engineering Professional Development

RFID:
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A hands-on, objective, practical workshop

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THE UNIVERSITY of WISCONSIN MADISON

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RFID: From Strategy to Implementation

October 4–5, 2006, in Madison, Wisconsin

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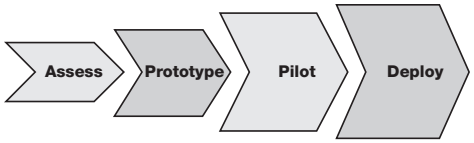

Workshop Overview

This two-day RFID workshop will provide you with a comprehensive overview of RFID technology and the practical knowledge needed to successfully develop and implement your organization's RFID strategy. You will take away fundamental RFID technical knowledge and systematic analysis and decision-making methods to guide your company through the four key phases in the RFID implementation roadmap:

1) Assessment

2) Prototype (proof-of-concept)

3) Pilot

4) Deployment

Jointly designed by leading University of Wisconsin–Madison faculty and RFID industry experts/practitioners, this workshop combines theory, hands-on experience and practical real-world lessons in ways that will be valuable and comprehensible to all participants, ranging from the RFID novice to the RFID savvy. You will hear no hype.

Unlike "workshops" where participants are merely observers of demonstrations, this workshop will engage you in a variety of small group, hands-on exercises using state-of-the-art RFID systems and test-beds in the new UW RFID Lab. By studying fully-integrated RFID solutions for common applications, such as portal/dock-door and conveyor system applications, you will gain insight into the capabilities and practical limitations of RFID technology. You will also learn about the common implementation pitfalls and ways to avoid them.

What RFID Is and Why It Matters

Radio frequency identification (RFID) is an automatic identification and data capture technology that transmits information about an object wirelessly using radio waves. RFID will supplement and may eventually replace bar code identification technology. It will create business efficiencies by fundamentally changing the way products are tracked through the supply chain without requiring human interaction.

Wal-Mart, the US Department of Defense and several large retailers have mandated RFID adoption by their suppliers. RFID applications are also growing in a number of other industries such as automotive, manufacturing, airlines, pharmaceuticals, healthcare, and more.

What You Will Learn

In this intensive, practical workshop, you will learn:

- How RFID technology works, its true capabilities and limitations
- Real-world RFID applications and solutions
- How to identify, assess and justify RFID uses for your organization
- How to select and evaluate performance of RFID system components (tags, antennas, readers, middleware, etc.)
- Procedures and methods for conducting proof-of-concept experiments and prototypes
- A strategy for developing an implementation roadmap—from assessment to larger scale deployment

Who Will Benefit

No prior knowledge or experience with RFID technology is required. This workshop will benefit all individuals involved in assessment, planning, implementation and deployment of RFID solutions, as well as those from functional areas where RFID will be deployed. Anticipated attendees include:

- RFID project managers
- Packaging engineers
- Process improvement/workflow designers
- Systems/IT engineers
- Product design engineers
- Operations managers (e.g., distribution, manufacturing, supply chain management)
- Executives championing RFID in their companies or organizations

The workshop will be valuable for companies considering RFID for strategic internal reasons as well as for those adopting RFID because of customer mandates.

Why This Workshop Is Different

A number of important characteristics distinguish this course from currently available alternatives. We offer you:

- An unbiased, educational workshop, not a vendor training session
- Small group setting with additional breakout groups and hands-on exercises
- True hands-on experience (not just demos) using RFID products from multiple vendors, including Alien Technology, Symbol Technologies, Sirit (SAMSys), ThinkMagic, OMRON, Rockwell Automation, Richardson Electronics, Zebra, Dorner (Autologik), BEA Systems, Niceware, RedPrairie, and others
- Learning in the UW RFID Lab, featuring a conveyor system (capable of 600 fpm operation), portal/dock door station, anechoic chamber and instrumentation for tag antenna design and performance analysis, and much more
- Practical real-world lessons from companies involved in the UW E-Business Consortium, RFID Industry Workgroup

Course outline inside...

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RFID: From Strategy to Implementation

October 4–5, 2006, in Madison, Wisconsin

This course will help you prepare for CompTIA RFID Certification Exam

Course Content

Day #1

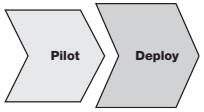
Morning Sessions

1. ***RFID Fundamentals***
   - RFID technology basics
   - System hardware components: function, types, and capabilities
     - tags
     - readers
     - antennas
     - printers/print engines
     - sensors
   - Integrating RFID network with backend enterprise systems
   - Frequencies, protocols and standards
     - RF bands
     - EPC and other ID structures
     - industry sector perspectives
     - RFID standards
2. ***Real-World RFID Applications***
   - Case studies of RFID applications in various industries
     - retailing, consumer packaged goods, manufacturing, transportation and distribution, automotive, airlines, pharmaceutical and healthcare
3. ***From Assessment to Prototyping***
   - Selecting and validating your use case
   - Prototyping approaches
   - Product experimentation to determine material effects
   - Tagging considerations
     - active versus passive
     - tag selection
     - placement and orientation
   - Antenna selection and reader configuration
   - Interference testing
   - Design of experiments

Afternoon Sessions

4. ***Hands-on Lab Exercises***
   - Configuring readers
     - set-up parameters
     - tag validation
     - distance and boundaries
   - Portal/dock door application
     - pallet reading
     - tag location analysis
     - G1 vs. G2 performance
   - Conveyor application
     - speed effects
     - airgap and shape effects
   - Anechoic chamber
     - tag only performance analysis
5. ***Debriefing of Lab Session***

Day #2



Morning Sessions

6. ***The Physics of RFID: What You Cannot See***
   - Antenna basics
     - gain
     - pattern
     - media-material effects
   - RFID chip modulation physics
   - Antenna simulations and studies
   - How to improve readability
7. ***From Pilot to Deployment***
   - Designing an RFID pilot
   - Enterprise considerations
   - Hardware considerations
   - Software considerations
     - filtering and aggregation
     - event/transaction management interface/integration
     - Object Naming Service
   - Data considerations
   - Process considerations
     - redesigning workflow and business processes
   - Implementation and integration approaches

Afternoon Sessions

8. ***Hands-on Lab Exercises***
   - Printers and applicators
   - Active RFID technologies
   - Mobile reader applications
   - Compliance labeling
   - Antenna polarization effect
9. ***Implementation Roadmap***
   - Business case development
   - Vendor selection
   - Implementation strategy
   - Gaining buy-in from management
10. ***Wrap-up and Adjournment***

Course Schedule

Wednesday, October 4

7:30	***Registration and Continental Breakfast***
8:30	***Morning Session Begins***
12:15	***Lunch (provided)***
1:15	***Afternoon Session Begins***
4:30	***Daily Adjournment***

Thursday, October 5

7:30	***Continental Breakfast***
8:00	***Morning Session Begins***
12:00	***Lunch (provided)***
1:00	***Afternoon Session Begins***
4:30	***Final Adjournment***

Your Expert Instructors

UW–Madison Faculty

Alfonso Gutierrez is the Director of the UW RFID Lab. Prior to joining UWEBC, Mr. Gutierrez was an Associate Partner at Accenture, and his experience includes more than 20 years of domestic and international consulting across a wide range of industries.

Daniel van der Weide is Professor of Electrical and Computer Engineering at the University of Wisconsin–Madison, where his group works in micro-machined, high-frequency electromagnetic sensors. His work in RFID antennas and receivers is focused on the physical and circuit aspects of performance.

Raj Veeramani is a Professor at the University of Wisconsin–Madison with joint appointments in the Industrial and Systems Engineering and Operations and Information Management departments. He is the Director of the UW E-Business Consortium and the UW E-Business Institute. His areas of expertise include supply chain collaboration and RFID applications.

RFID Industry Experts

Paul Baboian is an RFID Business Development Manager at Zebra Technologies, a leading global provider of specialty printing solutions, including RFID smart label printer/encoders.

Michael Burnham is President of Panatrack, a systems integration and software development firm specializing in mobile data-collection applications. Using technologies such as RFID, barcoding, and wireless access, Panatrack creates solutions to capture critical transaction details at the point of activity.

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Nathan Gerner is a Location Solutions Design Engineer at RF Technologies, Inc., a leading provider of active RFID solutions for healthcare, including patient safety, communications and location technology.

Ed Matthews is the IT Director at Wilson Sporting Goods, a leader in high-quality sport equipment and apparel. He is leading his company's RFID initiative to meet the Wal-Mart and other RFID mandates.

Charlie Schmidt is the RFID Director of Abetech, an integrator of complete bar code, mobile computing and labeling solutions.

And other RFID practitioners and experts!

Now with more small group exercises!

What Others Say

"Very good course…one of the best I've taken."
Michael Dettle, Superior Information Services

"Excellent course…from physics of RFID to commercial implementation."
Mitesh Sheth, Entegris, Inc.

"Real-world examples/labs were great."
Paul Kramer, Johnsonville Sausage Inc.

"I now know enough to begin our own assessment and implementation of RFID…"
Yung Lie, Modern Classics, Inc.

Four Easy Ways to Enroll

Phone:
800-462-0876 or
608-262-1299 (TDD 265-2370)

Internet:
http://epd.engr.wisc.edu

Mail to:
Engineering Registration, The Pyle Center
702 Langdon Street, Dept. 107
Madison, Wisconsin 53706

Fax:
800-442-4214 or 608-265-3448

Need to Know More?

Call toll free **800-462-0876** and ask for

Program Director: Dan Danbeck

Program Assistant: Sherry Daly

or e-mail **custserv@epd.engr.wisc.edu**

General Information

Fee of $1195 must be paid in advance at time of registration due to limited enrollment. Fee includes notebook, course materials, break refreshments, lunches, and certificate. Proceedings are not published. Course materials are distributed only to participants.

UWEBC Discount UW E-Business Consortium member companies are eligible to receive a special discount reducing the course fee to $995. UWEBC member list is available at http://www.uwebc.org/

Cancellation If you cannot attend, please notify us by September 27, 2006, and we will refund your fee. Cancellations received after this date and no-shows are subject to a $150 administrative fee. You may enroll a substitute at any time.

Course Location This course will be held at The Engineering Centers Building (ECB), Tong Auditorium, 1550 Engineering Drive, UW Campus, Madison, Wisconsin.

Accommodations A block of rooms has been reserved for participants at The Madison Concourse Hotel (www.concoursehotel.com), which offers a shuttle bus to the course location. To receive the special room rate of $99/single or $109/double, please call 608-257-6000 or toll free 800-356-8293. Please reference Reservation ID#RFI1003 to receive the special room rate. The specially priced room block will only be held until September 11, 2006. Afterward, rooms will be on an as-available basis only. Your enrollment confirmation will include other hotel/motel information. Please make your own reservations.

Continuing Education Credits You will earn 1.4 Continuing Education Units (CEU) when you attend this course.

Course Information **Limited Enrollment**

Please enroll me in **RFID: From Strategy to Implementation**

- ❑ **Course #H816** October 4-5, 2006, in Madison, Wisconsin **Fee: $1195**
- ❑ **Course #H816** October 4-5, 2006, in Madison, Wisconsin **UWEBC Member Fee: $995**
- ❑ I cannot attend. Please send me information on future courses.

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