

# RFID READER

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[rfid@walton.uark.edu](mailto:rfid@walton.uark.edu)

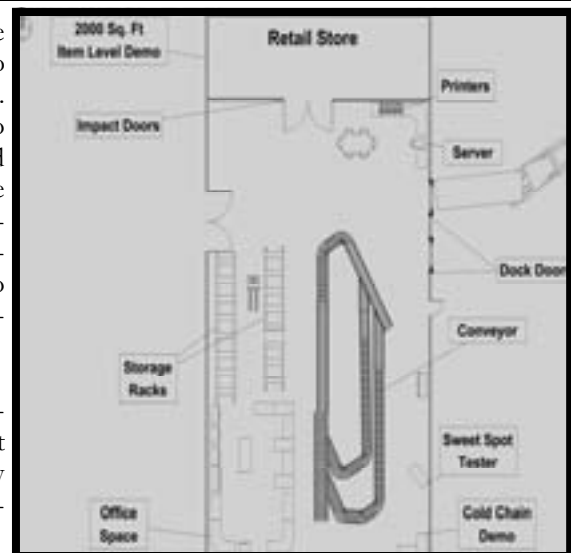
## 2007: The Year for Supply Chain Optimization, Cold Chain, and Item Level Tagging

In the coming year, you will find the majority of our research and news items related to one of three areas: supply chain optimization, cold chain, item level tagging. Although we have projects in other areas, such as asset management, the bulk of our research and lab efforts will be directed at the three named areas. In supply chain, we will continue to explore ways to make it more efficient by using RFID. Following our work on out of stocks completed last year, expect to see the effort expand beyond the store backroom to include the entire supply chain. In the cold chain (any supply chain that requires the product to be environmentally controlled), we are seeing a tremendous amount of activity and interest in the use of environmental sensors. Ultimately, the purpose is to improve the quality and safety and decrease the shrinkage of these products. A paper from Deloitte Consulting LLC provides an excellent discussion of the “Intelligent Cold Chain” and refers to an early project in which we participated (the paper can be downloaded at: <http://www.deloitte.com/dtt/article/0,1002,cid%253D142513,00.html>). We will be issuing a white paper on the topic in the near future. Finally, item level tagging is gaining momentum. For many retailers, such as consumer electronics and apparel/footwear, the business case is inviting (more on this in a separate article in this newsletter).

### RFID Lab Expanding – Adding Model Store

The RFID lab is adding about 2000 square feet to house a model store dedicated to the investigation of item level tagging. Initially, the model store will be set up to mimic both a traditional supermarket and an apparel/footwear retailer. The store will be fully stocked with typical supermarket items and hundreds of pieces of clothing and footwear. The area is designed to be very flexible to allow various configurations for experiments.

The addition of the model store will extend the lab to accommodate movement of the product along the entire supply chain – from warehouse storage, to backroom, to sales floor.



## Wireless Bridge Testing Engagement

Over the Christmas break the University of Arkansas conducted ground-breaking research in the area of network reliability with regards to a comparison of data collected over two different network architectures. Read rates collected over a closed, switched network, were compared to read rates captured in identical manner over a similar network bridged wirelessly. The goal of this test was to determine whether reliable and accurate RFID reads could be obtained from remote, unwired portals.

The benefit of having a wireless bridge between the network remote portals is reasonably self evident. The advantage of running vast length's of cabling to distant dock doors or similar locations means not only a cost saving, but that they not be tethered to a single geographic location. The results of the data captured showed reliable reader - network communication and laid to rest any fears regarding the integrity of remotely captured RFID reads. The details of this testing will be available in a white paper at <http://itri.uark.edu/rfid> in the early part of February.

## RFID Research Center to Host Cold Chain Session at RFID Journal Live!

Dr. Bill Hardgrave, Director of the RFID Research Center, will host a pre-conference event at RFID Journal Live! focused on RFID in the cold chain. The session is scheduled for Monday afternoon, April 30, 2007 at Disney's Coronado Springs Resort in Orlando, FL. Speakers for the event include Dr. Hardgrave, Dr. JP Emond (University of Florida and co-host), and Richard Mosley (C.H.Robinson Worldwide), among others. The session will focus on RFID cold chain technologies, its use within the supply chain, and how it can lead to better food safety and quality and lower shrinkage. For more information and to register for the event, visit:

[www.rfidjournalevents.com/live/preconfer\\_in\\_cold\\_chain.php](http://www.rfidjournalevents.com/live/preconfer_in_cold_chain.php)



## What's Happening this Month

Board Meeting: February 28th

Topic: Cold Chain

## Graduating Seniors

The lab will be graduating two students in May 2007. Each will be graduating with almost 2 years of experience working in the RFID lab.

- Joseph Ray, Testing Manager  
Major: Finance, Minor: Marketing
- Levi Harris, Assistant Cold Chain Mgr.  
Major: Transportation and Logistics  
Minor: ERP

If you are looking for individuals that understand RFID from both a technical and business perspective, you should consider Joe and Levi. For more information about Joe and Levi, contact [rfid@walton.uark.edu](mailto:rfid@walton.uark.edu) and ask for their resume.

## Welcome New Business Sponsor: American River-PackageOne

The RFID Research Center is pleased to announce our newest sponsor, PackageOne, Inc. (dba, American River-PackageOne). American River-PackageOne brings a unique perspective to the Center, being the only industrial packaging and box making company among the membership. Headquartered in Sacramento, CA, the seven-year-old supply chain services company has established itself as a technology innovator in an industry characterized by its low tech ways. This technology focus may help explain the phenomenal growth of the company during its brief existence. Tom Kandris, CEO and Managing Director, will serve on the Center's Board of Advisors as American River-PackageOne's representative. More information about the company can be found at:

<http://www.packageone.com/supplychain>



American River - PackageOne

**Sam M. Walton**  
**College of Business**

**RFID Research Center**  
Director: Dr. Bill Hardgrave  
Phone: (479) 575-6099  
Email:  
bhardgrave@walton.uark.edu

**RFID Lab**  
2700 S. Armstrong Road  
Dock 28  
Fayetteville, AR 72701  
Lab Manager: Justin Patton  
Phone: (479) 718-3650  
Cell: (479) 236-5890  
Email: jpatton@walton.uark.edu

<http://itri.uark.edu/rfid>

## Student Profile



Ilan Angwin is a first year student in the Masters of Information Systems program at the University of Arkansas. A tester at the University of Arkansas RFID Lab, Ilan grew up in Palo Alto, California and completed his Bachelor's degree at the University of Puget Sound in Tacoma, Washington. He also completed a certificate in Technical Writing and Editing from the University of Washington.

He has followed his interests in the application of information systems through a variety of jobs during his

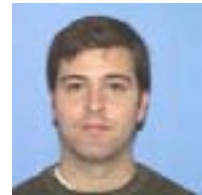
## Fact or Fiction? EPC RFID Tags Contain Sensitive Personal Information

EPC RFID tags contain sensitive personal information about consumers, such as their picture, social security number, credit card numbers, etc. ... Fact or fiction? This is fiction! The reality is that RFID tags have very limited storage and cannot hold all of the information suggested. Most tags currently have only 96 to 256 bits of information. As used in the supply chain, RFID tags contain an electronic product code (EPC) consisting of 96 bits of identifier information. The EPC, much like the Universal Product Code (UPC), is a family of codes. A common EPC is the serialized global trade identification number (SGTIN). The SGTIN consists of a series of numbers that identify the manufacturer, the product, and a unique serial number for the tagged unit (case, for example). As shown below, an SGTIN is essentially a 14-digit UPC (for shipping container identification) with a serial number. The serial number is the most important difference between the 14-digit UPC used today and the SGTIN contained on an RFID tag. With UPCs, companies can identify the product family to which a case belongs (e.g., Paper Towels 2-pk), but they cannot distinguish one case from another. With an SGTIN, each case is uniquely identified. This provides visibility at the case level, rather than the product family level. Note, however, the absence of the 'mythical' information thought to be contained on an RFID tag – pictures, names, addresses, etc.

This information is on an RFID tag:  
SGTIN: 0023800,341813.500000024

UPC: 3 0023800 41813 2

This is not on a tag:



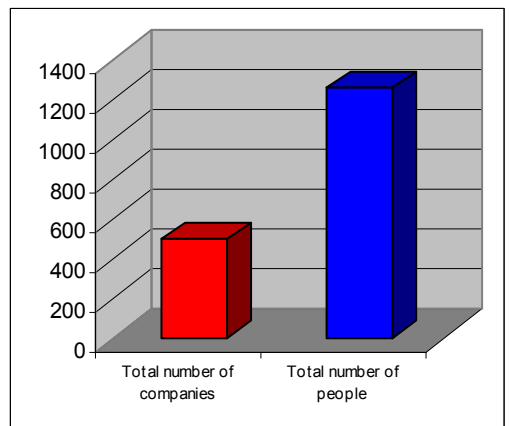
For more information about this RFID myth, download a copy of our paper about the myths and realities of RFID at <http://itri.uark.edu/rfid>

career. As an industrial analyst at Boeing, he helped streamline manufacturing processes. Later he worked in Web development for a variety of start-up companies in the Seattle area.

He came to the University of Arkansas to further his knowledge of ERP systems and SAP. In addition to his studies, he is a global information systems intern at Colgate-Palmolive where he works with SAP and Business Warehousing. He will graduate in December 2007. When not tied to his computer, Ilan enjoys hiking and riding his bicycle when the weather is warm. When the weather gets colder, he enjoys cross country skiing and snowshoeing.

## Lab Count Update

Lab visitors as of February 1, 2007  
Total number of people: 1263  
Total number of companies: 501



## *Strategic Sponsors*

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Zero Mountain

### **Company RFID Training**

The University of Arkansas now offers Company Training at the U of A RFID Lab. The 2-day training session is limited to 1 company per session and is designed to provide an introduction to RFID via a hands-on work with a company's product. So, bring your product and a minimum of 5 people for hands-on, company specific training. For more information contact Justin Patton at:

[jpatton@walton.uark.edu](mailto:jpatton@walton.uark.edu)



For more information about becoming a sponsor of the RFID Research Center, contact:

Dr. Bill Hardgrave  
Director, RFID Research Center  
Sam M. Walton College of Business  
University of Arkansas  
Fayetteville, AR 72701  
[bhardgrave@walton.uark.edu](mailto:bhardgrave@walton.uark.edu)  
(479) 575-6099