Bar Coding Case Study – Requirements and Project Definition

By Paul Hanson

E1 *Editor's Note: You've heard all the hype. You've read the technical specs. You've learned all the buzz words. But have you heard from anyone who has actually implemented RFID and lived to tell the story? Our own Sr. Technical Editor, Paul Hanson, has been there and done that. If you've read Paul articles in the past, you already know that he believes in finding the most effective solution to any given challenge while keeping a sharp eye on the budget. This article is the first of his series that will relate his experiences in taking a company from a manual inventory movement system into an automated bar-coded system. Read on!*

Introduction

Radio frequency, two dimensional bar codes, advanced warehousing technologies, and finally RFI. Whew! Most companies these days have already implemented some type of bar coding technology, right? After all, it has been around for years, beginning with less sophisticated batch scanning applications And now, we have advanced to intelligent systems that are able to not only read a label without a laser scanner, they "know" when inventory arrives and moves around inside the building.

The reality is that the technology has come a long way! It seems like there is a solution out there for every application, large or small. Interestingly enough, many companies have either not yet realized the benefit of bar coding by capturing the vision, or they have not yet been able to justify it. In either case, my hope is that this article, the first in a series, will inspire you to find a way to imple-

ment this new technology within your organization, so that you, too, can realize the increase in efficiency and accuracy that results.

All of the information I present is based upon my real life experience implementing a bar coding system in a mid-size manufacturing and distribution company. To get you started, I have outlined the key components, what to shop for, and how to define your implementation project. Now, let's dive in:

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Business Case

When I joined my company a few years ago, I was immediately tasked with justifying and implementing bar coding technology. This sounds simple enough. However, the challenge I found myself facing was the need to drive a very manual, process-oriented company toward a more automated and paperless envi-

ronment. At this point, I really had no idea how manual the company processes were… yet.

When I first came on board, every aspect of inventory movement was dependent upon paper transactions. Receivers were printed for every purchase order receipt, inventory transfers were written down, and all manufacturing operations were recorded on paper. At regular intervals during the day, the paperwork found its way to someone's desk and was entered into EnterpriseOne, thereby relieving or moving the inventory in the system. At the same time, thousands of orders were being shipped out the door each day. The time delays and keying errors caused large variances between what was reflected in EnterpriseOne versus what was physically available in the warehouse. As the business grew and the volume of customer orders soared, it was difficult, if not impossible, to forecast demand and keep a production schedule that would meet that demand.

After understanding the business problem, I began making a list of requirements. Those requirements and how I chose to fulfill them are broken out into what I call solution components, as you will see below.

RF Software

A key requirement was for the solution to be integrated with our ERP environment. It also needed to provide applications equivalent to those used to enter transactions into the EnterpriseOne applications. Initially, these included PO receipts, inventory transfers, work order issues, work order completions, and item availability inquiries.

Equally as important as ERP integration was the ability to lower the total cost of ownership by purchasing a software solution that included a development environment. This enabled me to customize out-of-the-box applications and develop additional ones as needed.

The product I found included a seamless integration to Enterprise One, a development tool, the ability to connect to non-EnterpriseOne systems using ODBC connections, and the scalability to grow as the business grows. In addition, clients for Pocket PC and Windows were available for use where traditional RF terminals are not an option.

Wireless Access Points

My company had already planned to install wireless access points on the network, so that was not something that I had to consider when researching and purchasing other solution components. We started by purchasing Cisco model 1100 access points. However, we found they did not perform well enough to meet our company's needs, so we have since upgraded to Cisco model 1200. The 1200 provides 802.11g connectivity with your choice of security options. Because of the security that is available on our RF terminals, we chose LEAP encryption and authentication. The 1200s have resolved the issues we encountered with the 1100s.

RF Terminals

I had worked with hand-held terminals before, but they were only capable of transacting in a batch mode (now I'm dating myself). Using this type of technology would not have provided my company with the benefit I was looking for. I knew that in order to deliver real-time inventory transactions, I had to provide a solution that included Radio Frequency devices.

The major players in the RF hand-held terminal market are Symbol, Intermec, and Psion Teklogix. The main differences between these vendors are:

- Price

- Operating systems offered

- Scanner distance

- Connectivity (801.11b and 802.11g)

- Display sizes

- Keyboard options

- Security options

- Ruggedness

I knew... I had to provide a solution that included Radio Frequency devices.

Based on the above considerations, I chose Intermec's model 2435. It was capable of using VT terminal emulation to communicate with our data collection system. It also came with a decent display size and was very rugged, as was the case with most Intermec models. Although there were less expensive models available, I felt that they were not as rugged and it would become very expensive to replace them as they were dropped. At the time, 802.11g was not generally available and therefore was not part of my evaluation. The newer models do support 802.11g and are far more advanced than the 2435.

Labeling Software

My company set a policy that would require our suppliers to apply bar coded labels to all containers that were received at our dock. We communicated a suggested label format to the suppliers and informed them that they would incur a non-compliance fee if they did not label the containers per our request. At first, there was some resistance, but in the end we found it to be very successful. In fact, we have realized a savings by not re-labeling the containers at the receiving dock.

Even though the suppliers would be labeling the majority of the containers, we were still required to label some of the containers, all warehouse locations, all pallet license plates, and EnterpriseOne manufacturing work orders.

During my search for printing solutions, I found that I could purchase Windows fonts from Rivers Edge that would allow me to add bar codes to any report in EnterpriseOne. Specifically, I needed to add bar codes to the work order print UBE. For that story, see Easy Bar Code Printing in the November 2005 issue of the JDEtips Journal.

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