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Picking up where....

....we left off last month, we had the opportunity to interview -- one-on-one, during ID Expo -- eight members of the ANSI MH10.8 2-D Work Group.

> [Subcommittee MH10.8 is assigned the responsibility for "Coding and Labelling of Unit Loads." The 2-D Work Group was created as a special unit of bar code specialists to explore two-dimensional symbologies and to make recommendations to the full MH10.8 subcommittee.]

We specifically questioned the Work Group members on how they felt about the University of Pittsburgh project to test two-dimensional symbols that is scheduled to get underway this month. The results of these tests are expected to influence the Work Group's advice to the full subcommittee as to which symbologies to select for inclusion in the updated ANSI standard currently being drafted (*SCAN* May 94).

The responses of these committee members were wide-ranging, covering varying degrees of interest, concern, fear, loathing and apathy. At one extreme, one member registered enthusiastic support ("we need some kind of sanity check based on quantitative data"); on the other side, another member declared adamant opposition ("no way can this demonstrate symbology attributes -- this is a behind the scenes quick and dirty test of whoever can get off-the-shelf hardware there as quickly as possible").

Almost without exception, everyone agreed that the industry would be better served if the decisions on symbology selection could be deferred for another year so that a more orderly procedure can be devised. Such a delay was not acceptable, however, because most of the Work Group members maintained that there were compelling circumstances that required action now. Based on these interviews, and setting aside the self-serving motives of the equipment manufacturers represented on the ANSI committee, we concluded that there were two basic reasons that persuaded the ANSI Work Group to vote to proceed now with the Pittsburgh test (or "demonstration," as some members insist on calling it):

1. Pressure has been mounting from industry groups representing large potential users of 2-D symbologies. These potential customers include automotive (AIAG), electronic (EIA), retail (VICS), and semiconductors. Representatives from these groups are presumably sending this message:

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"If ANSI does not move now to make a decision, then we will select symbologies on our own." The result of that situation, many ANSI members fear, would be chaotic "symbol proliferation." Which ties in directly with the second reason put forth to decide quickly...

2. Unlike linear bar codes, autodiscrimination (the ability to automatically scan multiple symbologies with the same reader) is not available for 2-D symbologies. Therefore, this argument goes, valid side-by-side tests of the symbologies will not be feasible -- so let's proceed and do the best we can with these demonstrations.

As this is being written, the ANSI/Pittsburgh test/demonstrations are proceeding as planned. The vendors that have signed up as participants are: ID Matrix (Data Matrix), Symbol Technologies (PDF417), UPS (MaxiCode) and Veritec (Vericode). The Work Group will meet on June 16-17 (in Newark, NJ) to review these issues. The full subcommittee will reconvene in mid-July (in Minneapolis) to evaluate the results, to conduct an on-site "Scan-off" demonstration of its own, and to decide on how they want to proceed.

Comment

We caution the committee not to proceed in haste. The pressures from the user community -- which is the most widely cited reason for proceeding -- are not as great as they might seem. Except for the leading semiconductor manufacturers -- Intel, Motorola and Texas Instruments -- none of the other industries are prepared to move so quickly that they require a decision within the next 60 days. (And, it should be noted, small component marking -- such as for semiconductors -- is not within the purview of this ANSI committee.)

Summing up: The ANSI review and approval procedures will require at least another year before a final document is issued; new 2-D technology is emerging rapidly which may change the symbology landscape; and there are other very important sections in the MH10.8 standard that should be completed without further delay. Therefore, why not "decouple" the selection of the symbologies from the main document, and add them later as an appendix -- possibly even before the final document is published. And then prepare for accurate, substantive testing, based on more scientific criteria.

Late Breaking News...June 9...Gary Ahlquist, Chairman, and Allan Gilligan, Vice Chairman, of MH10.8, issued a statement today "to clarify the SBC-8's position prior to the draft document being submitted by the Work Group to the subcommittee. The need for this clarification became obvious as a result of the...controversy surrounding the testing being performed by the University of Pittsburgh."

The joint statement declares that MH10.8 is not funding the Pittsburgh tests which are supported solely by the symbology sponsors and equipment manufacturers. It also emphasizes that the sponsors and the University of Pittsburgh will decide on the "form and structure" of the tests and whether the results will be made public and available to the ANSI committee. Finally, Ahlquist and Gilligan state, unequivocally, that it will be the MH10.8 subcommittee, and not the Work Group, that will be making the final decisions.

In an important move....

....that will affect the 2-D marketplace, Veritec (Chatsworth, CA) and ID Matrix (Clearwater, FL) have dropped their patent suits against one another.

In 1992, Veritec sued ID Matrix for violation of its patents on two-dimensional, matrix-type symbologies. ID Matrix countersued, based on its patents, and the legal proceedings have dragged on ever since. According to Veritec's Chief Operating Officer, Sandy LaChance: "We agreed to shake hands and walk away. There are no winners or losers." ID Matrix' President Dennis Priddy put it this way: "The only winners were the lawyers."

In another move, that was totally contrary to the position held by Bob Anselmo, its deposed president/CEO, Veritec will place Vericode -- its 2-D matrix-type symbology -- in the public domain. "We will no longer be locked in to our own Vericode symbology," LaChance explained, "just because it was invented here." Vericode was selected as the symbology used to mark the hundreds of turbine blades and the 24,000 unique heatshield tiles of NASA's Space Shuttle.

> [Veritec is a public company in deep financial trouble. In its March 31, 1994 third quarter statement (10K) to the SEC, the company reported a loss of almost $1 million on sales of just $218,000 for the nine-month period. Facing bankruptcy, Veritec is being sued by its creditors, has reorganized its Board of Directors, and owes back wages to its employees and back taxes to the IRS. Management is attempting to arrange new financing.]

As for ID Matrix, President Dennis Priddy told *SCAN*: "We are thrilled that the suit was settled. Our Data Matrix code [also a 2-D, matrix-type symbology] has been in the public domain and was accepted by the AIM Technical Symbology Committee to become a Uniform Symbology Standard in August 1993. Motorola has adopted Data Matrix and has been using it to mark their semiconductors since last year." I expect that Intel and Texas Instruments will follow suit in a few months. The company derives its income from the sale of the controllers needed to decode the symbol after it has been read by either fixed-position or (soon-to-be-introduced) hand-held video cameras.

Once in the door....

....at ID Expo 94 (Rosemont Convention Center, Chicago; May 17-19) we found it virtually impossible to tell which of the two premier ADC shows we were visiting. The scope and size of the exhibits -- and the number of visitors crowding the seminars rooms and exhibition hall -- were fully comparable to SCAN-TECH, which is still generally considered the more prestigious event.

This was Advanstar Exposition's first effort since purchasing ID Expo from Expocon last summer (*SCAN* Sept 93). Advanstar's administration was very professional making good use of the upgraded Rosemont Convention Hall facilities.; we heard nary a complaint from exhibitors or attendees. The turnout was healthy; Advanstar reported a "record-setting crowd" of 9,000 seminar registrants and show visitors plus 1655 exhibitor personnel.

At ID Expo 94, we were particularly impressed with the significant increase in new products employing CCD technology that were displayed:

- Welch Allyn's controversial linear CCD reader (for the PDF417 2-D symbology) -- which the company had planned to introduce at last year's SCAN-TECH (*SCAN* Dec 93) -- was featured in Chicago at both the Welch Allyn and Symbol Technologies booths. Whatever difficulties may have existed between the two companies -- about whether Welch Allyn could sell this device as a PDF417 scanner -- seem to have been resolved to everyone's satisfaction. We tried the unit. With a little practice -- lining up the head of the scanner with the stacked PDF417 symbology and then swiping with a fairly slow, uniform motion -- the device was surprisingly efficient.

- Welch Allyn also introduced a new linear, hand-held CCD scanner with an increased depth of field -- a feature that has been long-promised for CCDs. The Model ST3400 can read a 100% UPC/EAN bar code from contact to a height of four inches; up to eight inches for a bar code with a fifty inch "X" dimension. According to Rick Kraetz, National Sales Manager, OEM Products, the list price of $745 was deliberately set at the high end of the lower-performing CCDs and at the low end of the more aggressive hand-held lasers.

- Welch Allyn signed a long-term licensing agreement with Norand to manufacture and market CCD scanners using Norand's patented CCD technology. Norand had already signed up Nippondenso and instituted a suit against Opticon under these same patents.

- CSPI demonstrated its high-speed CCD cameras which the company had built for United Parcel Service (to read their MaxiCode). CSPI's presentation is covered in more detail below, in an article about UPS and Accu-Sort.

- Although low-end printers -- thermal (under $1,000) and thermal transfer (under $2,000) -- are still being featured and sold in large quantities by Datamax, Eltron, Zebra and others, Zebra also introduced its more expensive, higher performing Model 170Xi. This printer, priced at $5,495, handles wide (6.6") labels without rotation at faster (6ips) throughput.

- We also noted the continued proliferation of special software packages designed to run almost all of the printers on the market today. Featuring ubiquitous WYSIWYG capabilities, these programs support all symbologies and special formats. Given the variety of program features and designs, users will certainly find it worthwhile to shop this market carefully before making their final selections.

Although these highlighted products do not reflect any outstanding technological breakthroughs, this successful event reflected a healthy growing industry. Several important meetings and developments, that took place off the floor and will have more profound effects on the future of the auto ID industry, are covered separately below.

[Almost all of the executives from vendor companies seemed pleased with the turnout and the level of optimism among the attendees. However, many of them expressed a growing concern: "Will it be worthwhile making this kind of investment again, in just five months, for another similar show, in the same city?" We will explore this issue in depth next month in an article that will include interviews with the sponsors of both events -- Advanstar (ID Expo) and Reed (SCAN-TECH).]

Trade shows are always a great place....

....to pick up the latest corporate and personnel scuttlebutt. We heard these choice items while touring ID Expo:

- Metrologic is in the process of preparing an "initial public offering" (IPO). The company, one of the industry's pioneers in laser scanning, has had its ups and downs in recent years.

  In 1985, Metrologic declared Chapter 11 bankruptcy, partly due to mismanagement and overextension of the company's resources (*SCAN* Sept 85, Feb 86, Mar 86). With financial assistance from Harry Knowles -- its founder, owner, inventor, chief engineer and mentor -- the company quickly emerged from bankruptcy and was rebuilt as a profitable company.

  Metrologic's recovery was so robust that the company made plans to go public just two years later. At the last minute, after filing with the SEC, Knowles cancelled the stock offering, commenting: "I am not completely convinced that public ownership is the way to go" (*SCAN* July 87, Sept 87).

  In 1990, Metrologic ran into another buzz-saw. This time, it was on the losing side of a patent suit brought by Symbol Technologies. This setback forced Knowles to pull one of his major product groups -- hand-held laser scanners -- off the market. The company bounced back once more with new products, a reorganized sales staff and distributor network, and increased revenues and earnings.

  The first draft of the company's prospectus ("Red Herring") is scheduled to be issued in mid-June and the IPO is due to take effect -- according to the underwriter -- a month later. (The offering is being underwritten by Janney Montgomery Scott -- Philadelphia, PA). Initial plans are to sell 1.5 million shares to the public at $10 to $12 per share. Part of the proceeds will be used to repay the reported $3 million Knowles lent the company during its crises.

- Hand Held Products (Charlotte, NC) has undergone a major management change. Company founder Mike Weaver has stepped down as Chairman/Chief Executive Officer; he will continue in a "consulting capacity." Current President Ed Sternagle will assume the additional responsibilities of CEO; Miles Smith Jr., one of HHP's original investors, has been named Chairman.

  The company has not explained why these changes took place. Since HHP is privately-held, it is difficult to determine the real reasons. Jeff Osborne, VP Marketing, described this as "exciting news" and declared that "HHP's strategic growth is in full motion!"

- Veritec (Chatsworth, CA) has also revamped its leadership. Founder Bob Anselmo was fired last year as President/CEO. Sandy LaChance, who had led the company's research and development efforts, has assumed the responsibilities of Chief Operating Officer ("temporarily," he says).

One of the shrewdest....

....marketing plans ever hatched for an automatic data capture product will not bring the company that developed it any significant income from sales of hardware, software or supplies. And the campaign shows every sign of being enormously successful. We are referring to MaxiCode -- the two-dimensional matrix symbology invented by United Parcel Service.

In the late 1980s, UPS made a major commitment to automate its services using bar code scanning. A major objective of this coding program was to implement high-speed sortation at the company's distribution centers. (UPS is scheduled to open its Chicago Area Consolidation Hub in 1995, where it will be processing 177,000 packages per hour.) UPS needed a machine-readable code that would incorporate up to 100 characters, occupy minimum space on the package label, and could be readily picked out and decoded from among all of the other graphics on varying sized packages flying by at speeds of up to 500 feet per minute.

UPS looked around, and when it could not find any commercial bar code symbology that would suit its needs, it undertook to design such a symbology and reader to specifically satisfy this high-speed sortation requirement. In 1990, the company unveiled its patented UPSCODE and the CCD camera/scanners to read it (*SCAN* Dec 90).

During its early stages of implementation, UPS planned to print and affix UPSCODE labels in house. Ultimately, under this plan, the shippers would prepare their own labels. But the customers resisted installing a proprietary coding system that would be controlled by UPS. What if other package delivery companies required a different encodation -- would each customer have to maintain multiple systems?

UPS recognized that its business was shipping and not ADC. Furthermore, UPS decided that it would not derive any direct benefit or income from maintaining its proprietary position. UPS realized that its entire program could be compromised and UPSCODE could be replaced if one of the other recently developed symbologies were to be adopted as an industry standard for high-speed sortation. So, last year, UPS changed the name of its 2-D symbol to MaxiCode, placed the symbology in the public domain and applied to AIM's Technical Symbology Committee for it to become a Uniform Symbology Standard (USS).

The next major step was to make its patented readers commercially available. On May 17, UPS entered into a non-exclusive, worldwide license agreement with Accu-Sort (Telford, PA) to manufacture and market the CCD scanner/cameras designed to read the MaxiCode symbol.

"This was a coup for our company," Accu-Sort's President Al Wurz stated, "and it recognizes us as the leading manufacturer of fixed-position [laser] scanning equipment for material handling applications.

Wurz does not believe, however, that CCDs and matrix codes will take over from lasers. "Most warehouses and distribution centers require fewer encoded characters and they already have an installed base of linear bar code scanners which satisfy their needs," he explained. "Matrix codes, like the MaxiCode, require CCD readers and are suitable for applications requiring more data and handling at greater speeds."

Wurz said that his company will not be manufacturing the CCD cameras, lenses or lighting components. "Since our expertise is in lasers, we will be purchasing the complete CCD units from an outside source," he revealed. Wurz expects the MaxiCode reader to sell for $40,000 to $45,000; he anticipates shipments will begin in four to six months.

> [It seems apparent that Accu-Sort will be buying its initial requirements for the basic MaxiCode CCD reader/scanners from CSPI (Billerica, MA), although this has not been confirmed by either party.
>
> CSPI built the early, preproduction MaxiCode readers for UPS. CSPI, a public company listed on NASDAQ, with sales of $18 million, is a leading manufacturer of vector processors and multiprocessing systems. MaxiCode readers incorporate two of CSPI's "SuperCards" -- which provide the "computational horsepower needed for the extensive signal processing required."
>
> In February 1994, CSPI was awarded a $6 million contract to supply MaxiCode readers to be installed in the new UPS Chicago Area Consolidation Hub. Jack Courtemanche, Director of Sales, told *SCAN*: "We have not decided whether we will market these units directly, or link up with others -- such as Symbol Technologies, Intermec or Accu-Sort -- to sell for us."

Which brings us all the way back to the UPS marketing strategy. The company needed the UPSCODE/MaxiCode system to reduce costs and improve its service. It recognized early-on that to do this they had to present the product to the industry and to step away from any proprietary position that might restrict its universal adoption. Since MaxiCode is generally considered to be the front-runner for high-speed sortation applications, UPS may have effectively achieved its goal.

> [Note: Luis Figarella, Product Manager for Hand-Held MaxiCode readers at the UPS R&D facility (Danbury, CT), advised us that MaxiCode readers have capabilities beyond just one symbology. "Presently we support Code 128, Code 39, and I 2 of 5," he writes. "In addition, we have written code (mostly on our personal time) to decode some of the public 2-D symbologies."]

A quiet "summit meeting"....

....of eleven leading companies in the automatic data capture industry was held on Tuesday afternoon, May 17, during ID Expo 94. Attending were executives from Accu-Sort, Computer Identics, Intermec, Microscan, Monarch Marking, Norand, PSC, Spectra Physics, Symbol Technologies, Welch Allyn and Zebra.

The meeting had been called -- weeks before the convention -- by Tim Koogle, President of Intermec. The purpose was to discuss -- and hopefully resolve -- the confusion surrounding two-dimensional symbologies and the related public domain issue. Significantly, Symbol Technologies was not on the initial list of invitees. "We felt that the meeting was necessary," Koogle later told *SCAN*, "because the public domain issue was blocking progress on this new and important technology."

Intermec had led the opposition to accepting Symbol's PDF417 two-dimensional symbology as an industry standard. This resistance manifested itself on AIM's Technical Symbology Committee, ANSI's MH10.8 (2-D) Committee, AIAG, and a number of other forums.

Intermec's position was that Symbol had never clearly and unequivocally placed PDF417 in the public domain. Therefore, Intermec maintained, it could not support the symbology and neither should the industry. Intermec went so far as to switch its development efforts on a new hand-held 2-D CCD scanner so that it supported the competitive Code One symbology rather than PDF417. This switch was made after Intermec had already completed work on PDF417 (*SCAN* May 94).

On May 3, however, this issue became moot when Symbol announced, in clear and forthright language, that it was placing PDF417 in the public domain (*SCAN* May 94).

Prior to the scheduled ID Expo meeting, Koogle discussed this new position on the phone with Symbol's Chairman Jerry Swartz and President Ray Martino. Based on this conversation, he became convinced that Symbol "appeared" to be meeting the public domain requirements of both AIM and ANSI.

Having resolved the key topic that had prompted Koogle to convene the meeting, the principals decided to let this unusual ad hoc session proceed and to invite Symbol to participate. The issues of how to clear up the confusion over PDF417, and whether to second-guess Symbol's motives in prolonging the dispute, were set aside. Instead, a constructive agenda was planned to discuss the positive programs that these leading companies could sponsor individually and collectively to help the industry grow and prosper.

Part of this challenge was to establish a more coherent policy regarding new symbologies and their public domain status in order to avoid the strains and pitfalls prompted by the PDF417 brouhaha. In addition, once convened, the group of executives took the opportunity to review the available methods to strengthen AIM, the industry's trade association, and to encourage active participation by the very individuals who attended that summit meeting.

Comment

It was fortunate that Symbol took the important step to clear the air on the public domain issue. The potential schism that was looming over this dispute would not have served anyone. Even Symbol's executives admitted that they waited too long to take this sensitive matter away from the lawyers and back into their own hands. It is to everyone's credit that any differences among the disputants have been set aside.

We must admit, however, that if the meeting had gone forward as originally intended, it would have been much more interesting.

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