Pharmaceutical & Medical
Machine Vision Inspection Solutions
VisionVault®
User-Traceability & Data Archiving System

Integro VisionVault Solution offers:
• FDA: 21 CFR Part 11 compliant database
• User-Authentication through Microsoft Active Directory
• Preconfigured & Customizable SQL Reports
• Industry-Standard Network Architecture
• Streamlined Validation Procedures
• Microsoft .NET Compliant- SQL 2012
• Supported Operating Systems: MS Windows 7 (32 & 64 bit) and MS Server 2008 R2 (for server only)
• Supported Browsers: Microsoft Internet Explorer (+v8.0), Google Chrome (+v17), and Firefox
• Cognex In-sight Explorer 4.9.3+
• Integrates with Cognex VisionView 900
4 Production Line Architecture Example
Thermal Seal Integrity Inspection System

Verify Seal is complete
60ppm
100% Inspection
Thermal Imaging Solution

Drawbacks:
- Ambient Environmental Changes
- Material Variations
- Image Blur
- Thermal Cooling
- Static Acquisition
- Gauging Accuracy
- Not an Offline Option
360° Cup Verification
Custom Optics for UV Safety Seal Inspection

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Sidewinder Label Inspection System

- 50-600 labels per minute
- Generates Verification Report for FDA Documentation
- OCV (Font Selectable)
- PDF417, DataMatrix, 1D Barcodes
- Print Quality Inspection
- Linescan Camera
- Variable Label Width and Length
- Controlled Rewind to set position for Label Removal
Pharma Web Inspection with OCV

- Multiple Camera Image Stitching
- Wizard Configuration for # of Lanes
- Multiple Shades of Packaging
- Laser Burned Text
- 60 indexes/minute
- Dovetail Light Assembly for Changeover
- Single Image Storage and Processing

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Optical Character Verification (OCV)

- Production Rate of 200 ppm
- Ink Jetted Text
- Moving Conveyor

OTC™
Omeprazole delayed-release tablet
20 mg / acid reducer
Separate at perforation. Peel at arrow.
Push tablet through foil.
Dist. by Procter & Gamble, Cincinnati, OH 45202

6353145341

20 mg
Separate at perforation. Peel at arrow.
Push tablet through foil.
Dist. by Procter & Gamble, Cincinnati, OH 45202
EXP: 09/09

INTEGRO Technologies

<table>
<thead>
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<th>Item:</th>
<th>Value:</th>
<th>Status:</th>
<th>Min Value:</th>
<th>Max Value:</th>
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<tbody>
<tr>
<td>Label Target Score</td>
<td>98.668</td>
<td>Pass</td>
<td>70.000</td>
<td>100.000</td>
</tr>
<tr>
<td>Label Angle</td>
<td>9.996</td>
<td>Pass</td>
<td>-60.000</td>
<td>60.000</td>
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<table>
<thead>
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<th>Item:</th>
<th>Font:</th>
<th>Status:</th>
<th>Expected String</th>
<th>Min Score per Char:</th>
<th>Tune:</th>
<th>Dialog Controls:</th>
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<tr>
<td>OCV String: LOT</td>
<td>6353145341</td>
<td>Pass</td>
<td></td>
<td>60.000</td>
<td>Tune</td>
<td></td>
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<tr>
<td>OCV String: Date</td>
<td>09/09</td>
<td>Pass</td>
<td></td>
<td>80.000</td>
<td>Tune</td>
<td></td>
</tr>
</tbody>
</table>
Opaque Insert Verification

Packaging Rate of 2500 Packages/Minute

2 Inserts/Package

Total Production Rate of 5000 Inserts/Minute.

Inspection System capable of 4500 Packages/Minute or 9000 Inserts/Minute.

Provides Synchronization data to packaging machine motion controller.

Visualized through Opaque Packaging Material.
OTC Carton Verification

- Production Rate of 200 Packages/minute
- Random Carton Orientation
- Replaced Photo-eyes with Vision System for positive Pattern Match
Canister Orientation Verification

✓ System Verifies Canister Orientation prior to filling
✓ 300+ Canister/minute
✓ Single Job File for Multiple GCAS numbers
Large Label OCV and ID

- Labels 4”x4”
- Read Barcodes
- Verify
  - Lot Code
  - Date Code
  - Manufacture Date
- System Inspects “Peel-off” Labels
- Setup Wizard for Configuration and New Products
Medical Catheter Inspection and Guidance

- Manual Process
- Determine if Foreign Material is Present
- Calculate Robot Trajectory for Welding Operation
- High Magnification and Telecentric
- Collimated Light Source
High Speed Pharma Label OCR

1500 lpm
Changeable Prefix and Suffix
Increment Up/Down
Rewind Table Implementation
Vicks Laser Verification, ID, & Label Position Verification

Replaced PC Based System
Improved:
Performance
Change over
# Inspection Tasks

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Optical Character Verification

- Production Rate of 300 ppm
- Laser Etched Code on Metal Foil
- Ethernet Central Batch Changeover Control
Anaconda Tube Inspection

- 600 feet per minute
- 3/16 inch OD Tubing
- Detect Tube Blockages
- High Speed Image Storage
- Auto-Training for different Size Tubes or Cables
  - OCV/OCR Capable
Vial Tray Counting

- Multiple Color Caps
- Various Sizes & Heights
- Inspection time 250msec
Identification – Track and Trace

Machine vision looks at label or product
- Reads or verifies codes & characters
- Recognizes parts by appearance

Key Applications
- Track and serialize products
- Read / verify barcodes & Data Matrix codes
- OCR / OCV
- Validate conformance with GS1
- Match patterns, colors or shapes

Business Advantages
- Ensure exact information
- Improved efficiency
- Achieve compliance
- Cost reduction
- Avoid production errors
- Achieve +99.999% read rates

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ID with Verification

- AIM Standard DataMatrix
- ISO Grading Standards for Direct Part Mark
  - Laser Etch
  - Chemical Etch
  - Dot Peen
- Fixed Mount
- Hand-Held (Blue Tooth)

Can you see it?
We can!
GCAS Verification and Label Placement

- Re-Programmed Machine Builder’s Cognex In-Sight Implementation
- Single Job file for 75 different GCAS numbers
- Reduced Product Change over time
- Simplified User Interface

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Pallet ID: Benefits

- Raw Material Tracking
  - Manufacturer Name
  - Manufacturer Lot Code
  - Manufacturer Production Date, Shift and Time
  - Manufacturer Pallet Number

- Raw Material Consumption
  - Product Identification (ex. Gatorade 20 ounce)
  - Quantity on Pallet

- Flexible Solution
  - Vision system can accommodate label data changes
  - Vision system can accommodate multiple suppliers
  - Does NOT require precise label positioning
  - Can read Text Strings, Numeric Data, 1D or 2D Data Codes
High Speed Vial Inspection

- 900 Vials/Minute
- Cut Processing time in Half & Improved Detection Capability
- Tear Off Seal and Stopper Verification
Suture Tip Gauging

- 200 ppm
- High Accuracy Gauging
Surgical Eye Blade Inspection

<table>
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<tr>
<th>Item</th>
<th>Actual Value</th>
<th>Status</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blade Assembly Present</td>
<td>-0.5</td>
<td>Fail</td>
<td>60.0</td>
<td>70.0</td>
</tr>
<tr>
<td>Blade Score</td>
<td>0.0</td>
<td>Fail</td>
<td>90.0</td>
<td></td>
</tr>
</tbody>
</table>

- Correct Blade
- Blade Tip Inspection
- Alignment
- Burrs
Child Safety Lug Verification

- 800 ppm
- Lug Verification
- Random Orientation
- Two Sizes
Barcode Reading on IV Bags
Medical Catheter Inspection and Guidance

- Manual Process
- Determine if Foreign Material is Present
- Calculate Robot Trajectory for Welding Operation
- High Magnification and Telecentric
- Collimated Light Source

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Syringe Plunger Gauging

- High Accuracy Gauging
- Pick-N-Place Presentation
Dosage Pen Meter Alignment

- System Originally Installed by Machine Builder.
- Integro Re-programmed 4 Systems in 1 day
- Dramatically reduced False Reject Rate
- Simplified program for long term maintenance
- Improved Graphical Data Representation
Bullseye - Tube Gauging System

- Repeatable to <0.00005”
- 1-2 second Inspection Time
- Mobile Platform Can Maintain 6 production lines
- 10 Collet Sizes
- 16MP & 29MP

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True Color vs. Pseudo (Bayer Filter)

True Color (3CCD)  
Pseudo (Bayer Filter)
Drug Test Kit Strip Verification
Desiccant Coating Line Inspection
Laser Etched Barcode and Text Verification

- Laser Print OCV
- Barcode Verification
- Central Database SKU download
- Replaced difficult to use PC based system
- 100 ppm
Laser Verification, ID, and Label Position Verification

- Replaced PC Based System
- Improved:
  - Performance
  - Change over
  - # Inspection Tasks
Cap and Fill Level Inspection System

- Quality Control
  - Measures and rejects high caps
  - Detects and rejects bottles that are missing caps
  - Detects and rejects bottles missing tamper bands
  - Detects and rejects damaged tamper bands

- Capper Error Tracking
  - Tracks capper head producing each defect
  - Totals defects by capper head

- Flexible Solution
  - Vision system can both 20 & 32 ounce bottles
  - Vision system can accommodate multiple bottle suppliers
Medical Lure Inspection

- Foreign Material Detection
- ID Gauging
- Collimated Light Source
- Telecentric Lens
- Controlled Depth of Focus
PQI Inspection

- High Accuracy Alignment
- Image Subtraction
- Boundary Tracing
- Defect Classification

TAKE 1 or 2 PILLS every 4-6 HRS

READ THE LABEL

MAX 6 PILLS in 24 HRS
**GS1 Data Matrix Example**

GTIN  00012345679995  
LOT  10JA28A  
EXP  12/2012  
S/N  1234567890180

- **ECC 200 Data Matrix**
- **Symbology Identifier** (non-printable) specifies GS1 standard data to follow
- **Field Separator** (non-printable) required before AI following variable length data

<table>
<thead>
<tr>
<th>AT</th>
<th>Data Type</th>
<th>Data Content and Format</th>
</tr>
</thead>
</table>
| 01  | GTIN** (Global Trade Identification Number) | N2 + N14, including:  
  • Packaging Type / Level (1 digit, 0-8)  
  • Company Prefix (7-10 digits)  
  • Item Reference (2-5 digits)  
  • Check Digit (1 digit, 0-9) |
| 10  | Batch / Lot Number      | N2 + AN1...AN20                                              |
| 17  | Expiration Date (YYMMDD) | N2 + N6                                                       |
| 21  | Serial Number           | N2 + AN1...AN20                                              |

**May contain French CIP 13, FDA National Drug Code (NDC) and most other national product codes.**
Medical Device Bag Measurement and Verification

The purpose of this application was to inspect colostomy bags in web form within final stations of the assembly process.

Features:

• Two (2) different assembly lines
• Two (2) stations per line
• Two (2) cameras per station
• Eight (8) total cameras
• High precision inspection
• The two (2) cameras at each station were required to share measurement data to verify the measurements were correct relative to each camera pair.
• High output UV light sources were utilized to eliminate background noise and enhance features of interest to be inspected.

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Cap Seal & Fill Inspection

1300 bpm Production Rate
Tele-centric Lens

Inspection of:

- Verify Presence of Safety Seal
- Verify Safety Seal is not broken
- Cap Height relative to Flange
- Safety Seal Width (Not Locked)
- Safety Seal Height relative to Flange

Replaced 5 Sensors and Improved Repeatability and Tracking

- Cap P/A
- Safety Seal P/A
- Fill Level
- Cap Height
- Broken Safety Seal

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Medical Device Inhaler Incremental Counter Verification

The purpose of this application is to verify the correct three digits are present and aligned on the incremental counter on a medical inhaling device and verify assembly completion. The incremental counter digits represent the number of device dosages that remain within the medical device.

Features:
- Multiple inspections methods deployed within a single program.
- Custom lighting solution permits the incremental counter digits to be visualized through a molded plastic window within the device.
- System was integrated into an OEM rotary machine control system that assembles the medical device, tracks, and rejects the product at designated stations.
Contact Us Today

Integro Technologies
(704) 636-9666
esales@integro-tech.com

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