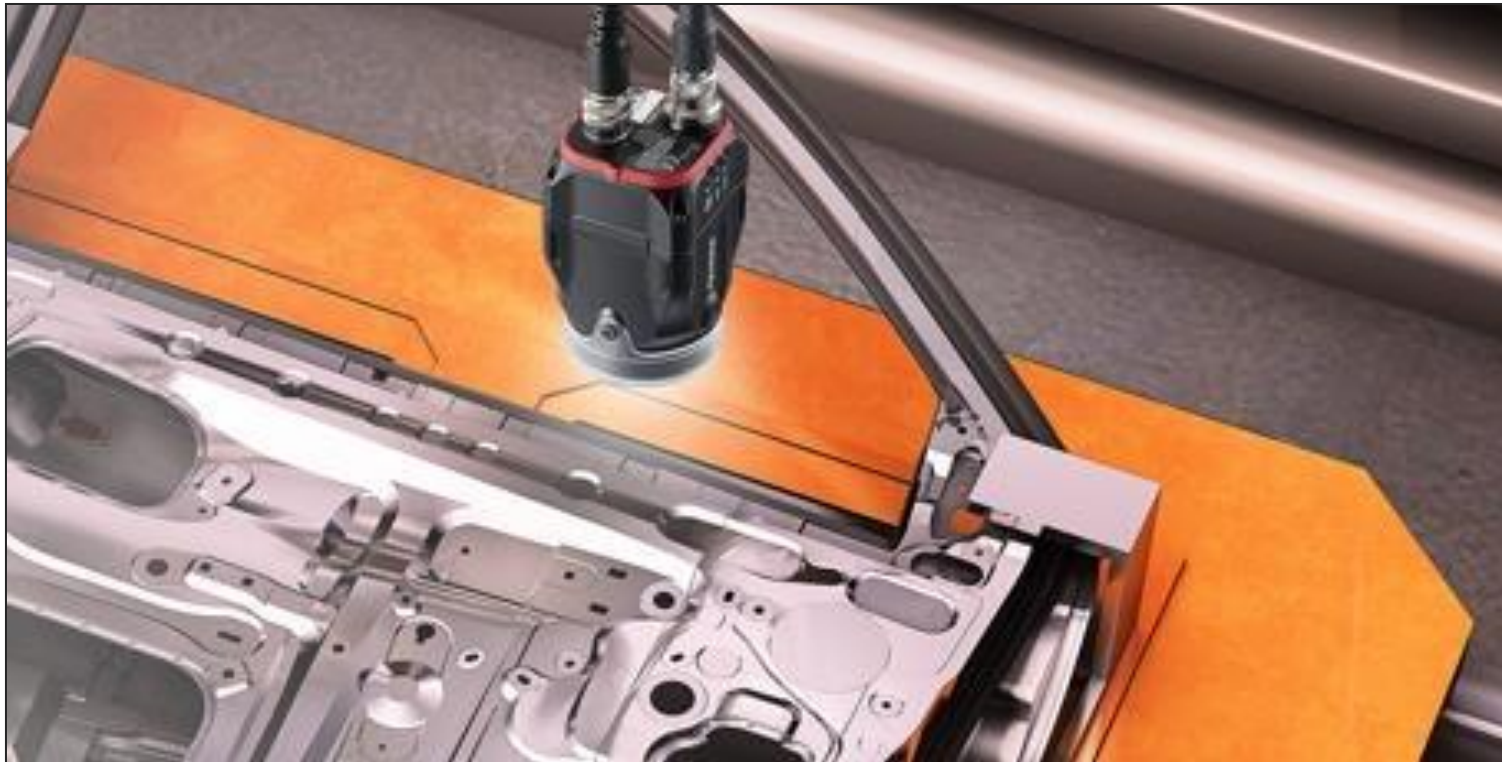


Using Vision Sensors to Prevent Errors in Packing and Labeling



A Keyence Vision Sensor

Using Vision Sensors to Prevent Packing Errors

Vision Prevents Errors such as:

- Mixing left- and right-hand parts
- Packing the wrong part
- Packing scrap parts as good parts
- Leaving unfilled slots in layers of dunnage
- Leaving parts out of a Kit
- Over-packing dunnage



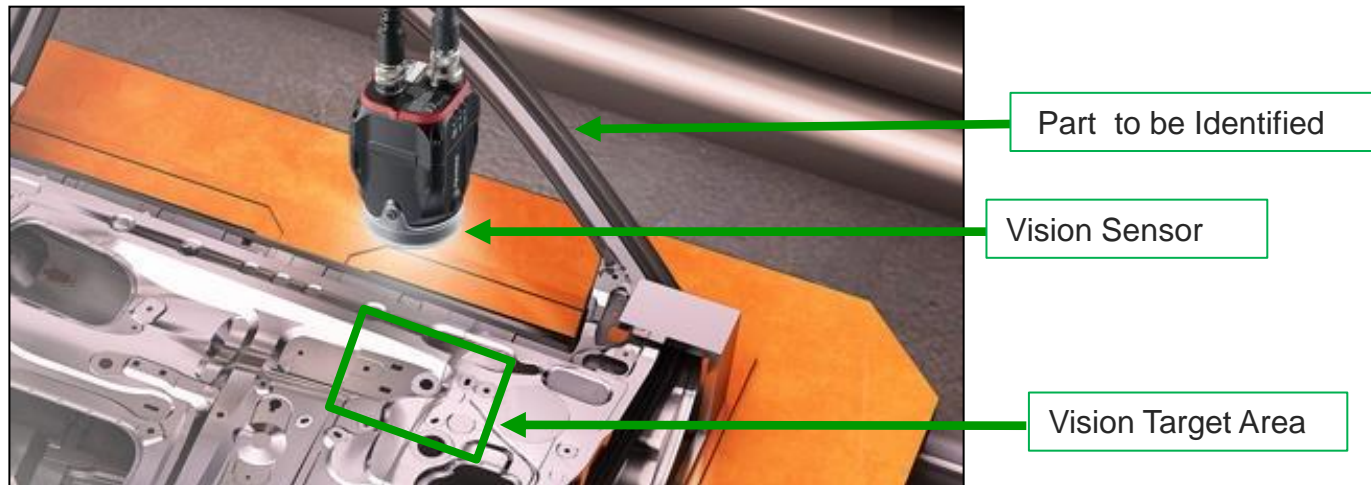
Prevents Mix-ups of Similar Parts



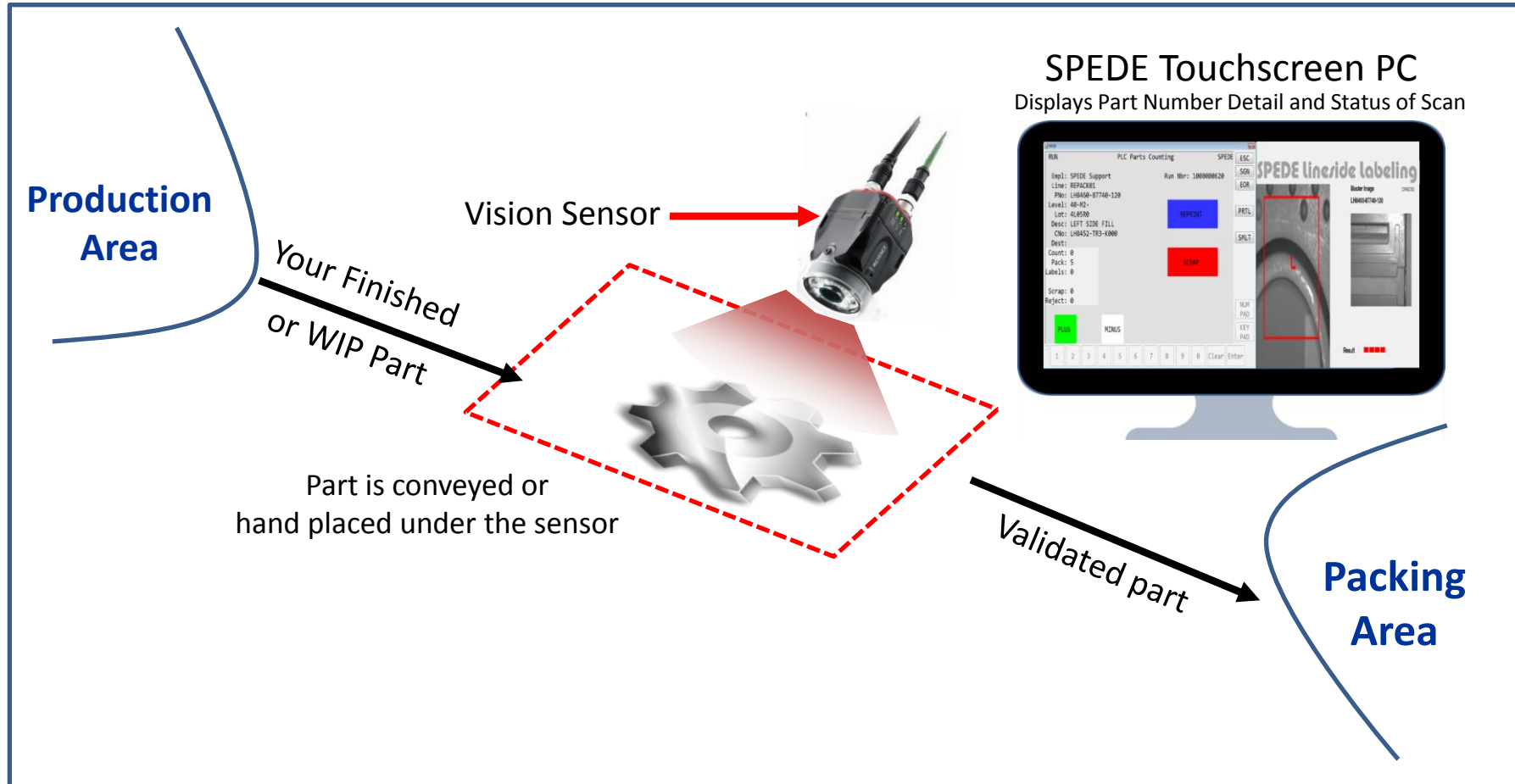
Vision Prevents Packing Errors such as Under-packing containers

How a SPEDE Vision System Works

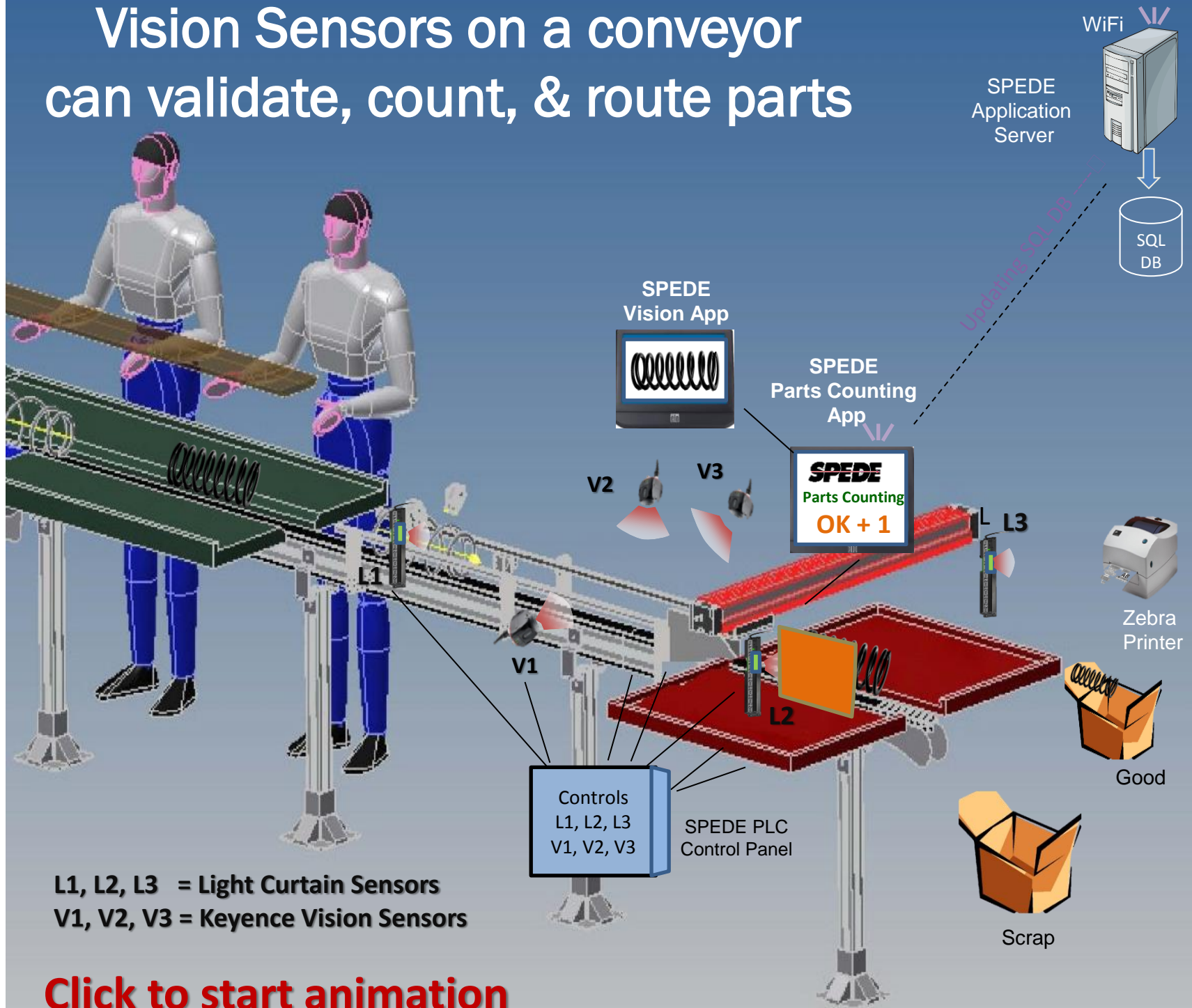
- Sensor is “trained” to recognize a Part by its unique attribute
- At Packing, the Part is moved under the Sensor
- Sensor uses Image Capture & Pixel Analysis to identify the Part
- If Part is Correct, the running Part Count is incremented
- If Part is Wrong, an audio/visual signal prevents an error



A Typical Pack Station using a Vision Sensor



Vision Sensors on a conveyor can validate, count, & route parts

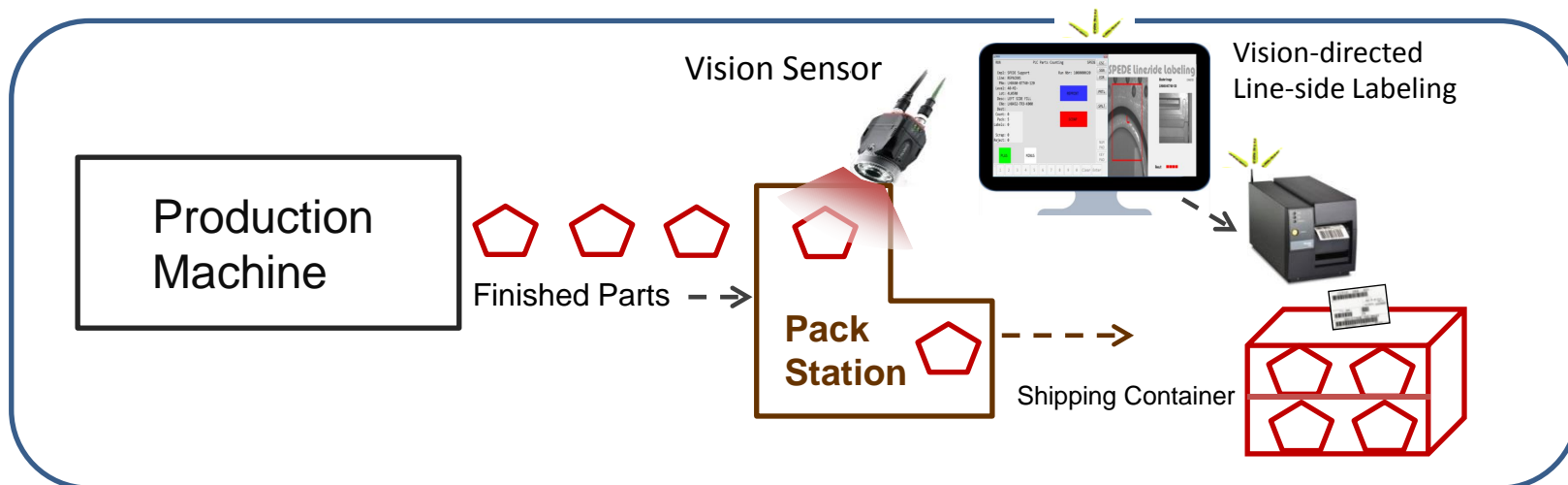


[Click to start animation](#)

3 Scenarios for Vision-based Packing & Labeling

Scenario 1: Using Vision at the Production Machine

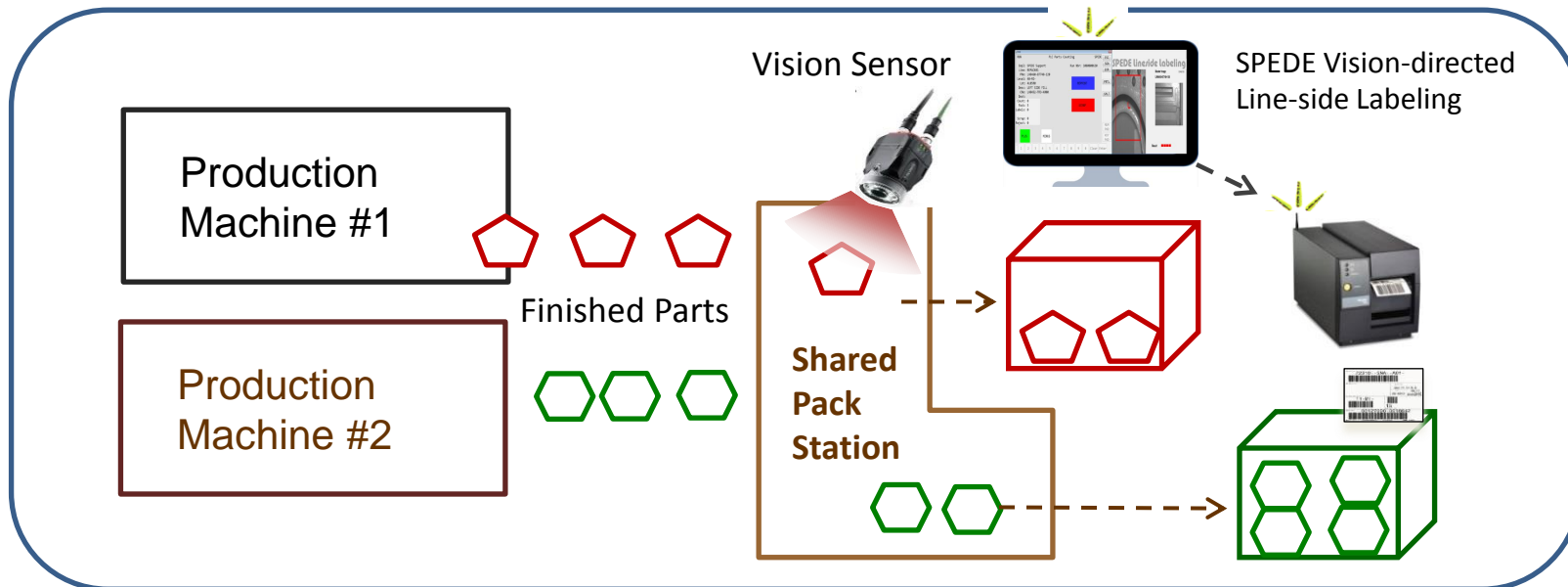
- Parts are packed at the production machine
- No PLC is needed to count parts
- Vision Sensor identifies and counts “good” parts
- Operator can press a TouchScreen to record scrap
- SPEDE prints the container label at pack count of good parts



3 Scenarios for Vision-based Packing & Labeling

Scenario 2: At a Shared Pack Station

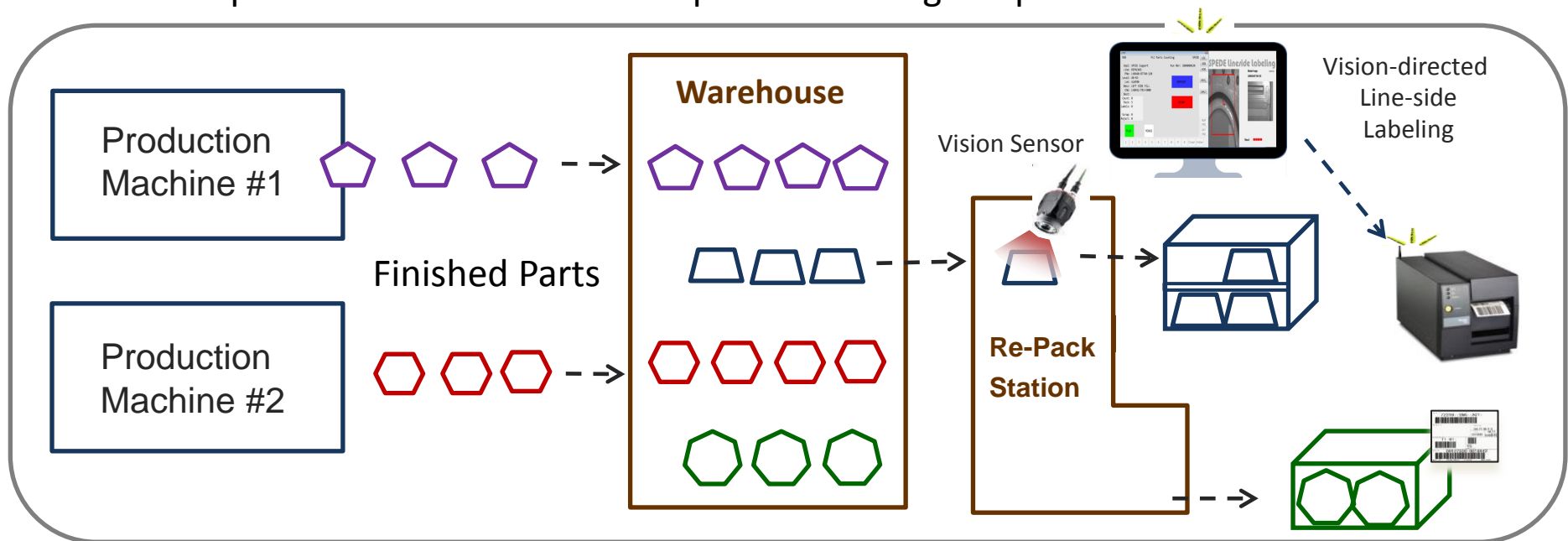
- Parts are conveyed to a shared pack station
- Different part numbers arrive
- Vision sensor identifies part number being packed
- Vision sensor will alert if wrong part is picked for a container
- SPEDE prints the container label at pack count of good parts



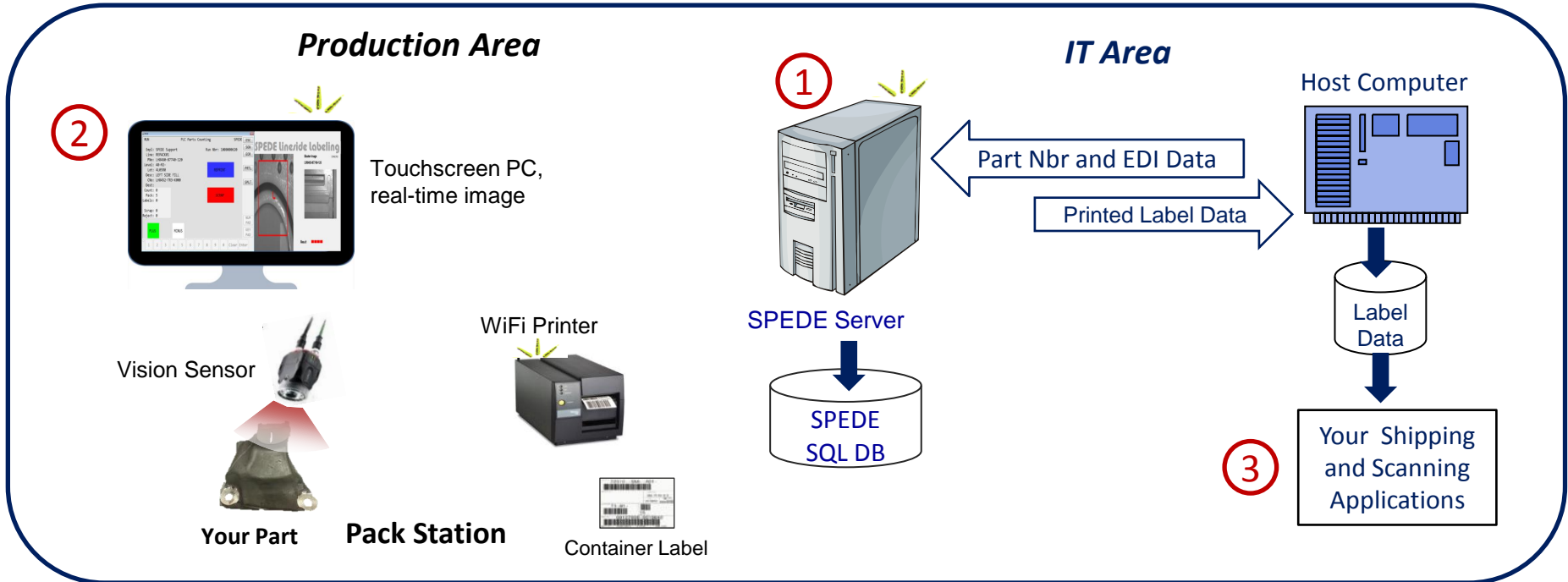
3 Scenarios for Vision-based Packing & Labeling

Scenario 3: At Re-Pack

- Parts are made, put away and packed later
- Re-pack station has no PLC to validate parts
- Vision sensor identifies correct part to be packed in a container
- Vision sensor will alert if wrong part is picked for a container
- SPEDE prints the container label at pack count of good parts



Interfacing to your ERP, EDI and Shipping



- ① **SPEDE Server Gets Container Label Data from Host Systems**
 - Pulls data needed for container label at start of packing operation
- ② **SPEDE TouchScreen Client PC Software**
 - Controls Vision Sensor
 - Verifies correct part; allows for scrap counts; collects OEE data
 - Prints serialized label; inserts a unique Log Record into SQL DB for the label
- ③ **SPEDE Server Presents Label Data to Host Shipping System**
 - Inserts data from printed label into Host tables to support later scanning operations

Using Vision to Meet Honda MPRs

A Few Honda Suppliers that Use Vision for Packing Control

Sonoco

Vision is set up on a mobile cart



Bumper Filler

Nissin Brake

Vision is set-up on a fixed table



Machined Casting



Jack Kit

Nisco

A Laser etches 2D Serial Number
Vision reads the 2D Serial Number



Door Trim

Bottom Line Benefits ...

Vision Enables 100% Accurate Packing

- Each Part is correctly identified
- Good Parts are accurately counted at packing
- Kit components and quantity are verified
- Dunnage layer is Correct



Added Benefit: Serial Traceability

- SPEDE Links each Part's Data to its Serialized Container Label
- Links Serialized Container to Production Run data
- Links Serialized Containers to Master Label
- Enables Forward Traceability from Production to Shipping
- Enables Backward Traceability from Production to Raw
- Enables focused Recalls



Bottom Line Benefits ...

Traceability by Component / Part / Container

- A serial number is linked to each Part's production data, including:
 - Production Machine, Run Date, Shift, Operator, Lot, Location, etc.
 - Container Serial Number(s) in which the Part was packed
 - All other Serialized Parts in a generalized Container
- Provides Traceability by Part, Lot, Container, Line, Run Date, etc.
- Forward Traceability from Production out to Customer
- Backward Traceability from Production back to Receiving, Raw Components, Supplier

Printed By: Dan Worthington
 Report Date: 01/08/2013
 Report Time: 08:35:00
 Page: 1 of 1

Container Trace: 0319804-05088465

Part Nbr	Description	Run Nbr	Line Nbr	Create Date	Create By	Qty	Item S/N
C729-101-0000	CIVIC M/T RADIATOR	000012001	CLINCH2	11/05/2012	JS MITH	5	AB879762351 AB879762352 AB879762353 AB879762354 AB879762355



About our Customers...

Tier 1, Tier 2 Automotive Suppliers

- Supply to Honda, Mazda, Mitsubishi, Nissan, Subaru, Toyota, Ford, GM, etc.
- Multi-plant, medium to large companies
- Use various ERP, EDI, Release Accounting systems

Installations typically include some or all:

- PLCs, Vision Sensors, TouchScreen PCs, Conveyor interfaces, Diverters, Scales, Imaging Cameras, Printers
- Serialized Part / Lot Traceability
- Real-time Data Collection; Host system data exchange

Functionality can be phased-in over time:

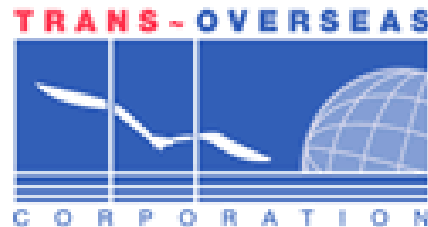
- At Production Lines
- At Plant Sites
- With New Technologies



Meet a Few of our Customers...



Driven by performance



To Discuss Your Line-side Project...

Call or Email ...

Bob Bunsey

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www.spede.com

About Us:

SPEDE Technologies is a software and systems company specializing in technology solutions for automotive suppliers since 1980. Our focus is automating Production Area processes to increase efficiency, eliminate errors and improve profitability.

Our Customers are mid-size to Fortune 500 auto suppliers with multiple plant sites throughout the U.S. and in Mexico. They rely on SPEDE Automated Line-side Solutions to keep their mission-critical processes running smoothly, 24/7.