SPEDE Technologies

SPEDE USB Camera Solutions

for

Part Verification,

Counting and Packing

 440-808-8888 www.SPEDE.com

Simplifying Processes... Standardizing Excellence.®

Overview of SPEDE Camera Solutions

USB Cameras can be used for:

- Part verification
- Color detection
- Counting parts
- Reading a 1D/2D barcode on the part
- Reading OCR characters on the part
- Controlling the sequence of filling slots / layers in dunnage
- Verifying all dunnage slots are filled with the correct part
- Providing video proof that dunnage was filled correctly
- Verifying Pack Count in dunnage is correct
- Triggering a label to print when pack count / dunnage is correct

USB Camera

Validating all dunnage slots are filled correctly

Using Cameras vs. Vision Sensors

Advantages of Cameras -

- Cameras cost as little as $75
- Off the shelf USB cameras can be used
- Multiple cameras can be used to capture multiple angles without excessive incremental costs
- 1080p cameras at 16:9 aspect provide much greater field of view
- Cameras have no intelligence; no programming or configuration is needed
- Cameras simply capture an image for SPEDE vision logic to analyze
- All image processing is performed on a PC workstation connected to the camera(s)
- Camera can be “trained” to recognize a part at your desktop PC – No need to perform this task at the line
- No local master image files; any SPEDE line can use the same master images
- Cameras can be easily swapped out by maintenance personnel

Using Cameras vs. Vision Sensors

Disadvantages of Vision Sensors -

- Can be many times more expensive than USB cameras
- Complex set up and configuration required due to being an intelligent device
- Master images are stored in each vision sensor
- Only a small number of master images allowed due to limited capacity
- Can store only 32 master images
- Sensors cannot be easily swapped out on the production line because:
  - Replacement sensor must be updated with all of the current master images
  - Requires engineering and IT expertise which may not be available at the time

Creating / Maintaining Master Images

Any SPEDE Line Can Use the Same Images

- Camera simply captures an image of the part; SPEDE vision logic is “trained” to recognize the part number
- Can set up a separate fixture in office setting for creating and maintaining master images - No need to perform this task on the shop floor
- All part number targeting information is stored in common SQL database, including master images, accuracy percentages, size, shape, etc.
- Cameras can integrate with Mitsubishi and Koyo PLCs
- PLC can trigger scan; decision is returned to PLC
- If using the same setup on multiple lines, must have consistent lighting and focal lengths / distances

Using Cameras for Color Detection

SPEDE Vision Uses Cameras to:

- Detect colors present and compare to master images
- If color is wrong, part is shunted downstream
- Yes/No decision in less than 50ms
- Both live image and master image display on HMI, as well as decision status
- Adjustable accuracy percentage for each color
- Cameras can integrate with Mitsubishi and Koyo PLCs

USB Camera

Using Cameras for OCR

SPEDE Vision offers Optical Character Recognition

- No need for external sensors; SPEDE can detect motion, then engage OCR logic on stable image
- Most fonts, sizes can be interpreted
- Colored letters and backgrounds are OK
- Image is converted to black/white to isolate characters
- Software recognizes all Arabic letters and numbers, lower and upper case
- Decision rendered in less than 50ms
- Live display shows image in real time plus recognized characters
- For greater accuracy on difficult fonts, a master image can be created which SPEDE will use to compare against
- Cameras can integrate with Mitsubishi and Koyo PLCs


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Using Cameras to Read Barcodes

SPEDE Vision offers Optical Character Recognition

- Most 1D and 2D symbologies are supported
- No need for external sensors; SPEDE can detect motion, then engage barcode logic on stable image
- Cameras can integrate with Mitsubishi and Koyo PLCs

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Pass-Thru Labels

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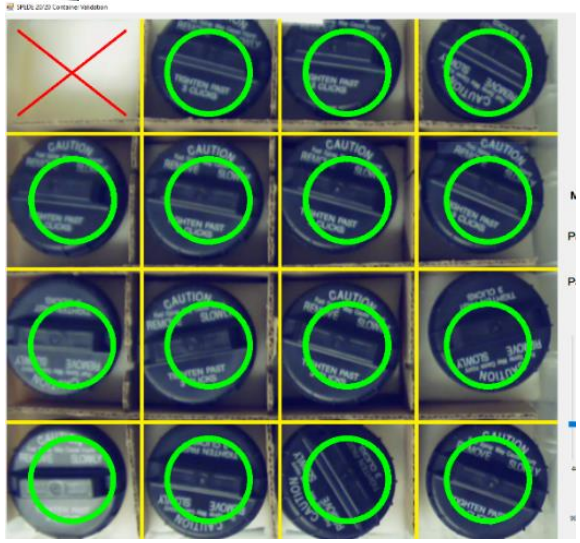
Using Cameras for Packing / Labeling

Interfaces to a Small Camera at Packing

- Camera captures image of part being packed
- SPEDE verifies the part is correct
- SPEDE validates the dunnage layer is filled before the next layer can begin: are all slots filled? No slots overfilled?
- Camera takes a photo of the completed layer
- Video can provide proof that packing requirements were met for each layer, in case of customer inquiry
- When container is correct and complete, SPEDE triggers a label to print

USB Camera



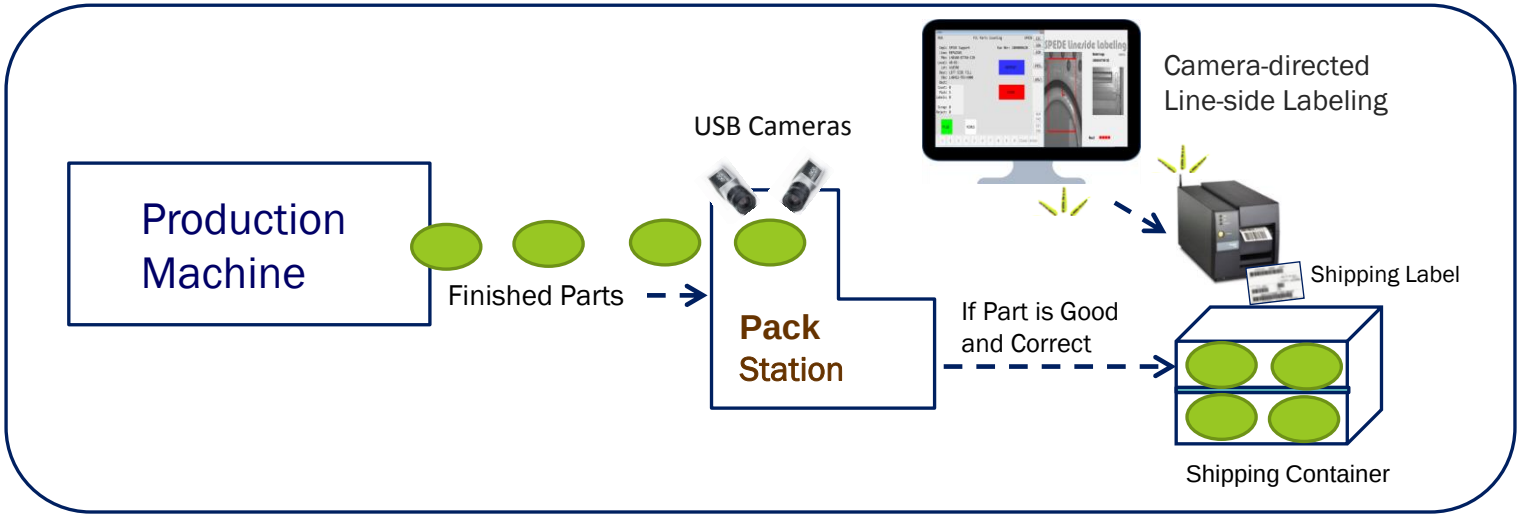
PC Screen shot of dunnage missing 1 part.
No container label will print until slot is filled.

Green Circles indicate the slot is filled with the correct part.

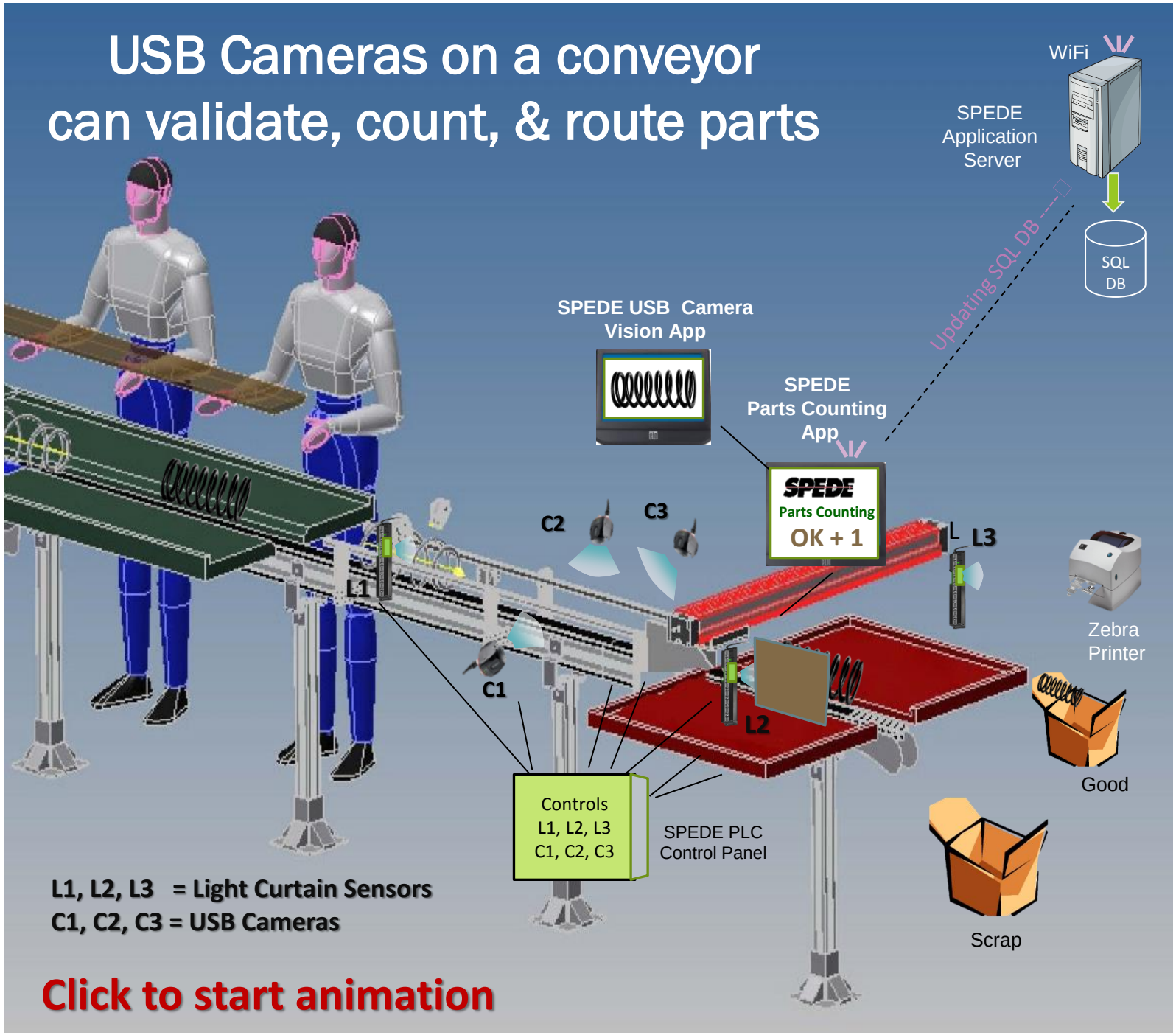
Using Cameras for Accurate Packing

Diagram of Camera-directed Packing / Labeling

- Use Cameras when Parts are packed at the production machine
- Use Cameras if no PLC is present to count the parts
- Camera verifies and counts “good” parts
- Operator can use a Touchscreen to adjust count, if needed
- SPEDE prints the container label at pack count of good parts



USB Cameras on a conveyor can validate, count, & route parts



Meet a Few of our Customers...

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To Discuss Your Line-side Project...

Call or Email ...

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About Us:

SPEDE Technologies is a software and systems company founded in 1980 that specializes in automating Production Area processes for automotive suppliers. Our solutions enable our Customers to increase quality, efficiency and visibility of their shop floor operations.

Our Customers are mid-size to Fortune 500 automotive 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.