Version 01

PickOne Software Module:

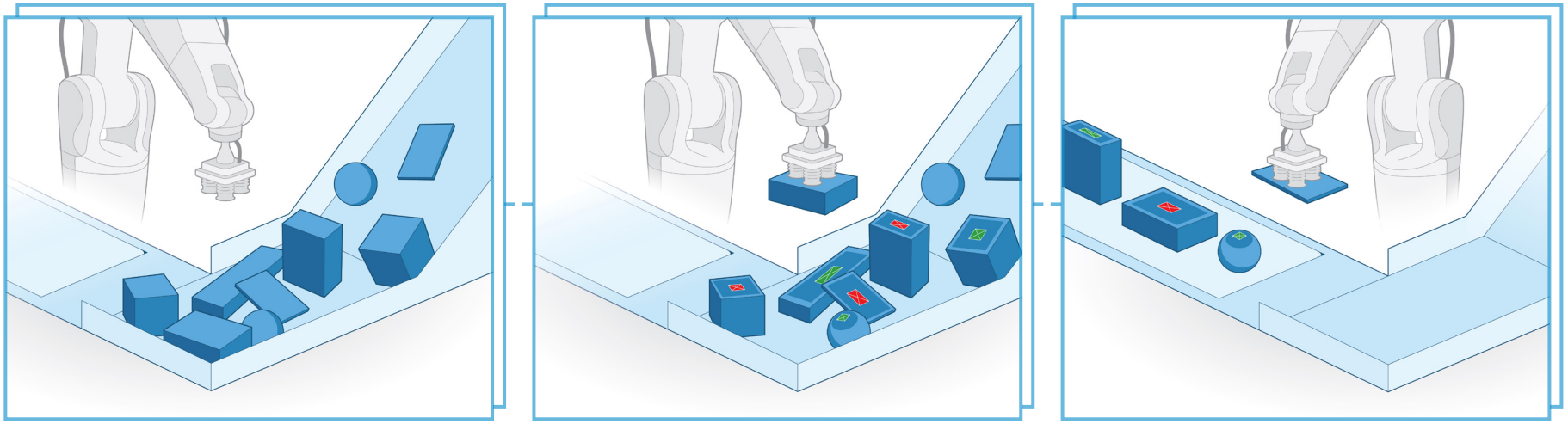
High Speed Parcel Induction

About this Module

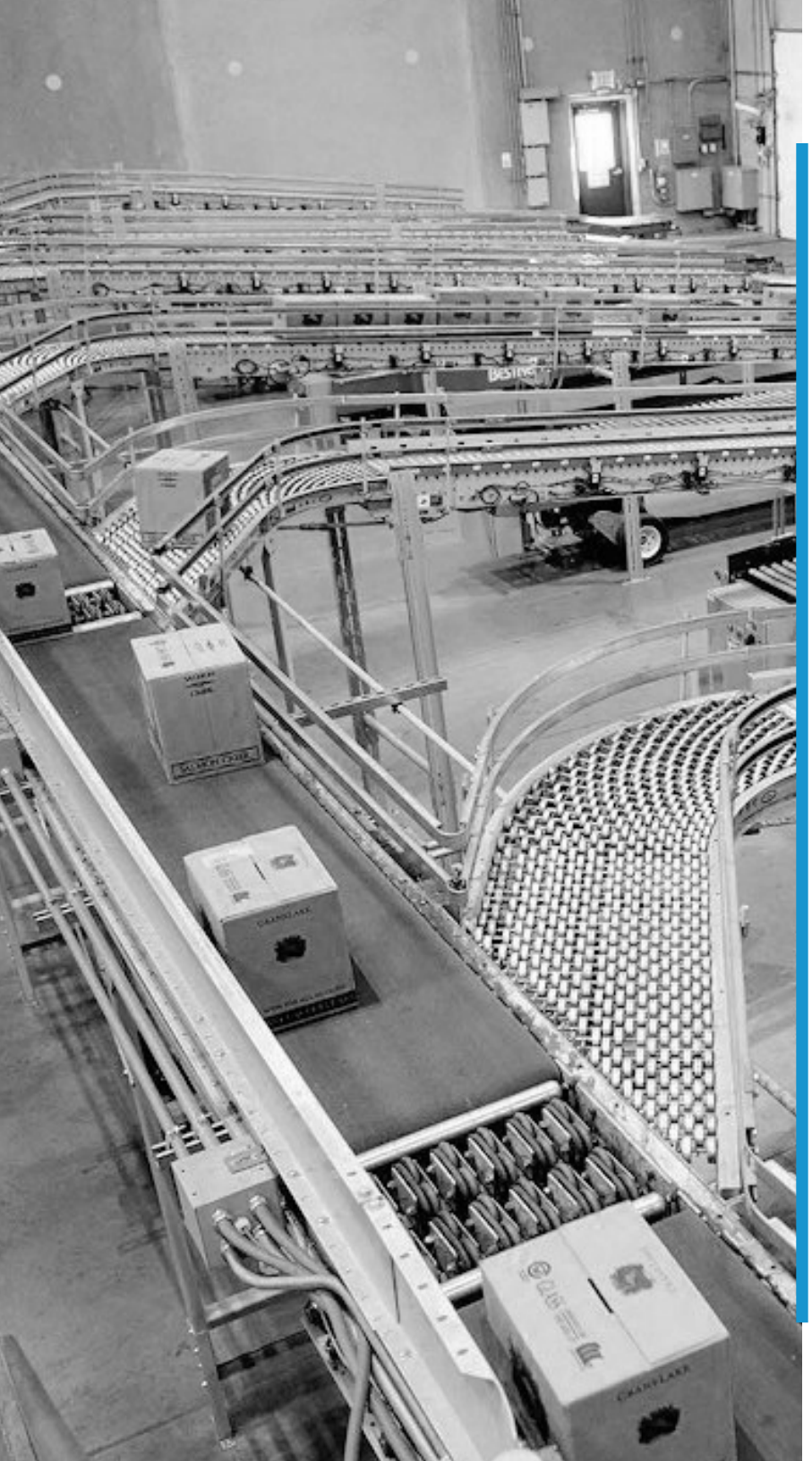
This software module extends the power of **PickOne** to pick randomly presented parcels from a chute or conveyor onto the induction belt of a high-speed sorter one-at-a time in a specified location and angle.

Benefits

- Improve first pass yield
- Promote associates from mundane tasks to more value-added work
- Reduce turnover by improving job satisfaction
- Reduce per unit handling cost
- Improve sortation accuracy
- Prevent lost production from jams caused by induction mistakes
- Provide integrators superior control to optimize system performance



BEFORE DURING AFTER



How it works

Step 01

When parcels arrive in a chute or on a conveyor, the **PickOne Perception Kit** images the items.

Step 02

Using 2-D, 3-D, and AI algorithms, **PickOne** identifies each pickable item in the scene and assigns it an associated confidence score.

Step 03

PickOne sends the robot controller an array of locations and data for each pickable item via the **PickOne API**. If no items in the scene have a high enough confidence level, there are two options.

The first option is for **PickOne** to issue a shuffle command to the robot controller to disturb the parcels and rescan.

If the system is **Yonder** enabled, the second option is to issue a **Yonder** request. **Yonder** sends a picture of what the system sees to a remotely connected **Crew Chief** who handles the exception by selecting an item in the scene. In seconds, **Yonder** updates **PickOne**, and **PickOne** sends the data to the robot.

In parallel, **Yonder** stores the **Crew Chief**'s response, allowing the machine-learning algorithms to make the system smarter as it works. This ensures even higher performance over time.

Step 04

Upon placement, the **PickOne Perception Kit** images the place zone to ensure a quality event. If it detects an out-of-spec parcel or a double, it signals the robot to resolve the issue.

Details

High Speed Parcel Induction

Features

- **Item Classification -** Classifies items by package type to enable dynamic adjustments grip strategy, acceleration, deceleration, speed, and path.
- **Motion Detection -** If items in the pick zone are still in motion, the system ensures a quality pick location by re-triggering the pick request until the items are in a stable pose.
- **Empty Pick Zone Detection -** If the pick zone is empty, the system signals the system to index more parcels into the pick zone.
- **Place Verification -** Images the place zone to verify parcel was placed within the positional and angle tolerance for the sorter. It also returns the major and minor axis dimension of the item to prevent oversized parcel induction.
- **Double Recovery -** If more than one parcel was placed, the PickOne API signals the robot to recover the error by either placing the items back into the pick zone or eject them from the conveyor.
- **Base AI Model -** PickOne has developed AI models to speed up the deployment of systems. Based on the product mix, the appropriate AI model will be selected for the application.

Supported Application Capabilities

- **Scan In Flight -** If the system is equipped with a barcode scanner, the robot can present the bottom of the parcel to the scanner on the way from the pick to the place location. If this barcode reader is integrated into the sorter, then the parcel can simply be placed. If the barcode reader is not integrated into the sorter, the parcel can be flipped into a label - up orientation.
- **Label Up -** If required, the parcel can be flipped into a label-up orientation.

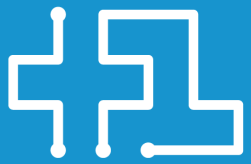
Specifications

- Typical induction rates of 1200-2100 parcels per hour with a single manipulator
- Supported item types: boxes, padded mailers, flats, polybags, and tubes
- Typical placement options: conveyors for sorters or packaging machines, chutes for autobaggers or scan tunnels, AMRs
- Supported Sensors - Intel RealSense D415
- Supported Robot Controllers: Fanuc*, Yaskawa*, ABB, Universal Robot, Kuka, Kawasaki, Denso, Festo, Rockwell Automation (Allen-Bradley)

What's Included

PickOne Software Module for High-Speed Parcel Induction, Perpetual License (P/N 1002-001-0005-01)

- PickOne Software Module for High-Speed Parcel Induction
- PickOne Base AI Model
- PickOne PackML State Machine for Designated Robot Controller
- Sample PickOne High Speed Induction Program for Designated Robot Controller



PLUS ONE ROBOTICS

639 Billy Mitchell Blvd.
Suite 185
San Antonio, TX 78226

Sales@plusonerobotics.com
(210) 664-3200
www.plusonerobotics.com

See our software in action at youtube.com/PlusOneRobotics.