Random Bin Picking (RBP™)

RBP is Braintech's advanced Vision Guided Robotics (VGR) technology solution for random bin picking.

Integrated with Braintech's eVisionFactory™ software platform— including award-winning SC3D— RBP enables detection, location, and grasping of randomly situated parts from generic bins.

Features

RBP features unique abilities that increase robustness, flexibility, and intelligence in VGR systems.

RBP technology offers:

- **Multi Part Candidate Tracking**-to offer a choice of identified pick-able parts
- **Pick Candidate Re-verification**- to enable efficient re-use of identified parts from previous pick cycles
- **Multi Grasp Point Selection**- to provide multiple grasping points and scenarios for a given part, while increasing speed and accuracy when grasping each part
- **Advanced 3D Range Data Analysis**-to move and grasp parts without collisions

RBP Technology

RBP is a breakthrough in technology. It overcomes the challenges of automating systems to locate and move parts randomly placed in generic bins. Such challenges include:

- Extreme part overlap and occlusion
- Significant lighting variability and shadowing
- Shortage of distinct features on parts
- Collision avoidance with other parts, tools, and bins

RBP works by combining Braintech's uniquely developed capabilities, including:

- Advanced geometric pattern matching, for robust part candidate recognition
- Fast range data analysis, for efficient and accurate location of parts in three dimensions
- Dynamic candidate scoring, for finding the best part candidates to grasp
- Dynamic interference detection, for preventing collisions and providing optimal grasping

Quick Facts

The eVisionFactory platform features two patented technologies, SR3D and SC3D. SR3D is Surround Multi-Camera 3D recognition technology, and SC3D is the Henry Ford Technology award-winning Single Camera 3D VGR technology.

With a global customer list that includes Ford, Toyota, Honda, Johnson & Johnson, and Battelle Memorial Institute, Braintech's software is being utilized every day with over 170 installations providing numerous unique solutions.

Benefits

RBP provides the opportunity for significant cost savings and benefits, including:

- Increased **profits** from faster productivity, reduced capital costs, and less downtime
- **Quality** increases with reduced manufacturing errors
- Implementation of generic, sustainable hardware, while **eliminating** part-specific custom containers and custom transport mechanisms
- Reduced **labor costs** and ergonomic injuries through reallocation of labor
- Increased equipment **utilization** and **production**

Top 10 Reasons for Braintech's VGR

1. Labor Reduction & Reallocation
Opportunities to automate what historically required human interaction.

2. Reduction & Elimination of Precision Dunnage
Dunnage cost savings can approach $1 million annually.

3. Quality Enhancement
Braintech's VGR eliminates human error and allows for visual and mechanical inspection techniques.

4. Downtime Reductions
System failures can cost manufacturers $10,000 per minute. VGR increases equipment utilization, detects necessary path changes, and prevents unnecessary downtime.

5. Flexibility & Elimination of Hard Fixturing
Various part styles can be handled by the same system cell using vision identification.

6. Ergonomics
Eliminates dangerous repetitive human material handling and other employee safety concerns.

7. Adaptability
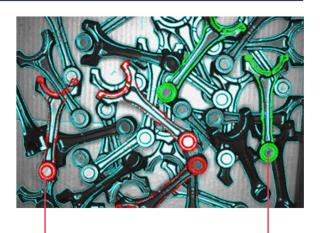Braintech's VGR offers a flexible and easy system for handling new parts.

8. Retrofits
Braintech's VGR is simple, proven, and enables existing robots to perform new services (re-train vs. re-tool).

9. Off-the-Shelf Components
Braintech's VGR uses common components and standard integration to make systems easy to install and repair.

10. The Future
Braintech's VGR grows and evolves as you do.

Advanced geometric pattern matching for part recognition

About Braintech

Braintech's vision software technologies enable vision recognition, robot guidance manufacturing, logistics, material handling, automation, situational awareness, security, education/entertainment, and more.

The **eVisionFactory™ (eVF™)** platform from Braintech offers robust, scalable, and automated vision intelligence solutions that are used for Industrial, Government/Defense, and Consumer/Service applications. eVisionFactory features both the Henry Ford Technology award-winning Single Camera 3D capability, and the ground-breaking Random Bin Picking (RBP™) technology.

eVisionEngine™ (eVE™) is a vision guidance library that offers all of the benefits from the science behind Braintech's eVF, for developing custom applications by robot OEMs, vision software providers, and integrators.

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