ENERGID

Industrial Bin Picking Solution

Pick. Path. Place. Industrial Bin Picking that SIMPLY works.

Energid's Industrial Bin Picking Solution sets the standard when it comes to easy to setup, accurate and powerful bin picking for machine tending applications. Unlike other bin picking products, we solve the *entire* problem: not only identifying parts in a bin, but automatically removing the parts and transferring them to a placement location, collision-free, without programming waypoints. Seamlessly integrated with Universal Robots e-Series collaborative robots, all set up and programming is done entirely on the teach pendant. Embedded Actin path-planning software means the user never programs any waypoints or robot poses. Simply attach the part to your end effector and use the scan-to-teach function to train the pick and place. Then at runtime every robot motion that happens is fully autonomous. Actin path-planning software means the robot can operate inside deep bins and in constrained machines without any collisions or operator interventions.

EASY INSTALLATION

Energid Industrial Bin Picking Solution is easy to install in less than 2 hours. Position a UR e-Series robot in your existing operator workspace, install custom frame and mount the included 3D vision sensor above your bin of parts. Then follow our wizards using the collaborative robot in free drive mode to define the environment into which the robot has been installed. There's no need for a CAD-designed caged workcell. The system is designed to be deployed into existing environments and is easily trained in place.

EASY PART TRAINING

To create a pick and place program is easy and requires no robotic programming expertise. Energid's Industrial Bin Picking Solution has 'scan-to-teach' features to easily define pick points and part oriented placement. Simply attach the part to the end effector and present it to the scanner and the system will capture and record the desired pick locations. Then simply move the robot with the part to the placement location and the system will record the location and orientation of the part at placement. Typical workflows are supported out of the box with wizards such as bin to fixture, bin to reorientation fixture, bin to inspection camera and bin to palletizing.

RELIABLE OPERATION

When you hit play you can have confidence that the system will run autonomously and without operator interventions. Energid Industrial Bin Picking Solution will locate parts in the bin, pick parts at the points you defined and no matter how the part is picked will place the part accurately and in the orientation you defined. The user takes no concern for robot motion commands, waypoints or robot poses. The real-time path planning software controls all the robot motion within the environment. It operates autonomously and determines how to move through the environment, into the bin and to the placement targets without collisions, protective stops or joint singularities. And when the bin gets low on parts, it notifies workers by an alert light that it's ready for more parts.

Technical Specifications

Bin Picking Solution		
Universal Robots	UR-5e	UR-10e
Max Reach	850mm	1300mm
Power Requirements	100-240V AC, 47 - 440 Hz	
3D Sensors	UR-5e	UR-10e
Minimum part size	15 x 15 x 2 mm	20 x 20 x 5 mm
Minimum thickness	2 mm	5 mm
Maximum bin size (W x L x D)	630 x 490 x 450 mm	1100 x 970 x 850 mm
Nominal scanning distance (focus)	650 mm	1239 mm
Scanning range (Depth of Field)	458 – 1118 mm	870 – 2150 mm
Scanning area (typical)	590 x 421 mm	1082 x 802 mm
3D Sensor Size	77 x 68 x 416 mm	77 x 68 x 616 mm
3D Sensor Weight	950g	1100g
Light source	Visible red light (laser)	
Wavelength	638 nm	
Laser class	3R (IEC /EN 60825-1, 2014)	
Sensor IP Rating	IP-40	
Operating Temperature	0 - 30C°	
Humidity	10 to 85% @ 40C non-condensing	
EMC	CE/FCC Class A, CCC, BSMI	
Safety	UL/CB, CCC, BSMI	
Power Requirements	100-240V AC	

Technical Considerations

End Effectors

Energid Bin Picking Solution is flexible and can support virtually any UR+ End Effector including suction, pneumatic, collaborative, finger-style and magnetic end effectors. Since the entire program is contained within the UR Programming tree, the tool action commands are easily embedded inside the Bin Picking Loop Program.

Part Types

Identifying pickable points on a part is a key step. Typically 3-dimensional parts need at least 2 or 3 pickable sides and flat parts typically require pickable points on both sides for best pick performance and bin pick % results. Depending on placement, some parts require integrating a reorientation fixture. Energid Bin Picking Solution includes wizards to easily enable and measure multiple pick strategies for a variety of part types.

Cycle Time

Typical cycle times range from 8 to 18 seconds depending on factors including placement target, environment, part type and bin size. Energid Bin Picking Solution includes real-time feedback and metrics to help the user optimize cycle time for a given application.

HIGHLIGHTS

SUPPORTED WORKFLOWS

- Bin to Machine
- Bin to Fixture
- Bin to Conveyor
- Bin to Inspection
- Bin to Palletizing

KEY FEATURES

- CAD-based matching for highest accuracy placements without the need for regrip fixtures
- Advanced path planning enables deep bins for long run times between tending
- Easy pick and place training routines for fast setup
- All teach pendant GUI for easy setup in a single interface

PART TYPES

- Machined or Cast Parts
- Gears and Rings
- Stamped or Flat Parts
- Tubes and Cups

MACHINE TENDING

- CNC
- Milling
- Grinding
- Plastics
- Drilling/Tapping

About Energid

Established in 2001 and headquartered in Cambridge, Massachusetts, United States, Energid develops advanced real-time motion control software for robotics. Energid's general robot control and tasking framework, Actin®, is built to meet the rigorous requirements of industrial, commercial, collaborative, and consumer robotic systems. Energid licenses Actin as a cross-platform software toolkit and provides integration services to help its customers get to market quickly.

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