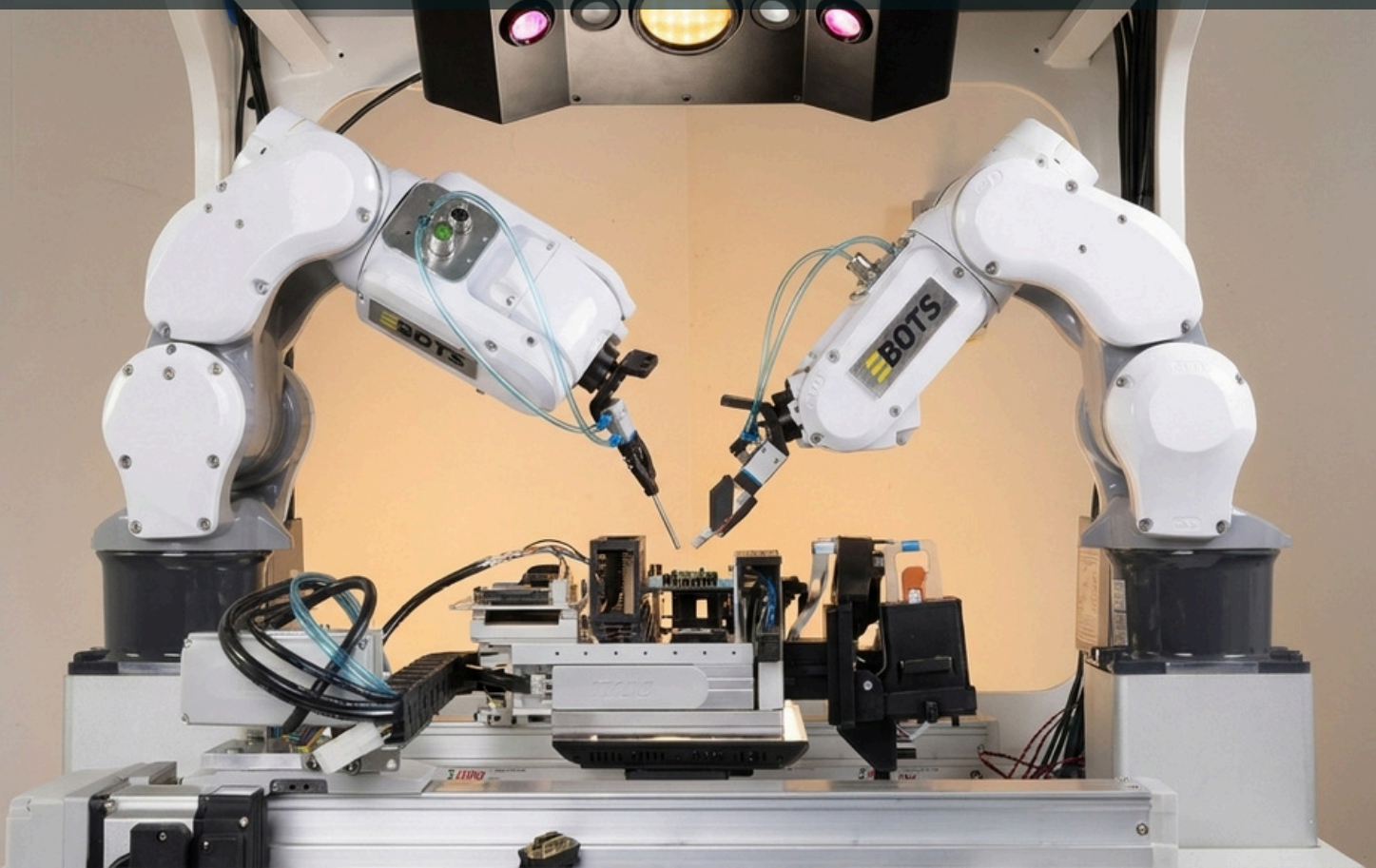


Pinnacle Reach R200

From Bin Pick to Built — One Cell Replaces Four Operators



The Challenge

- Board-level assembly requiring 3-4 operators per station
- Unstructured bin picking causing mispicks and line interruptions
- Inconsistent PTH insertion and connector seating quality
- Multi-step PCB assembly sequences that are difficult to automate
- Quality escapes due to manual variability
- Increasing labor costs in electronics manufacturing

The eBots Solution

- Dual-camera system for bin picking + precision PCB alignment
- Reliable picking from unstructured bins with orientation correction
- Precision PTH insertion and connector placement
- Full PCB build sequence in one cell: pick, place, insert, inspect
- No mechanical retooling required for part variation
- Built-in inspection for quality and traceability



Electronics Manufacturing
Services



Electrical Equipment

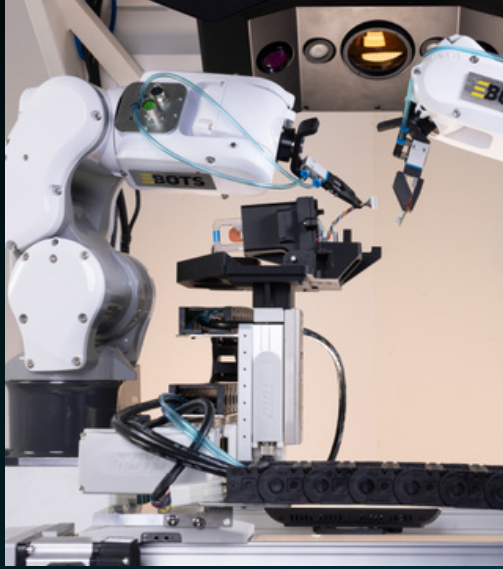


EV Sub-Systems



Industrial Controls

Pinnacle Reach R200



Automation of High-Mix PTH and PCB Builds

The eBots Pinnacle Reach R200 is purpose-built for board-level electronics assembly, where precision and consistency at the component level are critical. It automates the full sequence within a single cell — from bin picking in unstructured environments to pin-through-hole (PTH) insertion, connector seating, and inspection.

Using a dual-camera system, the R200 identifies, orients, and precisely places components across complex PCB builds without the need for mechanical retooling. Integrated verification ensures that each component is correctly placed and seated, reducing defects and variability. As a result, manufacturers can replace 3–4 operators at a single station while improving quality, throughput, and traceability in high-mix PCB production.

Visual Perception — Wide (Denali-S 1300)

Sensor Type	Binocular 3D Structured Light
Field of View	500 × 300 mm
Depth of Field	98 mm
Working Distance	1,300 mm
Point Cloud Resolution	160 µm
Frame Rate	207.1 fps (8-bit)
Projector Resolution	2716 × 1600
Camera Resolution	3208 × 2200

Visual Perception — Precision (Denali)

Sensor Type	Binocular 3D Structured Light
Field of View	51.2 × 28.8 mm
Depth of Field	8 mm
Working Distance	291 mm
Point Cloud Resolution	40 µm
Frame Rate	409.2 fps (8-bit)

Robotic Arm System

Configuration Options	Option A / B / C
Rated load	0.3 / 2.4 / 4.2 kg
Maximum Load	0.5 / 4 / 7 kg
Maximum Reach	350 / 550 / 927 mm
Degrees of Freedom	6-axis + 6-axis + 4-axis
Repeatability	±0.02 / ±0.01 / ±0.01 mm
Number of Arms	2 (coordinated)
End Effector	Custom Universal + Tool Change
Control Frequency	250 Hz

System Specifications

CPU	1.9 GHz, 8 cores / 20 cores
GPU	NVIDIA A5400
Operating System	Linux
Connectivity	Ethernet / EtherCAT / RS485
Protocols	Modbus / TCP-IP
MES Integration	Supported
Safety	Interlock Sensors
HMI	English & Chinese
Power	220V, 4.5 kW

Precision Solutions for high-mix assembly

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