

TRINITY

ROBOTICS AUTOMATION · INDUSTRIAL IP CASE STUDY

Protecting a hardware platform — and the AI layer now running on top of it

INTRODUCTION

Trinity Robotics Automation builds automated pallet systems that turn an ordinary CNC machining center into a lights-out production cell. A shop loads parts onto pallets during the day; a robot feeds them into the machine overnight and through the weekend. Founded in 2004 by a team of engineers out of FANUC Robotics, Trinity spent its first decade as a custom integrator for manufacturers including General Mills, Callaway, Golden State Foods, UTC Aerospace, and 3M before turning that experience into a standard product line.

The AX series now spans six models, from the compact AX1 through the AX2, AX2 duo, AX4, and AX5, with pallet counts from fourteen to over forty and robot capacities up to a hundred and sixty pounds. The systems are designed and built in California, at facilities in Ontario and Santa Clara, and integrate with machines from Haas, DMG MORI, Doosan, Makino, Matsuura, and FANUC Robodrive. More recently Trinity has been working with Intrinsic on Trinity AI, an AI-driven machine-tending system for small-lot, short-run work that does not require the robot to be reprogrammed for each new part.

LEADERSHIP



DEREK GOODWIN

General Manager, Trinity Robotics Automation

Derek Goodwin runs Trinity from the San Francisco Bay Area and is the company's public voice on palletized automation — at WESTEC and EASTEC, in conversation with MTDCNC, and on the industry panels where machine-shop owners work out what automation actually costs them.

He came to manufacturing from capital rather than from the shop floor, with earlier roles in private equity at Lazard Family Office Partners and at Knightsbridge Advisers and KPMG, and a finance degree from Bentley University. That background shows in how Trinity sells: not on specifications, but on payback — sixteen additional unattended spindle hours a day, at a cost per hour a small shop can defend.

SOLUTION

What first set PatentPC apart was the breadth of technology it could take on and the degree to which the filing workflow itself is automated. A palletized automation cell is mechanical, electrical, and increasingly

computational all at once — fixturing and clamping geometry, robot kinematics and payload handling, sensor arrays and safety interlocks, CNC controller integration, scheduling software, and now machine-learning perception. Our prior outside counsel needs a different specialist for each layer, and would bill for all of them coming up to speed.

In a company of roughly thirty people where the engineers designing the systems are the same engineers installing and supporting them, protecting an invention cannot be allowed to consume days of shop time. A short capture session that produces a reviewable draft is the difference between a mechanism being protected and the same mechanism being demonstrated first at trade shows such as IMTS. For our hardware company that sells through distributors and demonstrates its products publicly several times a year, a low-friction filing cadence is the only thing that keeps the patent position ahead of the marketing calendar. PatentPC attorneys worked closely with our team to:

- Capture what already exists — a structured review of the AX line to identify mechanisms that remain protectable and those already disclosed by public demonstration, with filings prioritised by commercial exposure.
- Protect the interface, not just the machine — claims aimed at the pallet, receiver, and clamping-module architecture that makes one system work across many machine platforms, which is the part a competitor must replicate.
- File ahead of the trade-show calendar — applications on record before WESTEC, EASTEC, FABTECH, and IMTS, where new configurations are shown to the entire industry at once.
- Sort out joint development early — ownership, inventorship, and filing responsibility for the Trinity AI collaboration fixed in writing before the technology reaches the market.
- Draft AI claims that survive examination — perception and no-reprogramming machine tending claimed as a concrete control system producing a specific technical improvement, not as an abstract method.
- Support the distribution channel — a patent position that gives integrator partners something defensible to sell, and gives Trinity leverage in OEM and turnkey conversations.

RESULTS		
100+	22 Years	6
SYSTEMS INSTALLED	AUTOMATING PRODUCTION	MODELS IN THE AX LINE

Those numbers describe a company that has already proven its technology in the field. More than a hundred installed systems across two decades is an evidence base most automation startups never reach, and it is also two decades of accumulated engineering that has been shipped, demonstrated, and supported in public. The intellectual property question is not whether the inventions exist; it is how much of them can still be claimed.

The practical effect of getting a filing programme in place is that the boundary stops moving in the wrong direction. New configurations and control features are captured and filed before they are shown, rather than

after. The Trinity AI collaboration proceeds with ownership settled and applications on record. And the existing line is reviewed once, deliberately, so the company knows which of its mechanisms are still protectable and which have passed into the public domain — which is itself valuable information when deciding where to invest engineering effort next.

Trinity saved in two directions at once. First, by working with experienced attorneys backed by a technology stack, it avoided paying outside counsel to learn robotic pallet handling and CNC controller integration, and received applications with more technical depth on a far shorter cycle. Second, by making the change, Trinity now pays less while receiving more accurate and more efficient patent services — with claim drafting and strategic advice still owned by its patent attorneys.

“PatentPC has proven to us that it is indeed possible to receive superior service at a fixed fee, and that makes our CFO happy. We're thrilled to have them on our side.”

DEREK GOODWIN, GENERAL MANAGER, TRINITY ROBOTICS AUTOMATION

Unlock the potential of your CNC. Then protect how you did it.

PatentPC pairs experienced patent attorneys with practice automation so hardware companies can file at the pace they ship — across mechanical, controls, and machine-learning subject matter. Talk to us about a portfolio review and a filing programme built around your product roadmap.

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