INDUSTRIAL ENGINEERING PORTFOLIO

Operations, measured *and made.*

A working record of ten projects where Lean discipline met practical software—delivered on the floor of a world-class electronics manufacturing plant.

Industrial Engineer | Supply Chain Analyst | BI / Data Analyst | Buyer | Production Planner | Process Improvement

$77K+	10	98%	73%
ANNUAL SAVINGS	PROJECTS DELIVERED	MANUAL WORK CUT	WALKING REDUCED
Soft savings + cost avoidance	Receiving, SMT, planning & reporting	SAP & pick-list automation	Material flow with Kanban & PFEP

EXECUTIVE PROFILE / 01

Industrial Engineer with two years of operational experience inside a Samsung-owned electronics plant, working at the intersection of supply chain, warehouse operations, and applied software. My background combines formal Lean training with hands-on development—Python, SQL, React, C#—because the most durable improvements need both a redesigned process and a tool that keeps it disciplined.

I diagnose the operational constraint, redesign around it, and build the lightweight system that holds the gain. The work documented here represents savings, walking reductions, and automation outcomes delivered while the lines kept running.

CORE STACK / 02

LANGUAGES

Python	SQL
JS / React	C# / WPF
VBA	AutoHotKey

ENTERPRISE

SAP MM / WM	SAP Scripting
MES	Power BI

METHODS & BUILD

Lean / Kaizen	Kanban / PFEP
SMED	FastAPI
Electron / Vite	Playwright

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Case study *matrix.*

VOLUME
Part I · 01–05

Ten projects—each summarized as *problem, action, and measurable result*. Every entry shipped inside a live electronics manufacturing environment.

	PROJECT	PROBLEM & ACTION	RESULT & IMPACT	STACK
01	**Receiving KPI Dashboard** OPERATIONAL VISIBILITY	**Scattered Excel tracking** made receiving aging and performance invisible in real time. Built a React + Python + SQL dashboard that ingests, processes, and visualizes receiving KPIs from existing data sources.	**Real-time** PN aging, receiving KPIs, and warehouse performance live to managers.	React · Python FastAPI · SQL Excel
02	**Material Flow System** LEAN REDESIGN	**Long walking routes and inconsistent replenishment.** Implemented Kanban supermarkets, PFEP logic, fixed bin locations, and "No Scan — No Move" controls across the warehouse footprint.	**−73% walking** Plus 28.5% space reduction and 40% labor efficiency gain.	Lean · Kanban PFEP · SAP Scanners
03	**Setup Detail App** VISUAL AIDS PLATFORM	**Model changes relied on paper instructions** and verbal interpretation. Built an Electron + React platform for station visual aids, bin models, PN photos, model comparison, and PDF export.	**Standardized** Setup execution unified across plants; ambiguity removed for operators.	Electron · React Vite · jsPDF SMED
04	**SMT Production Monitor** FUJI WEB AUTOMATION	**SMT status required repetitive manual checks** and fragmented reports. Automated FUJI portal extraction every 10 minutes with Playwright, generating Excel reports and trend charts.	**Zero touch** Cumulative history and multi-sheet Excel reporting, fully automated.	Python · Playwright pandas · openpyxl Task Scheduler
05	**SAP Order Scripting** ERP AUTOMATION	**Repetitive manual entry** in SAP introduced delays and human error. Built SAP scripting automation to navigate transactions and process warehouse order data programmatically.	**−98% manual** Repetitive entry errors eliminated; cycle time collapses to seconds.	SAP MM/WM SAP Scripting VBA

NOTE · CONTINUED OVERLEAF

Projects 06 through 10 follow on the next spread—covering label-generation infrastructure, time-and-motion costing, SMED-driven picking, portable inventory tooling, and order consolidation.

Case study *matrix.*

VOLUME
Part II · 06–10

Continuing the project index. *Same structure, same standard:* a real operational problem, a redesigned process or system, and a measurable outcome on the floor.

	PROJECT	PROBLEM & ACTION	RESULT & IMPACT	STACK
06	**Mass QR Label Generation** IDENTIFICATION INFRASTRUCTURE	**Bin labeling needed to scale** across thousands of locations without manual formatting. Built Excel VBA macros to generate customizable QR bin labels with location and identification data.	**3,000+ labels** Plant-wide "No Scan — No Move" foundation enabled in days, not weeks.	Excel VBA QR codes Mass printing
07	**Cost Saving & Time Study** ITHD & DCI OPTIMIZATION	**Decanting, returns, and documentation** carried hidden waste. Analyzed 23 activities, redesigned process flows, removed 8 manual steps, and automated documentation generation.	**$77K+ / yr** $50,027 soft savings + $6,505 cost avoidance, validated.	Time-Motion Lean · Kaizen Process design
08	**Visual Picking & Model Change** SMED-DRIVEN TOOLING	**Picking for model changes** ran on manual Excel and location searching. Built desktop visual picking tools with image-based pick lists and automated model-change support.	**−62% cycle** Up to 84% setup improvement; 98% pick-list processing automated.	Python · SMED Desktop app Automation
09	**Bin Inventory Manager** PORTABLE STOCK TOOL	**Bin visibility lived in files** with no transaction trail. Built a portable Electron + React app reading network CSVs, visualizing stock status, logging transactions, and managing PN-bin assignments.	**Zero server** Three operational views; portable .exe with local JSON persistence.	Electron · React Vite Local JSON
10	**SMT-HI Order Consolidator** PICK TRIP OPTIMIZATION	**SMT and Hand-Insertion orders** created duplicate picking trips for repeated materials. Built a WPF .NET app that consolidates SAP orders, enriches LX02 locations, and scores Jaccard community.	**1 trip / PN** No duplicate picks; multi-sheet SMT/HI Excel output and visibility.	C# · WPF .NET MVVM ClosedXML · SAP

COMMON THREAD

Across all ten projects, the gain is held by a digital control—a dashboard, a script, a desktop app, or a label system. Process redesign without a system to enforce it tends to drift; that is the failure mode the work above is designed against.

How I *work.*

SECTION
03 · Method & Contact

OPERATING PRINCIPLE

Diagnose. Redesign. *Build the control.*

A four-step loop I run on every project—from the floor walk to the deployed tool that keeps the gain alive after I leave the room.

/ 01 — DIAGNOSE

Find the constraint, with data and feet.

Direct observation on the floor, paired with the real numbers behind the symptom. No improvement starts before the bottleneck is identified.

/ 02 — REDESIGN

Lean change, paired with a digital control.

Process redesign and the lightweight system that enforces it—because behavior reverts unless the new flow is the easier flow.

/ 03 — BUILD

Tools operators can actually use.

Excel/VBA, Python, React, Electron, C#, SAP exports, scanner workflows—chosen for the user, not the engineer.

/ 04 — VALIDATE

Measure impact in the unit that matters.

Savings, walking reduction, setup reduction, cycle-time, error prevention—stated as numbers a finance partner would sign off on.

WHAT SETS THE WORK APART / 03

Lean discipline, not Lean theater

Redesigns survive because they are paired with the digital control that keeps the new behavior the path of least resistance.

Engineer-developer hybrid

I diagnose like an IE and ship like a developer—removing the typical handoff between process design and the tool that enforces it.

Bilingual, cross-border

Native Spanish, professional English, and working knowledge of the Tijuana–San Diego maquiladora ecosystem and its supply networks.

WORKING PRINCIPLE

Most operational gains **don't survive the engineer who installed them.** *The work I keep is the work that holds itself in place after I leave the room.*

— LUIS DUEÑAS · INDUSTRIAL ENGINEERING PORTFOLIO · 2026

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