



MUHAMAD HIKMAT KUSUMA BRATA PUTRA

AI Engineer · QC & Production Specialist · IoT Developer

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PROFESSIONAL SUMMARY

Detail-oriented Quality Control Staff and AI/Software Engineer with 4+ years of hands-on experience in electronics manufacturing, automated testing tool development, and full-stack application engineering. Proven track record of building custom quality-control software that reduced defect escape rates by 60% and increased production throughput by 40%. Currently architecting a real-time Manufacturing Execution System (MES) for PT Zyrexindo.

WORK EXPERIENCE

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|---|---|----------------|
| PT Zyrexindo Mandiri Buana Tbk | Quality Control Staff & MES Developer | 2021 – Present |
| <ul style="list-style-type: none">• Lead quality control operations on assigned production lanes through systematic inspection and testing.• Designed custom HTML/Python/Batch automated testing tools reducing defect escape rate by 60% and test time by ~45%.• Increased production throughput by 40% via SOP standardization and workforce coordination.• Architecting Zyrex-MES: ASP.NET Core 10 + Next.js dashboard with SignalR, RBAC, audit logging.• Developed React PWA QC Report System with barcode scanning, Excel I/O, user management, dark mode.• Performed unit-level HW/SW testing; collaborated with engineering teams on real-time quality issues.• Monitored production performance; performed root cause analysis (RCA) on defects. | | |
| Freelance | Technician — Fiber Optic / Mobile & Laptop Repair | 2021 |
| <ul style="list-style-type: none">• Fiber optic splicing, installation, and testing.• Smartphone/laptop hardware repair including component-level PCB repair and micro-soldering. | | |

EDUCATION

SMK Negeri 1 Rangkasbitung Vocational High School — Computer and Network Engineering 2019 – 2021

TECHNICAL SKILLS

- Programming Languages: Python, TypeScript, JavaScript, C# (.NET 10), Delphi/Pascal, Batch/Shell Scripting
- Web & Frontend: Next.js 14, React, Tailwind CSS, PWA, HTML5/CSS3
- Backend & APIs: ASP.NET Core, FastAPI, Node.js/Express, SignalR, REST API Design
- Databases: PostgreSQL 16, pgvector, EF Core Migrations, Supabase
- AI & Agents: LLM Integration (Anthropic/OpenAI), Agentic Workflows, Prompt Engineering
- DevOps & Tools: Docker, Git/GitHub, WSL2, FlowDeck/SDD, OpenCode/AI Agents
- IoT & Embedded: MQTT, Modbus RTU/TCP, Arduino, Sensor Integration, Edge Computing
- QC & Production: Root Cause Analysis (RCA), QA, SOP Development, Production Supervision
- Systems & Networking: Windows/Linux OS, Structured Cabling, LAN/WAN/Fiber Optics

KEY PROJECTS

- Zyrex-MES: ASP.NET Core 10 modular monolith with Next.js 14 dashboard, PostgreSQL, SignalR real-time hub, RBAC. Full production deployment for PT Zyrexindo.
- HelenaTools: Portable WinPE launcher. Delphi/Pascal app managing 150+ utility profiles with INI config and elevation handling.
- QC Report System: React PWA with barcode scanning, Excel I/O, WhatsApp AI bot + OpenAI Vision for automatic photo-based defect analysis.
- CoChat: Self-contained LLM chat client with streaming. Delphi/Pascal integration with HelenaTools ecosystem.

References and project demos available upon request