

ASEP IRFAN SETIAWAN

AUTOMATION & SOFTWARE ENGINEER

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SUMMARY

Automation & Software Engineer with 2+ years of experience delivering industrial automation, software applications, and Machine Learning solutions. Skilled in PLC programming, industrial IoT integration, full-stack web and desktop development, and computer vision model training. Proven track record in modernizing workflows and building scalable technological solutions.

PORTFOLIO

Full case studies, live demos, and project archive available at sep-dev-ge62.vercel.app

AI/ML Quality Inspection — Computer Vision NG Defect Detection

- Deep learning computer vision model (YOLOv8) deployed to automatically detect and classify NG (defective) area and surface flaws on high-volume production lines. Stack: PLC (LS), ESP32, Python, OpenCV, YOLO, Tkinter.

Automated Escape Detection — Industrial OCR Inspection System

- Real-time OCR inspection system that reads and verifies setting parameters on remote control LCD screens especially sepecial words "Initial Setting", reducing defect escapes from multiple per week to 0–1. Stack: Python, OpenCV, YOLO, Tkinter.

WORK EXPERIENCE

PT Samjin Indonesia

Oct 2024 – Present

Automation & Software Engineer

- **Automated Escape Detection (OCR):** Built and deployed an OCR-based inspection system that reads and verifies the initial setting text displayed on remote control LCD screens, catching incorrect settings previously missed by manual checks — weekly escapes dropped from several per week to 0–1.
- **AI/ML Quality Inspection (NG Detection):** Developed and deployed a computer vision / machine learning model to detect NG (defective) products automatically, catching defects that previously slipped past manual operator inspection.
- **Custom Software & Digitalization:** Designed and built multiple digitalization systems from scratch (incoming goods inspection, production output tracking, and overtime data recording), eliminating paper-based workflows and reducing paper procurement costs.
- **Industrial IoT & Data Acquisition:** Implemented end-to-end IoT monitoring pipelines using ESP32 microcontrollers and Modbus protocol to stream real-time machine telemetry into custom-built desktop interfaces.
- **PLC Programming & Automation:** Programmed and optimized industrial PLC systems (Mitsubishi, Omron, LS Master) to automate production processes, reducing required operators per work area from 3 to 1–2.
- **Key Achievement:** Awarded Best Employee 2025 (Digitalization & Automation category) out of 300+ employees company-wide for high-impact automation systems and software-driven process improvements.

PT Samudra Teknologi Pertiwi (Freelance)

Aug 2024 – Sep 2024

Automation & Backend Engineer

- **Autonomous System Architecture:** Designed and built an Autonomous Mobile Archive Cabinet System, integrating electromechanical robotics with custom software control to automate physical document retrieval.
- **Hardware-Software Interface:** Implemented bidirectional communication between PLC systems and Raspberry Pi via Modbus protocol for real-time motion control, cabinet localization, and telemetry monitoring.
- **Backend & API Development:** Developed RESTful APIs and backend services using Python (Flask) and SQL databases to manage storage mapping, user requests, and system-level commands.
- **Electrical Safety & Deployment:** Conducted electrical wiring design, signal troubleshooting, and safety compliance checks to ensure stable field operation and prevent hardware faults.

Bangkit Academy led by Google, Tokopedia, Gojek & Traveloka

Feb 2023 – Jul 2023

Cloud Computing Cohort — Distinction Graduate

- **Backend & API Architecture:** Engineered scalable RESTful APIs for the capstone project using FastAPI (Python) and Node.js, handling real-time application requests and data transactions.
- **Cloud Deployment & CI/CD:** Designed and deployed automated CI/CD pipelines via GitHub Actions to containerize and deploy microservices on Google Cloud Run.

- **Key Honors:** Awarded Distinction Graduate (top-tier graduate) and ranked among the Top 50 Final Capstone Projects out of thousands of nationwide participants.

EDUCATION

Politeknik Manufaktur Bandung

Aug 2020 – Aug 2024

B.Eng. in Automation Engineering — GPA 3.62/4.00 (Cum Laude)

- Thesis: Design of an IoT-Based Tomato Plant Disease Monitoring and Early Detection System with Android Application.

CERTIFICATES

Certified Junior Automation Maintenance Engineer — BNSP (Indonesian Professional Certification Authority)

Aug 2024 – Aug 2027

Certified Electrical Maintenance Technician — BNSP (Indonesian Professional Certification Authority)

Aug 2022 – Aug 2025

ORGANIZATION EXPERIENCE

Student Executive Board (BEM), Politeknik Manufaktur Bandung

Feb 2022 – Feb 2023

Minister of External Affairs

- **Team Leadership:** Coordinated a team of 13 active members, successfully executing 8 work programs within designated timelines.
- **Cross-Functional Collaboration:** Collaborated with 4 external departments to enhance cross-functional teamwork and achieve shared organizational goals.
- **Culture Building:** Fostered a healthy, supportive work environment that kept members motivated to deliver high-quality work.

SKILLS

Industrial Automation & Hardware: PLC (Mitsubishi, Omron, Siemens, LS-Master), Microcontrollers (ESP32, Arduino), Raspberry Pi, Modbus, CX-Designer, CX-Programmer, GX-Works, KGL-Win, Eagle PCB, Electrical Installation & Troubleshooting

Software Development & AI: Python (FastAPI, Flask), Node.js, PHP, Next.js, JavaScript/HTML/CSS, Machine Learning / Computer Vision (YOLO), RESTful APIs, Desktop Application Development (Tkinter)

Databases & Cloud Tools: SQL (MySQL, PostgreSQL, SQL Server), NoSQL (MongoDB), Google Cloud Run, Git/GitHub CI/CD, Figma

Languages: Indonesian (Native), English (Professional Working Proficiency)