

Muhammad Fuad Fakhruzzaki

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Computer Engineering graduate from Diponegoro University with hands-on experience in IoT systems and backend development. Led full-stack development of a smart farming platform, from ESP32 hardware to cloud deployment. Previously interned at Telkomsel building mobile backend services on GCP. Focused on building reliable, production-ready systems.

WORK EXPERIENCE

Lead Engineer Swiftlead.Id (Student Research Organization) - Architected and led end-to-end development of an IoT platform for smart swiftlet farming, spanning embedded hardware, backend services, and cloud infrastructure. - Designed multi-node ESP32 firmware for real-time environmental sensing (temperature, humidity, ammonia) over secure MQTT TLS communication. - Built and maintained a production-grade backend API in Go with PostgreSQL/TimescaleDB, WebSocket, and AI-driven automation for device control. - Owned system architecture decisions end-to-end — data pipeline design, device communication protocols, and deployment infrastructure.	Nov 2024 - May 2026 Semarang, Indonesia
IT Operations Intern Telkomsel - Developed backend services in Go (Gin) for a React Native mobile application, including authentication, user data management, and profile photo upload via Google Cloud Storage. - Deployed and monitored services on Google Compute Engine (GCP), integrating RESTful APIs with Cloud Firestore as the primary database.	Jul 2024 - Sep 2024 Semarang, Indonesia

EDUCATION

Bachelor of Computer Engineering Diponegoro University Pursuing a Bachelor's degree with a focus on embedded systems, IoT development, and software engineering. Serves as a teaching assistant in the Software Engineering Lab, supporting the Mobile Programming practicum and mentoring students in software engineering practices.	Aug 2022 - Jul 2026 GPA: 3.59
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AWARDS

Bakti BCA Scholarship Awardee by PT Bank Central Asia Tbk (BCA) Selected as a "Bakti Champion" under BCA's national CSR education scholarship program (running since 1999, 8,500+ recipients nationwide), awarded to high-potential S1 students and paired with leadership workshops and project-based development programs.	Jan 2024
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SKILLS

Programming Languages: Python, Go (Golang), TypeScript, C++, Javascript
IoT & Embedded Systems: ESP32, Arduino IDE, ESP-IDF, MQTT, ESP-NOW, SHT31-D, SEN0567, I2C, SPI,
Backend Development: Go (Gin/Fiber), Python (FastAPI), REST API, PostgreSQL, TimescaleDB, Supabase, Docker, Docker Compose
DevOps & Cloud: Google Cloud Platform, Vercel, Docker, GitHub Actions, Linux, AWS
Tools & Others: Git, GitHub, Postman, Figma, Arduino IDE, Mosquitto MQTT Broker
Frontend Development: SvelteKit, React, Next.js, Tailwind CSS, Zod

ORGANIZATIONAL & VOLUNTEER EXPERIENCE

Kadiv Kaderisasi PSDM Himpunan Mahasiswa Teknik Komputer (HIMASKOM) Undip Led the Student Development and Cadre Formation Division, designing training curricula and organizing personal development programs for Computer Engineering students. Strengthened leadership, team management, and strategic decision-making skills.	May 2024 - Apr 2025 Semarang, Indonesia
PIC Media Partner - The ACE 2024 Himpunan Mahasiswa Teknik Komputer (HIMASKOM) Undip Coordinated media partnerships for The ACE 2024 event, managing publication across multiple platforms and overseeing promotional strategies to ensure effective event coverage.	Aug 2024 - Oct 2024 Semarang, Indonesia

PROJECTS

Smart Swiftlet Farming - IoT Backend System - Built a production-grade IoT backend in Go (chi) with PostgreSQL/TimescaleDB for time-series ingestion from ESP32 nodes via MQTT TLS. - Implemented real-time WebSocket broadcasting, AI-driven pump automation with graceful fallback, harvest tracking, financial transactions, and full RBAC (admin, technician, farmer). - Deployed with Docker, monitored via Prometheus/Grafana, with object storage on MinIO; documented via OpenAPI spec and Postman collection.	Aug 2025 - May 2026
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Smart Swiftlet Farming - IoT Hardware System [!\[\]\(ade0d208c4c390ddb1e4e8e15fd95186_img.jpg\)](#)**Aug 2025 - Mar 2026**

- Designed multi-node ESP32 hardware for real-time environmental monitoring using SHT31-D and SEN0567 sensors, with actuator control for mist sprayer and tweeter systems.
- Designed 3D-printable PETG enclosures for four node variants (gateway, nest, pump, LMB) in Autodesk Fusion 360.
- Engineered secure MQTT TLS data transmission from field nodes to backend.

Zio - Document Workflow Automation Tool [!\[\]\(87eaa371aa6012ba00cb26e93903d0a5_img.jpg\)](#)**Dec 2025 - Jan 2026**

- Built a Python desktop automation tool to streamline land surveyor document workflows using Selenium for web automation.
- Packaged as a standalone app with PyInstaller, cutting manual workload via a single-click interface for document submission and record linking.