

Raihan Fauzy Ferdiansyah

Hardware Programming | Embedded Systems | Industrial IoT

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Biomedical Engineering graduate with hands-on experience in industrial IoT, hardware integration, embedded-system prototyping, testing, and troubleshooting. Worked with Modbus RTU/TCP, Node-RED, sensor/I/O modules, C/C++, STM32-based prototypes, and monitoring workflows.

Technical Skills

Embedded / Hardware: STM32, microcontroller fundamentals, sensor and I/O integration, ESP01 / AT commands, PCB prototyping, basic bench testing and hardware troubleshooting.

Industrial / IoT: Modbus RTU/TCP, Node-RED, Ebyte ME31 I/O, MySQL, Telegram notifications. Training exposure: InfluxDB and Grafana.

Programming / Tools: C/C++, Python, SQL, Git, Docker, basic Linux CLI, KiCad, LTspice, oscilloscope and multi-meter use.

Experience

Engineering Intern

Dec 2024 - Jan 2025

PT Mitra Ekatama Expertech (MEET)

- Configured Ebyte ME31 I/O modules and Modbus RTU/TCP communication for a Node-RED fire-suppression status monitoring workflow.
- Built Node-RED dashboard and alarm logic, MySQL state logging, connectivity checks, and Telegram notifications.
- Checked I/O and communication paths. Scope excluded PLC operation, field sensor installation, and full plant-production integration.

Teaching Assistant - Basic Programming Laboratory

Feb 2026 - Jun 2026

DTETI, Universitas Gadjah Mada

- Guided undergraduate students through C/C++ fundamentals, algorithmic reasoning, debugging, and assignment review in laboratory sessions.

Selected Hardware / Embedded Projects

EMMA Smart Composting System

2025 - 2026

STM32 / sensors / IoT / decision-tree logic; registered software copyright co-creator

- Contributed to STM32 sensing/actuation and IoT prototyping for a team capstone. Built an offline Decision Tree proof of concept with inputs not fully mapped to sensors. DGIP No. 001397406.

Four-Stage Discrete BJT Amplifier

2024

2N5550; LTspice / KiCad / PCB / bench validation

- Took the circuit from hand analysis and simulation through PCB implementation and bench measurement, achieving 96.8 V/V measured gain against an approximately 100 V/V target.

IR Proximity Sensor

2024

IR LED / phototransistor / BC547 / LM3914; LTspice / KiCad / physical prototype

- Simulated, laid out, assembled, and tested a discrete proximity-sensing circuit with LED-level indication, providing hands-on experience across schematic, PCB, and physical verification.

CMOS Schmitt Trigger - Chipathon 2026, Track B

2026 - Ongoing

GF180MCU; Xschem / ngspice / open-source IC flow

- Designed and characterized an 8-transistor CMOS Schmitt trigger across 5 process corners and 3 temperatures, with hysteresis above 0.71 V across the evaluated process-temperature conditions at 3.3 V.

Education

Universitas Gadjah Mada

Jul 2026

B.Eng. Biomedical Engineering | GPA: 3.09/4.00

Relevant coursework: Fundamental Electronics, Biomedical Electronics, Digital Engineering, Microcontroller Systems, Sensors and Transducers, Signals and Systems.

Additional

- **Software Division Lead, BIONCE** - DTETI UGM, 2025-2026.