Rijal Dzaki Fadhlurrohman

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I am an Engineering Physics graduate with a strong interest in technology development in the fields of Instrumentation and Control, Automation, and the Internet of Things (IoT). I am actively involved in research projects focusing on the development of embedded systems and IoT-based systems.

EDUCATION

Universitas Gadjah Mada - Yogyakarta, Indonesia Aug 2021 – Aug 2025
Bachelor of Engineering in Physics Engineering (GPA: 3,19/4,00)
Undergraduate Thesis Work: "Design and Construction of an Energy Consumption Management System for Internet of Things (IoT)-Based Automated Recording Device (ARD)"
Activity:

- UI/UX Designer & Front-End Developer for the "Sleman Sembada" Instrumentation System Labwork Final Project.
- Designed an automatic baking system with a PLC-based control architecture connected to photoelectric and thermocouple sensors via Ethernet TCP/IP, utilizing the OPC-UA protocol for HMI communication.
- Developed a stress detection system using a Galvanic Skin Response (GSR) sensor and LoRa communication protocol for the Communication Network project.
- Designed a flood detection system using machine learning-based soft sensors integrated with ultrasonic, LiDAR, and accelerometer data.
- Designed an IoT-based indoor air quality monitoring system using NodeMCU ESP32, gas and temperature sensors, integrated with the Blynk Dashboard for real-time monitoring.

WORK EXPERIENCE

PT Covwatch Karya Nusantara – Sleman, Yogyakarta, Indonesia Mar – Jun 2025
Technical Team Intern

- Developed and tested IoT systems for sensor-based monitoring and automation.
- Performed testing, troubleshooting, and optimization on systems using microcontrollers and microcomputers (Arduino, ESP32, ESP8266, Raspberry Pi).
- Conducted maintenance and repairs on deployed field systems.

PLN Indonesia Power – Cilacap, Central Java, Indonesia Jan – Feb 2024
Instrumentation Engineer Intern

- Completed a 1-month Practical Work with a topic focused on Review and Preventive Maintenance of Instrumentation Equipment in Coal Feeder System.
- Directly involved in inspection and preventive maintenance of instrumentation systems, particularly on the coal feeder system, in collaboration with the instrumentation technician team.
- Conducted calibration of coal feeder sensors to ensure the reliability and accuracy of fuel delivery to the furnace.
- Studied the working principles of power plants, particularly steam power plants, including process flow, instrumentation, piping, and instrumentation diagram (P&ID).

ORGANIZATION EXPERIENCE

Nuclear & Engineering Student Associations UGM (KMTNTF UGM)
Head of Arts and Sports Division Nov 2023 – Nov 2024

- Led arts and sports programs including competitions, training, and internal-external events.
- Managed division budget and coordinated teamwork to ensure program success.

Staff of Arts and Sports Division Nov 2022 – Nov 2023
- Organized regular training and managed teams during competitions.

VOLUNTEER WORK

KKN-PPM UGM Pijar Pejawaran – *Team Coordinator* Feb – Sep 2024
- Led the planning, coordination, and execution of multidisciplinary work programs during the community service project.
- Managed task distribution, maintained effective internal communication, and acted as a liaison between the local community, supervisors, and the university.

Parade Eureka KMTNTF UGM 2023 – *Chief Exevutive* Jan – Feb 2023
- Led event planning, budgeting, and coordination with multiple teams.
- Ensured effective communication and successful event execution.

Revolution of Energy – *Competition Staff* Sep – Nov 2022
- Prepared technical guidelines and coordinated with judges.
- Moderated competition sessions to ensure smooth event flow.

PROJECT

Energy Consumption Management System for IoT-Based Automated Recording Device (KATALIS Research 2024: Konsorsium Nyanyian Alam)
Developed an automated power management system using Wemos D1 Mini, relay modules, and MQTT communication to optimize energy usage in IoT-based Automated Recording Device.

IoT-Based Ecoenzyme Irrigation Automation System (UGM Appropriate Technology Community Service)
Designed an IoT-based irrigation automation system using ESP32 and RTC modules with an Access Point web server and solar power integration for sustainable agriculture. The system enables time-based irrigation scheduling and operates independently of internet connectivity.

SKILL

Languages	**:**	Bahasa Indonesia, English
Technical Skills	**:**	Automation, Embedded Systems, IoT Development, Communication Protocols, Python, C/C++, PCB Design, Microcontroller, Arduino, Raspberry, Proteus, EasyEDA, AutoCAD, Figma, Microsoft Office