

## Rijal Dzaki Fadhlurrohman

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I am a Physics Engineering 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

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**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

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**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

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**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.

### **Negarakertagama UGM**

*Staff of Talent and Interest Division*

Oct 2021 – Jul 2022

- Supported execution of talent and interest programs including workshops and 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.

### **Pionir Kesatria FT UGM – Logistic and Equipment Staff**

May – Aug 2023

- Managed logistics and catering to ensure smooth program execution.
- Coordinated with committees for facility readiness and material distribution.

### **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.

### **Dinamika DTNTF – Evaluator Staff**

Sep 2022 – Mar 2023

- Developed activity rules and ensured participant discipline.
- Monitored and evaluated the progress of new student orientation.

### **Revolution of Energy – Competition Staff**

Sep – Nov 2022

- Prepared technical guidelines and coordinated with judges.
- Moderated competition sessions to ensure smooth event flow.

### **Negarakertagama Bercerita – Logistic and Equipment Staff**

Jan – Feb 2022

- Handled logistics and facility setup for event activities.
- Ensured timely availability of equipment and materials.

## **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, Arduino, CODESYS, Proteus, EasyEDA, AutoCAD, Figma, Microsoft Office