Nabil Karim Abdurrahman

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Detail-oriented engineering student with hands-on experience in programming and electronics design. Seeking opportunities to contribute to Control systems, Mechatronics, and Embedded System Field.

EDUCATION

Bandung Institute of Technology **Bandung, West Java**
Bachelor of Science in Physics Engineering Expected 2026

- **Relevant Coursework:** Design Engineering, Embedded System, IIoT, ROS, Electronics System, Digital Twin, Physics, Programming Language, Control System.

WORK EXPERIENCE

PT Syergie Autotek **Bandung, West Java**
Embedded System Engineer Intern June 2025 - November 2025

- Integrated Jetson Nano and Pixhawk for an autonomous drone system, achieving 92% mAP@50 real-time object detection accuracy using a custom YOLO model.
- Developed a full-stack control system, from STM32 payload firmware to a FastAPI web dashboard for telemetry and mission control.
- Validated system integrity through rigorous SITL/HIL testing and comprehensive ROS Noetic/Gazebo simulations prior to flight deployment.

PT Abimantrana Engineering **Jakarta, West Java**
Project Engineer August 2025 - November2025

- Managed the full lifecycle of a $5,000 proof-of-concept project, from technical feasibility studies to the final client demonstration and analysis report.
- Established project schedules and milestones while mitigating technical risks for a smooth engineering workflow.
- Coordinated a technical team of 5 engineers, managing task delegation and resource allocation to meet all project milestones.

Institut Teknologi Bandung **Bandung, West Java**
Laboratory Assistant Coordinator - Engineering Physics Laboratory II February 2025 - June 2025

- Coordinate daily lab operations and ensure safety compliance, supervise 8+ lab assistant to fostering effective collaboration.
- Developed prototypes for capstone projects and designed comprehensive assessment frameworks for students, enhancing evaluation precision and feedback quality.

Rumah Amal Salman **Bandung, West Java**
Full Stack Engineer January 2025 - April 2025

- Delivered end-to-end web applications using web2py as the backend framework, TailwindCSS for responsive design, Vue.js for interactive front-end development, and JWT for secure user authentication.
- Implemented REST APIs and documented them clearly to facilitate seamless integration and maintenance across teams.

Kedaireka.id **Bandung, West Java**
Engineer Intern June 2024 - Januari 2025
- Documented company products through 3D model assemblies and detailed drawings.
- Developed 3 HMI working displays using Node-RED, integrated with MQTT connection and MySQL database.
- Assisted development of embedded system program structure using RTOS, Modbus RS485, and implemented Javascript, CSS code to configure Node-red capabilities.

Unit Robotika ITB (URO) **Bandung, West Java**
Programming Crew at KRSTI Team June 2024 - Januari 2025
- Developed a GUI for robot control using Visual Basic with Bluetooth connectivity.
- Evaluating component quality and assisting the integration of the system.

Mechanical Crew at KRSTI Team September 2023 - June 2024
- Utilized 3D printing technology to produce parts addressing specific issues encountered during testing.
- Conducted research to identify appropriate solutions for current challenges.

LEADERSHIP EXPERIENCE

PUSTENA (Pusat Teknologi Tepat Guna) Salman-ITB Bandung, West Java
Executive Director June 2024 - June 2025
- Supported 4 divisions in facilitating collaborations between multiple projects and external vendors, ensuring smooth project execution.
- Directly supervised 4 ongoing projects, ensuring adherence to quality and timely delivery.
- Played a key role in scaling up technology-driven projects by securing funding from external stakeholders and donors.

Head Division of General Affairs June 2023 - January 2024
- Managed and collected some organization assets into structured data.
- Contacted and negotiated with asset owners.
- Organized logistics needs for organization events.

Himpunan Mahasiswa Fisika Teknik ITB Bandung, West Java
Vice Head Division of "Open Project" by Product Incubation June 2024 - Present
- Managed and coordinated over 2 projects to ensure all client requirements were met within the specified timelines.
- Drove innovation by guiding teams through problem-solving processes and fostering a creative work environment.

GAMAIS Bandung, West Java
Chief Operating Officer of G-Corp February 2024 - January 2025
- Conducted research and provided support to senior management in identifying and pursuing prospective business opportunities.
- Executes company products vision by implementing innovative strategy from ideation to launch.

KEY PROJECTS

Autonomous Palm Pollination Drone
Developed a proof-of-concept autonomous drone capable of waypoint navigation and YOLO-powered obstacle avoidance. The architecture combines a Jetson Nano, Pixhawk, and a custom STM32 payload controller. Key functionality includes a FastAPI web dashboard presenting a real-time digital twin of the drone's state, validated through extensive SITL/HIL testing and high-fidelity ROS/Gazebo simulations.

Micro HydroPower Integrated Learning System HMI
Created the HMI display from scratch, implementing a working module system with role-based settings for two user accounts, both of which can be registered via a login page. I applied several SVG function manipulations using Node-RED to meet industrial HMI standards. Currently, I am in the process of connecting MQTT data to Node-RED and revising several display elements to improve functionality.

Aeroponik Monitoring and Control System HMI
Developed various features for HMI control, successfully establishing a new connection to the PLC through Node-RED. Additionally, I transitioned the communication protocol from Serial to MQTT for Modbus, while enhancing the data storage system to improve performance and efficiency.

PID Controlled Temperature Food Delivery Box
Engineered a portable IoT temperature control box using a dual-core ESP32 with an RTOS and watchdog timer for high-reliability PID control. The system maintains 23°C (TEC Peltier) and 45°C (PTC Heater) setpoints, offering full remote monitoring and control via a self-hosted web server accessed through a mobile app prototyped with Kodular.

Engineering Portofolio_Nabil Karim.pdf

SKILLS, ACTIVITIES & INTERESTS

Languages: Fluent in Indonesia; Conversational Proficiency in English
Technical Skills: Python, C++, Jetson Nano, Raspberry Pi, ROS, Matlab, electronic circuits, Solidworks, VueJS, Javascript, SQL, C#,
Certifications & Training: Drone Programming, CSWA (Certified Solidworks Associate), Google Data Analytics Certificate, Belajar Dasar Pemrograman Javascript, Programming in Python, Django Web Framework, Cloud Practitioner Essentials, Electronics Design Udemy, STM32 Intermediate Udemy
Activities: Student clubs, volunteer work, internship, engineering projects
Interests: Embedded System: Learn low level code on how microcontollers works, and explore the possibility of microcontoller. IoT: Learn by creating sustainable innovation related to IoT course.