

# FARID ANWAR AMANULLAH

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## Summary

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Mechatronics Engineering Education graduate passionate about building intelligent systems at the intersection of hardware, firmware, and software. My expertise includes developing autonomous VTOL drone systems, encompassing autonomous flight algorithms, computer vision, image processing, and multi-sensor integration using Python and the Robot Operating System (ROS), which earned three national awards at the Indonesian Flying Robot Contest (KRTI). I strengthened my embedded systems and firmware development skills as a Firmware Engineer Intern at PT Machvory Digital Engineering, where I designed sensor-driven embedded solutions for road damage detection and automated battery cell testing systems. I also gained valuable experience in education by delivering hands-on laboratory instruction in Electropneumatics, Microcontroller & IoT, and Computer Programming during my teaching internship at SMK SMTI Yogyakarta, as well as serving as a Laboratory Assistant for Digital Engineering practicum at Universitas Negeri Yogyakarta. Through these experiences, I have developed strong technical skills in embedded systems, robotics, and firmware development, along with problem-solving, analytical thinking, teamwork, and project management abilities, and I am eager to contribute to innovative engineering solutions.

## Education

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### Universitas Negeri Yogyakarta

September 2022 – August 2026

S1 – *Mechatronics Engineering Education* | GPA: 3.74/ 4.00

- Final Project: Implementation of ROS-Based UAV Navigation System via Gazebo Simulation as a Robotics Practicum Learning Medium

### SMAN 1 KAUMAN, Tulungagung

July 2019 – May 2022

*Mathematics Sciences* | 85.11/100.00

- Participated in Information Technology Club, and Informatics Olympiad.

## Work Experience

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### Universitas Negeri Yogyakarta

March 2026 – July 2026

#### Laboratory Assistant

- Guided undergraduate students through structured digital circuit practicum sessions, from logic gate IC-level schematic design and simulation to breadboard-level hardware integration, verification, and functional testing.
- Performed routine maintenance and troubleshooting of laboratory equipment, digital training kits, and IC-based circuits (AND, OR, NOT, NAND, NOR, XOR, Flip-Flops), ensuring all workstations remained fully operational for scheduled lab sessions.
- Evaluated student technical reports and lab worksheets, providing constructive feedback on circuit analysis, truth table validation, and timing diagram interpretation while enforcing strict electrical safety protocols during hands-on laboratory operations.

### PT Machvory Digital Engineering

June 2025 – September 2025

#### Firmware Engineer

- Designed and implemented embedded hardware systems for real-time detection and geospatial mapping of road surface damage, encompassing multi-sensor integration, signal conditioning, and high-fidelity data acquisition pipelines.
- Developed and optimized automated battery cell testing systems, streamlining test workflows to enhance throughput efficiency, measurement precision, and overall system reliability.
- Led end-to-end hardware-firmware integration from electronics bring-up and microcontroller firmware development (C++/Python) through system-level verification and validation (V&V) ensuring full compliance with defined technical specifications and performance benchmarks.

### SMK SMTI Yogyakarta

July 2025 – September 2025

#### Mechatronics Engineering Teacher Intern

- Delivered hands-on laboratory instruction in Electropneumatics/Pneumatic, Microcontroller & IoT Systems, and Computer Programming to vocational students, facilitating practical skill development aligned with industry relevant competencies.
- Designed and authored comprehensive teaching modules and laboratory worksheets (labsheets) for three core subjects, structuring content from foundational theory through guided experiments to ensure progressive and measurable learning outcomes.
- Supervised and mentored students during practical sessions, providing real-time troubleshooting guidance on hardware assembly, circuit wiring, firmware debugging, and pneumatic system configuration.

## Organizational Experience

### UKM Rekayasa Teknologi UNY

November 2022 – November 2025

#### Programmer Vertical Take-Off and Landing (VTOL) Division

- Developed autonomous drone algorithms using Python and Robot Operating System (ROS) to accomplish mission objectives for the Indonesian Flying Robot Contest (KRTI).
- Implemented computer vision, image processing, and sensor-hardware integration (e.g., GPS, LiDAR, camera, mini PC, and flight controller) for the autonomous drone system.
- Built simulation environments in Gazebo Simulator to test and validate autonomous flight algorithms before deployment on physical drones.
- Collaborated with programming, electronics, mechanical, and pilot teams to develop and integrate the autonomous drone system dan achieved three awards at the Indonesian Flying Robot Contest (KRTI).

## Training

### Coding Camp powered by DBS Foundation

January 2024 – June 2024

#### Machine Learning Developer

- Completed a multi-course software development training program through self-paced learning on the Dicoding platform, covering Project Management Fundamentals, Software Development Foundations, Structured Query Language (SQL), Data Visualization, and Python Programming.
- Acquired foundational knowledge in project management, including project lifecycle, Agile & Waterfall methodologies, stakeholder management, and resource planning to support structured and efficient development workflows.

## Achievements & Competitions

### Best Teamwork, Vertical Take-Off and Landing (VTOL) Division, Indonesian Flying Robot Contest (KRTI) 2025 – National

Direktorat Belmawa (Kemdiktisaintek RI) | September 2025

### 4th Place, Vertical Take-Off and Landing (VTOL) Division, Indonesian Flying Robot Contest (KRTI) 2024 – National

BPTI Pusat Prestasi Nasional (Puspresnas) | September 2024

### 3rd Place, Vertical Take-Off and Landing (VTOL) Division, Indonesian Flying Robot Contest (KRTI) 2024 – Regional

BPTI Pusat Prestasi Nasional (Puspresnas) | July 2024

## Skills

- **Programming Languages:** Python, JavaScript, SQL, C++, Bash Scripting
- **Frameworks & Technologies:** Robot Operating System (ROS), MAVROS, OpenCV, YOLO, Linux, Docker, MQTT
- **Tools:** Visual Studio Code, Git, GitHub, Gazebo Simulator, Arduino IDE, PlatformIO, Microsoft Office, Google Workspace
- **Soft Skills:** Problem Solving, Analytical Thinking, Teamwork, Adaptability, Project Management