Muhammad Achad Ansori

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R&D Engineer experienced in robotics, embedded systems, and industrial automation. Designed and deployed electromechanical systems across marine robots, offshore ROV operations, demolition robotics, and smart manufacturing.

Education

Bachelor of Applied Science, Electronics Engineering **Aug 2021 - Aug 2025**
Politeknik Elektronika Negeri Surabaya (PENS) Surabaya, Indonesia

- Advisor: Arif Irwansyah
- Final Project: "Autonomous Surface Vehicle with Collision Avoidance for Offshore Energy Exploration"

Machine Learning Cohort, Bangkit Academy **Google, Tokopedia, Gojek, Traveloka** **Aug 2024 - Dec 2024**

- Completed 5-month intensive program in Machine Learning, Deep Learning, TensorFlow, and Computer Vision
- Led capstone project "InSight", a TensorFlow-based defect detection system for SME quality control on Jetson Nano with mobile app monitoring

Professional Appointments

Research and Development Engineer · Contract **PT Aldzama** **Feb 2026 - Present**

- Researching and developing robotic systems for industrial demolition applications
- Designing embedded control architectures and system integration for heavy-duty robotic platforms
- Collaborating with cross-functional teams to transition prototypes into field-ready solutions

Demolition Robot Technician · Contract **PT Aldzama** **Sep 2025 - Jan 2026**

- Developed a custom control unit for demolition robots from scratch, significantly reducing dependency on expensive OEM replacement parts
- Reverse-engineered and modified the original remote control system to integrate with the in-house built controller
- Promoted to R&D Engineer role after 3 months of controller development based on demonstrated engineering capability

Electronics Engineer · Internship **PT Venambak Kail Dipantara** **Dec 2024 - May 2025**

- Redesigned PCB layout with ESP32 for FeederVE control box, handled full production cycle from assembly to panel box integration for 50+ units
- Developed embedded software and electronic systems for AutoVE (autonomous mobile aerator) using Python on a low-cost mini PC
- Resolved electromagnetic interference issues on BoxVE system through PCB redesign, ensuring stable operation

ROV Pilot and Engineer · Collaborative Project **PT Pertamina Hulu Energi West Madura Offshore** **Jul 2024 - Aug 2024**

- Operated ROVs for underwater hull inspections at offshore RIG Taurus Madura, inspecting 3 RIG points at 20m depth over a 1-week survey period
- Performed maintenance and troubleshooting on ROV control systems, cameras, and sensors
- Collected and analyzed visual/sensor data for hull condition assessment, compiling technical reports for maintenance decisions

Maintenance and Improvement Engineer · Internship **PT Toshin Prima Fine Blanking (Indoprima Group)** **Feb 2024 - Jul 2024**

- Developed and deployed YOLOv4-based visual inspection system on Jetson Nano achieving ~29 FPS for real-time OK/NG quality control detection
- Built IoT monitoring system for 2 critical factory chiller units using Raspberry Pi with web dashboard, enabling real-time monitoring to prevent factory-wide downtime
- Performed routine maintenance and repair of industrial fine blanking machines

Embedded Developer **Penship EEPIS Marine Robotics Team** **Mar 2023 - Nov 2024**

- Built entire electrical and software systems from zero, progressing from Python+MAVLink to ROS-based autonomy stack
- Developed computer vision pipelines progressing from HSV-based detection to deep learning (YOLO) for autonomous navigation on AUV and ASV platforms
- Achieved 3rd Place National in KRBAI and 2nd Place Regional, with multiple finalist appearances in national competitions

General Manager **Penship EEPIS Marine Robotics Team** **Mar 2023 - Dec 2023**

- Led 15-member team with 4 robot platforms, establishing weekly meeting culture from scratch
- Aligned hardware, software, and mechanical workstreams to competition deadlines

Hardware Specialist **Penship EEPIS Marine Robotics Team** **Mar 2022 - Feb 2023**

- Engineered electrical systems for Autonomous Semi Submarine Vehicle: propulsion, power management, and waterproofing
- Designed custom PCBs aligned with mechanical specifications for underwater operation
- Supported software team with microcontroller programming for mission-based autonomous movements

Awards and Recognitions

2nd Place, Final Project Competition, Applied Bachelor of Electronics Engineering, PENS 2025
3rd Place National, Underwater Robotics Competition (KRBAI), Kontes Robot Indonesia 2023

2nd Place Region 2, Underwater Robotics Competition (KRBAI), Kontes Robot Indonesia 2023
Funded Proposal, Pekan Kreativitas Mahasiswa (PKM), Ministry of Education 2024
Most Active and Best Idea, Kaizen Event, PT Aldzama 2026

Certifications

Sea Survival and Offshore Emergency Procedure, PT Global Saftindo (Credential: GS-ADM-024-3594) Jul 2024 - Jul 2027

Technical Skills

Programming: Python, C/C++, JavaScript, Bash
Software: ROS, OpenCV, YOLO, TensorFlow, PyTorch, MQTT, Flutter, React, Git, Linux
Hardware: STM32, ESP32, Arduino, Raspberry Pi, Jetson Nano, PCB Design, Motor Drivers, Power Distribution, UART/SPI/I2C, Soldering & Prototyping, Oscilloscope & Multimeter
Languages: Bahasa Indonesia (Native), English (Professional Working)