MUHAMMAD AL GHAZALI

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PROFESSIONAL SUMMARY

Applied Bachelor (D4) graduate in Electronics Engineering from Politeknik Negeri Padang with expertise in Industrial Automation, Mechatronics, and IoT system integration. Hands-on experience as a Mechatronics Engineer in mechanical and electrical machine assembly, control panel wiring (PLC, servo, inverter), pneumatic installation, commissioning, and machine troubleshooting, as well as internship experience in telecommunication network deployment and operations. Skilled in AutoCAD and SolidWorks and in microcontroller programming (C/C++, Python) to design, test, and implement precise, safe, and efficient engineering solutions. Interested in developing a career in Automation, Mechatronics, IoT, Embedded Systems, and Engineering Design.

WORK EXPERIENCE

FREELANCER — Pekanbaru, Riau, Indonesia January 2026 – Present

Freelance Mechanical CAD Designer / 3D Design Drafter

Design and development of 3D mechanical designs using CAD software for prototyping and fabrication needs. Responsible for 3D modelling, dimensional adjustment, component assembly, technical drawing production, and design documentation based on user requirements and technical specifications.

PT VMES 4.0 — Batam, Riau Islands, Indonesia August 2025 – January 2026

Mechatronics Engineer

- **Mechanical & Electrical Assembly:** Assembled the Cartridge Ink Cell 5 & 7, UV Coating Machine, Roller Machine, and MES training system based on engineering drawings and wiring diagrams, covering mechanical component assembly, electrical device mounting, and inter-device connections.
- **Industrial Electrical Wiring:** Wired and terminated cables on PLC panels, servo drives, inverters, relays, sensors, power circuits, and I/O modules, including cable routing and point-to-point connection verification against diagrams.
- **Pneumatic Systems:** Installed and integrated pneumatic components into industrial machine systems and ensured installations were ready for functional testing.
- **Commissioning & Troubleshooting:** Performed machine commissioning and handled field troubleshooting, including non-functioning actuators, coupling slip, connector mismatch, component mismatch, and missing wiring, by tracing conformity between diagrams and actual machine conditions.
- **Corrective Action & Final Inspection:** Followed up every finding with re-wiring, component replacement, connectivity and continuity checks, and final inspection to ensure machines operate to specification.

Telkomsel — Pekanbaru, Riau, Indonesia September 2024 – December 2024

Network Deployment and Operation Intern (MSIB Batch 7)

- **Network Deployment:** Supported new network infrastructure deployment, from site validation, CAPEX preparation, equipment installation, and the on-air process to post-activation performance monitoring.
- **Network Quality Control:** Monitored network quality parameters — KPI, availability, packet loss, alarms, and antenna status — as part of QC before a site is declared ready to operate.

- **Drive Test & RF Analysis:** Performed drive tests and network performance measurements using Nemo Handy and analyzed the results with Nemo Analyze to evaluate coverage, signal quality, and potential RF issues.
- **BTS Tower Audit:** Conducted physical BTS tower audits covering radio equipment, antennas, RRU, feeders, power systems, grounding, and backup power, along with site condition documentation.
- **Data Visualization:** Developed a Customer Complaint Management (CCM) monitoring dashboard for analysis of complaint trends, MTTR, root causes, availability, capacity, coverage, and transport and hardware issues.
- **IoT Innovation:** Developed an ESP32- and Blynk-based automatic antenna rotator prototype for remote sector antenna direction adjustment, as a concept for improving operational efficiency.

EDUCATION

Politeknik Negeri Padang — Padang, West Sumatra, Indonesia 2022 – 2026

Applied Bachelor (D4) in Electronics Engineering — GPA 3.61/4.00

SKILLS

AutoCAD, CX-Programmer (Omron PLC), Problem Solving, Microsoft Office (Word, Excel, PowerPoint), Teamwork, IoT / Embedded Systems, Adaptability and Fast Learning, Data Analysis, Siemens LOGO!, Visual Studio Code, C/C++ Programming, Analytical Thinking, Industrial Automation & PLC, Microsoft Power BI, Able to Work Independently and in a Team, Electrical Wiring & Troubleshooting, Leadership, SolidWorks, Mechanical CAD Design, Electrical & Electronic Systems, Programming & System Integration, Canva.

CERTIFICATIONS

BNSP — AI-Based Digital Marketing September 2026 – September 2029

LSP Digital Marketing

TRAINING

Character Development Training June 2024

Softskills Academy

Mini Bootcamp — Web Development for Beginners May 2024

Edspert.id – PT Widya Kreasi Bangsa

Mini Bootcamp — Talent Acquisition May 2024

Edspert.id – PT Widya Kreasi Bangsa

ACHIEVEMENTS

Member of the Campus Flagship Research Team and Scientific Publication Contributor 2026

Contributed as a member of a faculty research team in the Campus Flagship Research program on the development of a National Early Warning Score 2 (NEWS2)-based early warning system for an IoT-based multiparameter vital sign monitoring system. Involved in prototype design and development, hardware and software integration, system testing, data collection and analysis, and research documentation. Contributed to the preparation of scientific articles for publication in accredited international and national journals.