

# MUHAMMAD ZULFI HUDA AL-HAQ

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Fresh Graduate from Institut Teknologi Sepuluh Nopember (ITS) with a specialization in Automation Engineering Technology. Possessing a robust foundation in Industrial Automation systems and Electrical Design. Currently applying hands-on technical skills as a Research and Development at PT Aldzama.

Experienced in delivering impactful automation solutions from my internship as an Automation Engineer Intern at PT Flextronics Technology Indonesia, where I designed systems to automate routine tasks and simplify workflows to increase efficiency and productivity. Further expertise includes Printed Circuit Board (PCB) design and developing safety systems for electric vehicles as a former staff member of the ANARGYA ITS Team Electric Formula.

Core technical proficiencies include PLC Programming , Electro-pneumatics , Electrical Troubleshooting, and Technical Documentation. I am committed to developing impactful engineering solutions.

## EDUCATION BACKGROUND

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**Institut Teknologi Sepuluh Nopember - Surabaya, Indonesia** **Aug 2021 – Aug 2025**  
*Automation Engineering Technology, 3.44/4.00*

**SMK Negeri 1 Batam - Batam, Indonesia** **Jun 2017 – Jun 2021**  
*Mechatronic Engineering*

## WORK EXPERIENCE

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**PT Aldzama - Gresik, Indonesia** **Feb 2026 – Present**  
*Research and Development*

- **Industrial Furnace Control System Optimization** : focused on enhancing combustion stability, electrical wiring efficiency, and PLC automation reliability for firebrick production processes. The project included burner optimization, PLC reprogramming and debugging, electrical panel clean-up, wiring standardization, and system validation to improve operational safety, reduce downtime, and achieve more uniform heating performance.
- **QR Code-Based Tool Management System** : Implemented as a Kaizen initiative to digitalize tool borrowing and inventory tracking using QR Code technology, enabling real-time monitoring, reducing manual recording errors, improving tool traceability, and increasing operational efficiency in warehouse/tool room operations.
- **Remote Controlled Demolition Robot** : Developed a custom remote-control system for demolition robots by reverse-engineering and modifying the original controller architecture to integrate with an in-house built control unit, reducing dependency on expensive OEM components while improving maintainability and operational flexibility.

**PT Aldzama - Gresik, Indonesia** **Oct 2025 – Jan 2026**  
*Demolition Robot Technician*

- Responsible for troubleshooting and maintaining demolition robots used in industrial dismantling operations, including hydraulic, electrical, and control systems, while ensuring operational safety, equipment reliability, and minimal downtime.

**PT Flextronics Technology Indonesia - Batam, Indonesia** **Jan 2024 – Jun 2024**  
*Automation Engineer Intern*

- **Automatic Busbar Hipot Test** : A device designed to assist operators in automatically checking insulation between six points on a busbar. It represents the application of continuous improvement, also known as KAIZEN. By automating the system, it minimizes the risk of workplace accidents.
- **Wireless Auto Cut Off N2** : Developed an automatic system to turn on and off the nitrogen (N2) valve on a Surface Mount Technology (SMT) machine.
- **Chamber Burner in Test** : Designing and conceptualizing a chamber to test the durability of a device, by connecting it to a load for 8 hours at a temperature of 80 degrees Celsius.

- Pick to Light : Developed a pick-to-light system for order picking technology used in warehouses that makes it easier for users to find items.

**PT Fast Precision Manufacturing - Batam, Indonesia**

**Oct 2020 – Nov 2020**

*Student Intern*

- Assisted in manufacturing and fabrication of contact tips.
- Supported modification and mechanical improvement of drum systems on charcoal roll machines.
- Participated in installation and assembly process of charcoal roll machines.
- Supported assembly stand roller membrane structures

## **ORGANIZATIONAL EXPERIENCE**

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**Anargya ITS EV Team**

**Sep 2021 – Dec 2023**

*Electro-Programming and Safety System Staff*

- Developed the electronic control system of the electric vehicle, including sensors, control units, and safety devices
- Managing and installing wiring on an electric formula car
- Ensured all electronic and safety systems met Society of Automotive Engineers (SAE) Formula Student regulations
- Prepared and authored extensive supporting technical documents, including:
  - Failure Mode and Effects Analysis (FMEA)
  - Electrical System Form (ESF)
  - Engineering Design Supporting Documents (SUP)
  - Design Spec Sheet (DSS)
  - Software Architecture Report (SA) and Algorithm Development Report (AI)
- Served as an electronics paddock technician during Formula Student competitions

## **ACHIEVEMENTS**

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- 4<sup>th</sup> position Photovoltaic Design Competition 2.0 Issued by Himasiskal ITS X PT Hasnur Internasional Shipping (2023)
- 3<sup>rd</sup> position HVL National Competition Issued by High Voltage Laboratory ITS Surabaya (2022)
- Finalist of PLN Innovation & Competition in Electricity (PLN ICE) 2022 in Electrifying Agriculture category Issued by PLN Puslitbang (2022)
- Runner-up of Overall Result at 6<sup>th</sup> Pi-EV Formula Student Concept Challenge held by Formula Bharat India Formula Student Competition (2022)
- 2<sup>nd</sup> winner in selection of Training Center for 13<sup>th</sup> Asean Skill Competition in Skill of CNC Maintenance and Repair (2020)
- 2<sup>nd</sup> winner the national selection for 13<sup>th</sup> Asean Skill Competition in Skill of CNC Maintenance and Repair (2019)

## **PROJECTS**

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- Final Project : Designing a cooling system based on fuzzy logic controller to increase energy efficiency while maintaining the ideal temperature of the motor controller (2025)
- Designed and developed a remote-controlled mini boat for oil spill detection under an industrial project collaboration with PT Pertamina Trans Kontinental (2023)
- Create and design the concept of ship that can be controlled via remote control by technicians to isolate oil spills (2023)
- Prototype of Sorting Machine with Qr Reader in the logistics industry (2022)