

MUHAMMAD FAIZ ASSARIY, S.Tr.Kom.

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SUMMARY

Computer Engineering Technology graduate from IPB University with experience in embedded systems, computer vision, and academic research. Problem-solver with strong critical-thinking and design skills.

EXPERIENCE

Teaching Assistant | Vocational School, IPB University | Aug 2023 - Jun 2026

- Supported seven undergraduate courses across computer engineering and aquaculture, delivering approximately 100 practicum sessions to groups of 10-30 students.
- Taught microcontroller programming, sensor/actuator integration, fuzzy-logic control, and YOLO-based computer vision using Roboflow and ESP32-CAM.
- Diagnosed embedded-system faults involving wiring, communication protocols, grounding, PWM signals, and ESP32 power brownouts; supported safe workshop use, machining, welding, and 3D printing.

Laboratory Intern, Electromechanical Workshop | IPB University | Aug 2025 - Dec 2025

- Maintained laboratory computers and workshop equipment; tracked 20-50 tools and prepared equipment for scheduled classes.
- Troubleshoot 3D printers, welding equipment, a plasma cutter, lathe, milling machine, and bench drill; completed a 12-credit placement with an A grade.

Research Assistant, ANTRAC | IPB University | Jan 2025 - Oct 2025

- Led 3D mechanical design, fabrication, and electrification for an AI-enabled robot detecting chilli anthracnose; reverse-engineered components and implemented radio control for a DC motor controller.
- Contributed to the robot launched by IPB University in May 2025 as one of three national agricultural technology innovations and presented to the Deputy Minister of Agriculture.

Research Assistant, SoltarinE | IPB University | Feb 2024 - Oct 2024

- Designed 3D model and assembly for a two-axis solar tracker and implemented microcontroller-based actuator control; co-authored the resulting conference paper.

PROJECTS

UGV-Integrated Pesticide Spraying Station for Anthracnose Control | Final Project, IPB University | 2025-2026

- Developed ESP32-based spraying station with three tank paths and a 10-nozzle boom.
- Implemented WebSocket commands and canopy-based dose calculation; verified station response using an emulated dashboard.
- Tested pump delivery and Wi-Fi association; measured 8.4-12.3% shortfall at 560 mL command and maintained association through 50 m on the tested path.

Fungicide Applicator Robot for Chilli Anthracnose Control | Research Lead, MBKM | Aug 2024 - Dec 2024

- Led a national research team in mechanical, electronics, and microcontroller design for a fungicide applicator robot; project evaluation approved at 90/100.

MBKM Non-Competition Research | IPB University | Jan-Jun 2025

- Classified chilli anthracnose from field images using YOLOv8 and CNN; team evaluation: 97/100.

EDUCATION

Applied Bachelor (S.Tr.Kom.), Computer Engineering Technology | IPB University, Bogor | Aug 2022 - Sep 2026

GPA: 3.52/4.00 | Predicate: Sangat Memuaskan (Highly Satisfactory)

Relevant coursework: Embedded Systems, Intelligent Systems, Artificial Intelligence, Computer Networks, Process Optimisation and Control.

TECHNICAL SKILLS

Programming: C/C++, Python

Embedded & Firmware: ESP32 (ESP-IDF, Arduino Core), STM32, Arduino, NVIDIA Jetson Nano; UART, I2C, SPI, PWM

AI & Control: YOLOv8, CNN, Roboflow, fuzzy logic

Networking & IoT: Wi-Fi, MQTT, WebSocket, TCP/IP, DHCP, DNS

Electronics: KiCad 9, EasyEDA, Eagle, Proteus, schematic capture, PCB design

Mechanical Design & Fabrication: Fusion 360, Onshape, 3D printing, machining, fabrication

Software & Validation: MATLAB, Git/GitHub, Linux, Docker; system integration, prototype testing, flow-rate calibration, wireless range testing, fault diagnosis

PUBLICATIONS

Assariy, M. F., & Siskandar, R. (2026). Development of a Pesticide Spraying Station for Integration with the ANTRAC UGV. Journal of Applied Science, Technology & Humanities (JASTH). <https://doi.org/10.62535/12w91802>

Siskandar, R., et al. (2024). SoltarinE: Solar charging station eco friendly as a charging solution for electric farm machinery. E3S Web of Conferences, 577, 01011. DOI: 10.1051/e3sconf/202457701011. Co-author.

PATENTS & COPYRIGHTS

Patent application P00202406961, camera-motion control system for freshwater fish monitoring — inventor and co-applicant; published 26 Jan 2026.

Registered copyright 000759678, microcontroller-based robot locomotion system for dryland agriculture — creator.

CERTIFICATIONS

Cisco Networking Academy CCNAv7: Introduction to Networks (Dec 2022); Enterprise Networking, Security, and Automation (Jun 2024).

LANGUAGES

Indonesian (native); English (professional working proficiency).