

PROFESSIONAL SUMMARY

Bachelor of Applied Engineering in Telecommunication Engineering graduate (GPA 3.79/4.00, graduated July 2026), with hands-on experience developing embedded IoT systems for greenhouses, hydroponics, and environmental monitoring. Focused on C/C++ firmware for ESP32/ESP8266, sensor-actuator integration, RS485/Modbus RTU, serial communication, Wi-Fi/cellular connectivity, OTA, and hardware-software troubleshooting in field deployments.

WORK EXPERIENCE

CV. OmahIoT — Hardware Development / IoT Engineer Intern

Semarang | Jan 2025 – Jul 2025

- Supported end-to-end agricultural IoT device implementation: site surveys, assembly and wiring, configuration, firmware, deployment, testing, troubleshooting, and documentation.
- Programmed ESP32, ESP8266, TTGO T-Call, and ATmega328p devices for sensing, relay/pump control, local displays, HTTP/REST telemetry, Wi-Fi/GPRS, RTC, and OTA.
- Isolated power, wiring, sensor-reading, UART/I2C, cellular modem, network, and data-delivery issues during bench testing and field operation.

SELECTED EMBEDDED & IOT PROJECTS

ATOMIC — IoT/WSN Orchid Greenhouse Monitoring & Control

Final Project | 2025–2026

- Developed an integrated system of 10 ESP8266 sensor nodes and 2 ESP32 gateway/controllers for temperature, humidity, light, and control of blowers, exhaust fans, and dehumidifiers.
- Implemented cloud-edge operation, local caching, connection recovery, device configuration, WebSocket diagnostics, logging, threshold/schedule control, and OTA.

MONIK — Hydroponic Monitoring & Controlling

OmahIoT Internship Project | 2025

- Integrated pH, EC/TDS, water temperature, air temperature/humidity, light, nutrient level, RTC, and Nexion display; transmitted telemetry to an API through an ESP communication device.
- Developed ESP32 control for nutrient A/B and pH-down pumps using thresholds, stale/invalid-data fail-safes, persistent configuration, watchdog, Wi-Fi reconnect, and OTA.

MOSIBAN — Rainfall Monitoring Device

OmahIoT Internship Project | 2025

- Developed ESP32/TTGO T-Call firmware for tipping-bucket acquisition and rainfall telemetry supporting sedimentation and flood monitoring.
- Integrated SIM800/GPRS, DS3231 RTC, HTTP/JSON, Bluetooth Serial diagnostics, reconnect handling, and Wi-Fi OTA.

IMONIK — Intelligent Monitoring & Controlling for Industrial Hydroponics

Lecturer Research Support | 2026

Technical contribution outside the internship; lecturer-led research using OmahIoT product/hardware support.

- Supported ESP32 firmware for hydroponic sensor/control integration over RS485/Modbus RTU, UART/I2C, display/RTC, water-level sensing, SIM7600 modem, and pumps.
- Built RS485 test firmware for pin/wiring verification, Modbus address scanning, and communication diagnosis before system integration.

EDUCATION

Politeknik Negeri Semarang

Semarang | 2022 – 2026

Bachelor of Applied Engineering in Telecommunication Engineering | GPA: 3.79/4.00

- Final project — IoT/WSN Orchid Greenhouse Monitoring & Control for PT Von Florist; defense completed and passed. Graduated July 2026.

TECHNICAL SKILLS

Firmware: C, C++, Python; Arduino framework, PlatformIO; state machines, watchdogs, persistent settings, local caching, and OTA.

Platforms: ESP32/ESP32-S3, ESP8266/Wemos D1 Mini, TTGO T-Call, ATmega328p; sensors, relay/SSR, pumps, RTC, displays, and cellular modems.

Interfaces & Networking: RS485, Modbus RTU, UART, I2C, SPI, Wi-Fi, GPRS/LTE, Bluetooth Serial, HTTP/HTTPS, REST, JSON.

Validation & Tools: Git/GitHub, serial monitoring, multimeter, wiring/pinout checks, firmware testing, Linux/SSH, and technical documentation.

CERTIFICATIONS & LANGUAGES

Certifications: C++ Essentials 1 — Cisco Networking Academy (Jul 2026); Hardware Development Internship — OmahIoT, Very Good rating (Jul 2025); CCNA: Switching, Routing and Wireless Essentials (Nov 2024); TOEIC Listening & Reading 845/990 (valid until Nov 2027).

Languages: Indonesian (Native); English (Professional Working Proficiency).