Ahmed Salhi

Electrical Engineering Student | Embedded Systems & PCB Design

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SUMMARY

Electrical Engineering student at ENIT with strong foundations in circuit analysis, electronics, programming and problem-solving. Hands-on experience with embedded systems (STM32, ARM Cortex-M, FreeRTOS), embedded C/C++, PCB design (KiCad), circuit simulation (LTspice, MATLAB) and firmware security. Seeking an engineering internship to apply technical knowledge and develop practical skills in a professional environment.

EDUCATION

Engineering Degree in Electrical Engineering
National Engineering School of Tunis (ENIT), El Manar, Tunis | 09/2025 – Present

PROFESSIONAL EXPERIENCE

Electronics Department Intern
Marquardt Tunisie, El Faja, Manouba | 06/2026 – 07/2026

- Gained hands-on exposure to electronic production processes, quality control methodologies and continuous improvement practices in an industrial manufacturing environment.
- Collaborated within multidisciplinary and multicultural teams with adaptability and attention to detail.
- Strengthened analytical and problem-solving skills in industrial electronics and manufacturing systems.

PROJECTS

Secure Bootloader on ARM Cortex-M | 09/2026 – Present

- Engineered a secure ARM Cortex-M bootloader in C using mbedTLS and ECDSA P-256 verification of SHA-256 hashes.
- Implemented a fail-safe firmware verification pipeline with vector table relocation and MSP assignment.
- Developed Python tooling to integrate automated ECDSA firmware signing into build workflows.

Ultra-Low-Power Sensor Node (STM32, FreeRTOS) | 09/2026 – Present

- Implemented register-level bare-metal I2C and GPIO drivers on STM32 microcontrollers, bypassing HAL dependencies to optimize binary size and execution performance.
- Integrated FreeRTOS Tickless Idle to enter STM32 STOP2 deep-sleep modes automatically, reducing idle power draw.
- Verified I2C standard-mode timing and interface logic using logic analyzers and oscilloscopes.

DC Motor Controller PCB | 02/2026 – 03/2026

- Designed and tested a PCB for DC motor speed and direction control.
- Developed the control logic and performed circuit validation.
- Used simulation software to verify functionality before implementation.

SKILLS

- **Embedded Systems:** STM32, ARM Cortex-M, FreeRTOS, Bare-Metal Drivers, I2C, GPIO, STM32CubeIDE / STM32CubeMX, Bootloaders
- **Programming:** C, C++, Python, VHDL, MATLAB
- **Hardware & PCB Design:** PCB Design, KiCad, LTspice, Circuit Simulation, Oscilloscope, Logic Analyzer
- **Security:** Reverse Engineering (Ghidra, IDA), Firmware Security, mbedTLS, ECDSA, SHA-256

CERTIFICATIONS

CCNA 1 (Cisco Networking Academy); Harvard CS50; Simscape Battery Onramp (MathWorks)

LEADERSHIP & ACTIVITIES

Technical Team Member, Securinets ENIT | 09/2025 – Present

- Organized cybersecurity events and workshops; developed technical content to promote security awareness among students.

Volunteer Member, AIESEC Tunisia (El Manar) | 06/2026 – 08/2026

- Joined an international volunteering project with a multicultural team, supporting community-focused initiatives.

ADDITIONAL INFORMATION

Languages: English, French | **Interests:** Automation & AI, Embedded Systems, Entrepreneurship, Basketball