Ahmed Abdelmonem Mohamed

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LinkedIn • Github

About me

I am a passionate Embedded Systems Engineer with a strong background in low-level programming, microcontroller interfacing, and hardware-software integration. I specialize in building efficient, real-time embedded solutions using C/C++ on ARM Cortex-M, AVR, and PIC platforms. My experience spans bare-metal development, UART/SPI/I2C communication protocols, and VHDL-based digital design. I take pride in writing clean, modular code and designing reliable hardware systems. Beyond technical expertise, I'm driven by problem-solving, continuous learning, and turning complex ideas into working systems

Education

Faculty of Engineering, Tanta University, Electronics and Electrical Communications Program (OCT2022 – PRESENT)

3.11 GPA

Courses & Certificates

-Embedded System Deploma (2024 – PRESENT)

-Digital Design using FPGA with NTI (July2025)

-Embedded Linux level1 [Linux admin1 & Bash Scripting] (February2025 – May2025)

-Embedded Linux level2 [Modern C++] (August2025 – PRESENT)

-Mastring Python Course (August2023 – OCT2022)

-Arduino (September2024)

-MATLAB (September2024)

-CCNA (July2024 – September2024)

-React Frontend With DEPI (July2025 – PRESENT)

-Summer training with MCIT (July2025)

Skills

Programming & Software Development:

C/C++,Embedded C, Modern C++, Python, OOP, MATLAB, Data Structure & Algorithms, HTML, CSS, JavaScript, Debugging and optimizing code efficiently.

Embedded Systems

Microcontrollers: AVR(Atmega32), ARM Cortex(STM32), Arduino, PIC.

Low-Level Development: Startup code, Linker Script, Makefile, Bare-Metal Programming.

Protocols: UART, SPI, I2C.

Operating Systems & Networking

Linux: System administration, Bash Scripting.

Networking: CCNA(Routing, Switching, Basic Security).

Digital Design & FPGA Development

VHDL, FPGA Design and Implementation.

Tools & Platforms

IDEs: Keil µVision, STM32CubeIDE, Arduino IDE

Version Control: Git/GitHub

Simulation Tools

Other Technical Skills

System Architecture

Testing and Troubleshooting Embedded Applications

Soft skills

Problem-solving | Debugging | Technical Documentation Team Collaboration | Time Management | Team Leader | Presentation Skills | Microsoft Office | Communications Skills |

Languages

ARABIC [Mother tongue]

ENGLISH [Full Professional Proficiency]

Projects

Embedded Systems Project

Home Automation System

Built a smart home system using sensors (temperature, motion, gas, fire) to control devices like fan, buzzer, and motor. Used LCD for real-time feedback with modular C++ code.

Student Management Systems – C

Created two database systems using queues and linked lists with full CRUD operations. Projects available on GitHub.

You can find more of my embedded systems work and achievements here: View My Embedded Portfolio

Hardware Design Projects

8-bit Microcontroller – VHDL

Designed and implemented a custom 8-bit microcontroller including ALU, control unit, and memory interface. Verified functionality via simulation in ModelSim, Project available on GitHub.

Digital Logic Circuit

Built a logic circuit using gates and flip-flops on breadboard, later extended to a working digital clock

Fire Detection System

Designed a standalone fire alarm using analog components and threshold-based triggering without microcontroller

You can find more of my VHDL codes here: View My Github Repo