Egypt CA **12555**

Mohamed Ashraf Fathy

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Education

Egypt, Shiekh Zayed	Canadian International College	Fall 2019 – Summer 2024

- B.S.E. in Communication and Electronics Engineering, Jul 2024. **CGPA: 3.2**
- Graduation Project: Custom Automotive Firmware Over The Air (VSEP). **Grade: A+ (Exceptional)**

Skills

- **Languages**: Arabic, English
- **Soft Skills**: Passionate, Motivating, Teamwork, Work Under Stress, Self-discipline, Leadership
- **Project Management**: Agile, V-Model, Git, GitHub
- **Programming Languages**: ANSI C, Modern C++, Python, Bash, YAML
- **Software**: SOLID Principles, MISRA C, Data Structures, Algorithms, Design Patterns, OOAD
- **Embedded**: RTOS, FreeRTOS, Linux Porting, Linux Device Drivers, Linux Kernel Internals
- **Tools**: Visual Studio, Keil V5, Eclipse, MPLAB, IAR Workbench
- **Development**: CI/CD, Docker, Devcontainers
- **Operating Systems**: Windows, Linux

Experience

Embedded Developer, Intern	Valeo Egypt	June 2023 – Nov 2024

- Developed Application SWC using AUTOSAR for DFC component.
- Created utility tools and collaborated on team events.
- Conducted integration and unit testing for the developed SWC.
- Debugged software using CANoe and WinIDEA.

Embedded Developer, Intern	Siemens Egypt	Aug 2022 – Sep 2022

- Learned about modern industrial ARM SoC driver development.
- Studied automotive industrial bootloader architecture.
- Worked with Classic AUTOSAR Architecture and OSEK-VDX.

Embedded Systems ARM, Intern	ITIDA Egypt	Nov 2022 – Dec 2022

- Studied ARM MCUs fundamentals and ARM cross-compilers.
- Applied Tiva-C drivers.
- Developed EDF Scheduler Algorithm with FreeRTOS.

Embedded Systems AVR, Intern	ITIDA Egypt	Aug 2022 – Sep 2022

- Mastered C fundamentals, including Linked List, Queue, Stack, and sorting algorithms.
- Learned MCU basics, GPIO, interrupts, and timers.
- Worked with UART, SPI, I2C, and CAN protocols.
- Studied Agile, Scrum, and Kanban methodologies.
- Attended freelancing webinars.

Embedded ARM, Course	IMT School	Sep 2022 – Nov 2022

- Studied ARM fundamentals, AMBA, and MCU vendor architecture.
- Interfaced with STM32F103C8T6.
- Learned automotive communication protocols, including CAN and LIN.
- Ported and developed applications using FreeRTOS.
- Wrote a simple bootloader.

Embedded Systems AVR, Course   **IMT School**   **Jul 2022 – Aug 2022**

- Mastered programming fundamentals, C language, and data structures.
- Learned embedded systems fundamentals with AVR.
- Studied MCU basics, GPIO, interrupts, and timers.
- Worked with onboard communication protocols, including UART, I2C, and SPI.
- Studied basics of ESDLC and testing.

Entrepreneurship, Training   **IEEE VEP Egypt**   **Jun 2022 – Aug 2022**

- Developed skills in time management, communication, business development, and entrepreneurship.

Volunteer Experience

Technical Head   **IEEE CIC SB**   **April 2022 – Jul 2024**

- Organized technical events and competitions.
- Instructed programming and embedded systems courses, including "Arduino Kids".
- Guided, planned, and motivated team members.

IEEE Xtreme Ambassador   **IEEE CIC SB**   **Sep 2022 – Nov 2022**

- Guided students to participate in the IEEE Xtreme programming event.

Technical Head   **Radix SB**   **Jan 2023 – Jan 2024**

- Participated in the Metal Monsters 2023 robotic car competition.
- Developed a weaponized robotic car with RC control using STM32F103C8 and nRF24L02+.
- Designed the PCB for the remote controller.

Technical Experience

Projects

- **Custom FOTA Solution** (2024). Created a custom FOTA system to update embedded devices over the internet, enabling OTA updates for bare-metal devices.
- **Custom Linux Image for vexpress-v2p-ca9** (2024). Created a Linux From Scratch Image using bare configuration tools for each component, such as Cross-NG, u-boot, Linux Kernel, and Busybox, customized for specific needs.
- **Custom Linux Image for Raspberry Pi 3 B+** (2023). Created a custom Linux image using **YOCTO** Project, tailored to project requirements.
- **Custom Bare-Metal Bootloader** (2023). Developed a custom generic bootloader with both static and dynamic architecture to boot applications. Tested and ported on STM32F103C8T6 with ARM CM3 chip.
- **Portable Embedded Systems SDK** (2023). Created a portable embedded systems software development kit, including abstracted types, data structures, and algorithms optimized for porting.
- **Deep Learning Neural Network Library in C** (2023). Created a DL library in C for embedded projects to apply ML algorithms, inspired by TinyML.
- **AVR COTS** (2022). Developed and implemented commercial off-the-shelf components for AVR microcontrollers.
- **ARM - TI COTS** (2022). Developed and implemented commercial off-the-shelf components for TI ARM microcontrollers.
- **ARM - ST COTS** (2022). Developed and implemented commercial off-the-shelf components for ST ARM microcontrollers.