Omar Mahmoud

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- Knowledge in Embedded systems concepts and Microcontrollers architectures & peripherals
- Real time operating systems understanding
- Knowledge of design patterns & State machine design and development logic
- Knowledge of software engineering development methodology

Work Experience

Design Engineer | DezignArena   August 2021 – Present
- Engineered embedded software development, debugging & troubleshooting of bare-metal applications for 3 projects.
- Delivered 2 low-level drivers based on I2C, SPI, USART for different sensors and micro-controllers in C.
- Optimized a design, saving 20% of the actuators required, internal components space, driver circuitry space on the PCB and reducing Firmware complexity.

Design Engineer | iHub: Innovation Hub   March 2020 – July 2021
- Directed mechatronics design and integration of subsystems for 3 projects.
- Restructured a design, cutting 30% of development effort and increased output accuracy to match a Fluke gas analyzer.

Design Engineer | BEEC   August 2018 – March 2020
- Designed consumer electronics products enclosure of 3 projects.
- Extracted PCB boundaries, connectors placement for HW team for around 5 PCBs.

Projects:

Tracker unit project   Dec 2021 – April 2022
A device that sends location and time data over LTE. The device runs on STM32F401, ARM Cortex-M4 core.
- Delivered low-level drivers in C for an I2C battery monitor sensor & SPI flash memory IC.
- Implemented a strategy pattern to switch modes of operation.

Laboratory device   April 2021 – Nov 2021
A device that semi-automates a lab test based on the client's research paper.
- Directed mechatronics design and integration.
- Optimized design to save about 20% of the actuators in a project, thus, saving internal space, driver circuitry space on the PCB and reducing Firmware complexity.

Ventilator project   March 2020 – April 2021
An invasive type ventilator prototype. The device is based on the AVR core.
- Directed sensors and actuators selection.
- Restructured the pneumatic circuit actuators to cut 30% of development effort.
- Calibrated flowmeters, oxygen sensors & pressure sensors with reference to Fluke gas analyzer.

Skills

- **Programming Languages**: C, Embedded C, C++, Rust, Python.
- **Software**: GNU/Linux, Ubuntu, Git, Vim, QEMU, CMake, GNU Make.
- **Hardware**: STM32, ARM Cortex-M4, ARM Cortex-M3, AVR

Education

Assiut University   **September 2013 – June 2018**
B.Sc. in Mechatronics Engineering.   **Cumulative Grade: Very Good, 2nd Top.**

Graduation project   **Grade: Distinct**
Low cost robotic gloves for people with disabilities based on Arduino Uno.

Personal info

Cairo, Egypt | Military service: completed | Birthdate: Dec 1995 | Graduated in 2018