Mohamed Almahdy

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Summary

Mohamed is an embedded systems engineer with +4 years' experience in embedded C programming. Mohamed also programs in C++. Mohamed is familiar with different IDEs like IAR workbench, eclipse, code composer, and Keil. Mohamed used different microcontrollers like stm32, msp430, pic16 and pic18, and ATmega. Mohamed also used Raspberry Pi.

Job History

- **Job Title:** Embedded Systems Engineer
- **Employer:** National Authority for Remote Sensing & Space Sciences (NARSS)
- **Hiring Date:** May 2015- present
- **Responsibilities:**
  Write peripherals drivers, write middleware communications protocols, write mission functions, test developed code (unit tests, integration tests, and systems autonomous tests), and write code documentations and code flowcharts.

Education

- Bachelor of Engineering (B.E.) - Electronics and Communications Engineering
- Arab Academy for Science, Technology, and Maritime Transport (Aswan)
- **Graduation year:** 2013
- **Graduation grade:** Distinct (G.P.A: 3.4)

Projects

Title	**Educational Satellite Kit (ESK)**
Description	Create a Satellite Kit for educational purposes
Responsibility	Create serial interface connection to OBC system board via LabVIEW, receive and analyse and reply to data coming from OBC in LabVIEW, Create GUI interface to display system status and main parameters of OBC and received and transmitted data across OBC data bus, and control OBC system configuration and parameters and commanding

Title	**Synthetic Aperture Radar Prototype (SAR)**
Description	Create a prototype for a synthetic aperture radar Satellite
Responsibility	Create digital to analog converter via LabVIEW FPGA by using Digital IO module and NI FlexRIO. Write, test, and document Encoder and Decoder functions.

Title	**Egypt University Sat 1 (EUS-I)**
Responsibility	Write and test peripherals libraries (UART, SPI, Timer, PWM, ADC, WDT), write and test middleware data communications protocols, write and test external ADC interface via SPI driver, do integration tests, and write main application code and system documentation

Title	**NEX-Sat**
Description	Create an Experimental Satellite for remote sensing purposes
Responsibility	Write and test GPIO platform library (Linux C++ programming), write and test serial interface library (Linux C++ programming), create Linux static library of code, build Linux kernel image for the development board and enable needed peripherals, modify U-boot to boot from SD card and internal flash memory, write and test middleware data communications protocols , write and test commands routes and commands execution functions, create unit tests, do integration test, and write code documentation

Title	**NARSSCube 1 & 2**
Project site	www.narsscube.com
Description	Creating a cube satellite to demonstrate the indigenous Egyptian technology in the

	field of spacecraft development and for earth observation imaging.
Responsibility	Write and test peripherals libraries, write and test memory operations, manage and arrange variables in the memory, write system initialization configuration in memory and read them at the system start, implement memory fault detector, implement power failure handler, write and test middleware data communications protocols, write and test commands routes and commands execution functions, and participate in writing the main code, test satellite state machine, do integration test, and do autonomous Test

Title	**Telemetry Subsystem Prototype**
Description	Creating a generic Telemetry subsystem that can be used in different applications like satellites, cars, and planes by using standard interfaces and ports.
Responsibility	Write and test peripherals libraries (UART, SPI, Timer, PWM, ADC), Write and test memory management code, write and test middleware data communications protocols, write and test slaves commands (power, initialize, configure, synchronize, read) execution functions, and participate in writing the main code, do integration tests, and write system documentation. Create footprints for different ICs in Altium, and create Digital sensors board schematic and Analog sensors board schematic in Altium

Title	**Android Controlled Robot Through Bluetooth**
Supervision	National Telecommunications Institute (NTI) (Embedded Internship Graduation Project)
Description	Creating a robot that can be controlled remotely by using an Android application via Bluetooth (Short distance) or SMS (Long distance) with the assistance of GPS and Google Earth
Responsibility	Write Bluetooth Module, GPS Module, and GPRS Module Interfaces with UART Driver and participate in writing the main program

Title	**Remote weather station based on microcontrollers powered by Photovoltaic System**
Supervision	Arab Academy for Science, Technology, and Maritime Transport (Graduation Project)
Description	Creating a remote weather station based on microcontrollers and powered by photo-voltaic system and can work on battery in case of power fail and accessed by SMS via GSM module
Responsibility	Write GSM Module Interface with UART Driver, Write Temperature sensor, fire sensor, and LDR sensor interfaces with ADC Driver, Write LCD Driver and write main program

Technical Skills

- Microcontrollers: ST **STM32**, Microchip **PIC**, and **AVR ATmega**, and TI **MSP430**
- IDE: **IAR Embedded Workbench**, **Eclipse**, **Atmel Studio**, **Code Composer Studio, CodeBlocks,** and **Keil**
- Linux: **Makefile**, **GCC**, **Buildroot**, and **GDB**
- Programming Languages: **C**, **C++**, **Java**, **Java Android**, and **Assembly**
- Using **NI LabVIEW, NI FPGA,** and **NI VISA**
- PCB layout design: **Altium**, **OrCAD Allegro**, and **Eagle**
- Configuration management: **SVN,** and **Git**
- Circuits design: **Proteus, OrCAD**, and **MultiSim**
- RTOS**: Concepts.**

Languages

- **Arabic** Native Language
- **English** Very Good Speaking and Understanding and Good Writing

References

All references are available upon request