

Mohamed Alaa

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Military Service: Exempted

Education

- Online Master's Degree in Engineering Management with Software Specialization – Arizona State University May 2021 – Present.
 - Bachelor's Degree in Mechatronics Engineering – Minya University Sept 2014 – Jul 2019
- Accumulative Grade:** Very Good - The 2nd rank in my department. (83.4%) | **GPA:** 3.18

Graduation Project

- Title:** Search and Rescue Drone (AVR-Based Project) under the supervision of Dr/ Abu Hashima and Dr/ El-Sadek
- Summary:** An unmanned aircraft in emergency cases to collect data like photos and videos in high quality resolution using GoPro camera to save people's lives. The drone flies over a predefined area and search for people using GoPro camera. The camera images are transferred directly to a remote station such as a tablet, therefore navigating people precisely. The drone is also equipped with a gripper that holds a lifebuoy to save someone drowning in water until they get reached by the rescue team.
- Implementation:** The project is being implemented on ATmega16 microcontroller.
- Major Role:**
 - I've made the calculations needed for the prototype by hand "Analytically" as well as checking the results by using simulation tools to achieve the optimum design criteria in terms of the drone configuration, material and choosing the suitable electronic components with the specs that match our needs.
 - I've designed the case for GoPro Camera and printing it via "3D Printer."
- Grade:** Excellent

Technical Projects

- Door locking system**

A security system built using two ATmega16 microcontrollers communicating through UART protocol, implemented using three software layers.

First MP (User interface): implemented with a keypad and an LCD

Second MP (Security): responsible for decision-making.
- Driver implementation in AVR architectures**

AVR Microprocessor drivers for peripherals such as timers, ADC, on hardware register levels.
- Stopwatch**

An ATmega16 microprocessor that is interfaced with six seven segments to represent time accurately, has three buttons for start, stop, and restart.
- Motor**

Controlling motor using Input ADC value using PWM.

Trainings/Courses/Workshops/ Extracurricular

- AUTOSAR Architecture August 2022 - Present
- Embedded Systems Session Lead at Udacity August 2022 - Present
- Embedded Systems Diploma under the supervision of Eng\ Mohamed Tareq (175 hours) November 2020 - March 2021
- Soft Skills Training at Career Developers March 2021 - April 2021

Skills/Miscellaneous

Software:

C/C++
Matlab
Python
Data Structures
Software Engineering

Software Tools:

Eclipse
Visual Studio
Proteus

Embedded Systems:

Microcontroller Interfacing
Embedded C
Communication Protocols
(UART, SPI, I2C, USB)
Real-Time Operating Systems

Automotive:

AUTOSAR
Automotive buses (LIN and CAN)
Familiar with ISO-26262
Safety Analysis Methods (FTA, FMEA, FMEDA)

Languages:

English (Fluent) – Germany (Fair)

Personal:

Detail and goal oriented
Active Team member
Leadership skills
Writing Skills