AHMED HASSAN

Embedded Software Engineer.

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EDUCATION

2016-2021

Bachelor's Degree
Faculty of Engineering, Fayoum University, Egypt.

- Bachelor of Computer and Systems Engineering *(Grade: Good).*
- *Graduation Project:* Sightful, an embedded device to help people with visual impairments to be more aware about surroundings *(Grade: Excellent).*

WORK EXPERINCE

Apr, 2021 - Now

Embedded Software Engineer
Freelance

- Embedded Software Engineer at freelance websites (Freelancer and Khamsat).
- Implemented (+5) freelance projects in Embedded Systems field and IoT.

COURSES

Jun, 2019 - Nov, 2019

Embedded Systems Diploma
IMT School

- Embedded Systems Concepts and Embedded C Programming.
- AVR Micro-controller Peripherals Interfacing, Tooling and Testing.
- *Final Project:* Mobile-controlled and Obstacle Avoidance Robot.

Jul, 2020 - Oct, 2020

ARM Architecture Diploma
IMT School

- ARM Architecture and Programming Model.
- STM32 Micro-controller Interfacing.
- IOT Concepts.
- *Final Project:* On the Air Programmer (OTA).

Mar, 2021- May, 2021

Embedded Automotive and AUTOSAR Device Drivers
Mohamed Tarek

- AUTOSAR Layered Architecture and Device Drivers.
- AUTOSAR and C MISRA Rules
- Automotive buses LIN and CAN.
- Implement DIO and PORT AUTOSAR Driver for TM4C Micro-controllers
- *Final Project:* Apply the full layered architecture model.

TECHNICAL SKILLS

- **Programming Languages**.
  C, C++, Embedded C, Java, Kotlin, Python and Dart.
- **Microcontrollers Interfacing** (AVR, STM, TIVA-C and PIC).
- **Sensors Interfacing** (PIR, IR, Ultrasonic and more).
- **Communication Protocols** (SPI, I2C, UART, CAN, LIN, USB).
- **IoT** with NodeMCU Board (ESP8266.
- **RTOS** (FreeRTOS) and building simple Scheduler based on Time Triggered Embedded Systems.
- **AUTOSAR** Layered Architecture and Device Drivers.
- **Problem Solving** with Algorithms and Data Structures.
- **Lab Tools** such debuggers and oscilloscopes.
- **Mobile and Web Applications Development**.
  Develop Mobile Applications with Flutter Cross Platform and Web Applications with HTML, CSS, JS.

PERSONAL PROJECTS

- **OTA Programmer.**
  - Implement OTA Programmer for STM32 Micro-controller using NodeMCU Board.
  - It used to flash hex file on MCU using website wirelessly with the bootloader flashed in the STM32 Flash Memory.
- **OS Scheduler.**
  - Implement OS Scheduler to schedule one-shot or periodic tasks in C program for microcontrollers.
  - The user configures the number of tasks then add each task with its first call time and period time.
- **AUTOSAR Drivers.**
  - Implementation of AUTOSAR Port and DIO Drivers for TM4C Micro-controller
  - The project includes implementing the configuration tool to generate configuration files automatically.
- **MIPS Processor.**
  - Implementation of Single Cycle MIPS Processor in System Verilog.
  - The processor can execute assembly R-type and I-type instructions like (`add, sub, sll, or, mult, div` and more).
- **Safety Jacket for Baby.**
  - Implement Safety Jacket contains temperature, flame, smoke, IR and other sensors to send an SMS Message using GSM Module if anything unusual happens around the baby with STM32.
- **Mobile Controlled Robot.**
  - Implement Mobile controlled robot that can be controlled using mobile application.
  - It can avoid obstacles using Ultrasonic Sensor.
  - When the robot is not moving, a buzzer will beep when any movement is detected with PIR Sensor.
- **Digital Multimeter.**
  - Implement Auto-range Digital Multimeter based on (ATmega32) which has many features:
  - Ohmmeter, DC, AC Ammeter and Voltmeter.
- **Morse Code Translator.**
  - Device based on (ATmega32, Touch Sensor) can receive a morse code from the user via the touch sensor.
  - The device converts the entered code into text that is displayed on the LCD.
  - Conversely, the user can enter text using (4*3 Keypad), such as the old phone, and the device will translate it to Morse Code using buzzer beeps.
- **Electric Water Heater.**
  - Implement Electric water heater based on (PIC, and PICGenios Board) built for Swift Act Company Internship.
- **Hardware Calculator.**
  - Implement Hardware calculator based on (ATmega32) uses keypad and LCD to perform mathematical operations.

PERSONAL INFORMATION

Military Status: Exempted

Languages: Arabic, English and German.