AHMED HASSAN

Embedded Software Engineer.

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PERSONAL INFORMATION

Gender	Male	**Date of birth**	Jun 1, 1998.
Military Status	Exempted	**Languages**	Arabic, English and German.

EDUCATION

2016-2021 **Bachelor's Degree (Certificate)**
Faculty of Engineering, Fayoum University, Egypt.
- Bachelor of Computer and Systems Engineering.
- *Graduation Project:* Sightful, an embedded device to help people with visual impairments to be more aware about surroundings.
  Technologies used: Embedded Linux (Raspberry Pi), AI and Machine Learning.

2013-2016 **High School (Certificate)**
Salah Salem High School in Fayoum
Science and Mathematics Division.

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.

Jan, 2020 - Mar, 2020 **Embedded Systems Instructor**
Dewan Co-working Space
- Started an Embedded Systems Course with group of (+20) students.
- The course covered (C Programming, Embedded C, Introduction to Computer Architecture and AVR Micro-controller Interfacing.

COURSES

Jun, 2019 - Nov, 2019 **Embedded Systems Diploma (Certificate)**
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 (Certificate)**
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 (Certificate)**
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 (GitHub).**
  - ✓ 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 (Illustrating Video).
- **OS Scheduler (GitHub).**
  - ✓ 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 (GitHub).**

  Implementation of AUTOSAR Port and DIO Drivers for TM4C Micro-controller and implementing its configuration tool to generate configuration files automatically.
- **MIPS Processor (GitHub).**
  - ✓ 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 (GitHub).**

  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 (GitHub).**
  - ✓ 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 (GitHub).**
  - ✓ Implement Auto-range Digital Multimeter based on (ATmega32) which has:
  - ✓ Ohmmeter measures from 5 Ohms to 3 Mega Ohms.
  - ✓ DC Ammeter measures from 5 mA to 2 A and AC Ammeter measures from 5 mA to 50 A.
  - ✓ DC Voltmeter measures from 5 mV to 55 V and AC Voltmeter measures from 5 V to 1000 V.
- **Morse Code Translator (GitHub).**
  - ✓ Implement a 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 (GitHub).**

  Implement Electric water heater based on (PIC, and PICGenios Board) built for Swift Act Company Internship.
- **Hardware Calculator (GitHub).**

  Implement Hardware calculator based on (ATmega32) uses keypad and LCD to perform mathematical operations.