

# Mohamed Ahmed Galal Mohamed

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## Education

**Electronics and communications Bachelor's Degree | 2021 - 2026**

Student at Faculty of Engineering **Beni Suef University**

## Projects

**AI-Controlled Smart Car with Embedded Systems & OTA | [GitHub](#)** (Team Project)

- Built a real-time smart car using STM32, Arduino Uno, ESP32/8266, and a PC-based AI model for traffic light detection.
- Enabled manual control via MQTT mobile app and autonomous stop via AI-detected red light using UART communication.
- Integrated FOTA updates for STM32 using Firebase, MQTT, GCP(Cloud) and Node-RED.
- Utilized FreeRTOS for task management and implemented communication protocols: SPI, UART, USB.
- Tools & Technologies: STM32CubeIDE, Arduino IDE, Node-RED, Mosquitto, MQTTX, Visual Studio Code.

**POSIX Shell for Windows | [GitHub](#)**

- Developed a Windows shell that mimics POSIX system calls using C programming.
- Tools: C

**Smart Home System | [GitHub](#)**

- Designed and implemented a home automation system using IoT technologies.
- Integrated ESP8266 microcontrollers with sensors and actuators for real-time control via a mobile app.
- Tools: Arduino UNO, ESP8266, Sensors, C++

**Merklerex Trading Simulator | [GitHub](#)**

- Created a simulator to emulate cryptocurrency market trading using C++.
- Designed the tool to mimic market behavior for risk-free strategy testing.
- Tools: C++

**Hack Assembler | [GitHub](#)**

- Built an assembler for Hack computer architecture using C.
- Strengthened knowledge of symbolic assembly language and computer architecture.
- Tools: C

## Technical Skills

### Industry Knowledge

- Embedded Systems
- Programming: C, C++, Java, Python
- Assembly Language
- Familiar with AVR & ARM Architecture

### Tools and Technologies

- Eclipse, STM32Cube IDE, Keil, Atmel Studio
- Design Circuit Applications: Multisim, Proteus
- MATLAB
- QtSpim

## Courses

- **Full Embedded Systems Diploma** under supervision of **Engineer Mohamed Zaghloul**.  
**Key Components:**  
Basic Concepts of Embedded systems || C Programming || Data Structures (Linked-List, Stack and Queue) || AVR Micro-Controllers Interfacing (Implement all the drivers) || Real Time OS(RTOS) || Software Engineering || Embedded Tools || HW Labs.
- **Software Testing Course | Digital Egypt Pioneers Initiative - DEPI**  
**Key Components:**  
Software Testing Fundamentals || SDLC || Test Case Design || Unit & Integration Testing || Automated Testing || Bug Reporting || Test-Driven Development (TDD) || Software Quality Assurance
- **Object Oriented Programming Specialization | University of London – Coursera**  
**Key Components:**  
OOP Fundamentals || C++ Programming || Control Flow || Data Modeling || Algorithms & Testing || Class Design || Modular Programming || Cryptocurrency Exchange Project
- **Nand2Tetris Course | Hebrew University of Jerusalem – Coursera**  
**Key Components:**  
Boolean Logic || Digital Circuits || Assembly Language || Assembler Implementation || Computer Architecture Virtual Machine || Compiler Design || Operating System Basics || Building a Simple Computer

## Work Experience

### **Data Entry Specialist - Humat Al Watan Party | May 2023 – Oct 2023**

- Accurately entered and maintained sensitive political data with 100% confidentiality.
- Streamlined data entry processes, reducing errors by 15%.
- Enhanced report accuracy through timely and precise updates.

### **Founder of Shadow Store | Jun 2018 - Oct 2020**

- Managed an online business, gaining expertise in customer service support and social media management.
- Monitored the brand's online presence and analyzed marketing campaign results to drive engagement.

## Volunteering

- **Central IT Department Head - Life Makers Universities Club | Sep 2023 – Nov 2024**
- **Youth Voice Training - Circle for Training and Consultancy & British Council | Mar 2024**
- **Youth Fostering for Community Leaders Project - Life Makers Beni Suef | Oct 2022 - May 2023**
- **IT Department Head - Life Makers Beni Suef University Club | Sep 2023 – Nov 2024**