

Mohammad Ali Harb – Computer & Communication Engineering Student

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Mansourieh, Maten, Lebanon

[LinkedIn Profile](#)

PROFILE

A motivated and detail-oriented Computer and Communication Engineering student at Saint Joseph University of Beirut ESIB, with a strong foundation in networking, programming, and Cybersecurity. Known for persistence in mastering challenging concepts and applying theoretical knowledge through hands-on projects and problem-solving. Skilled in C++, Python, MATLAB, and network analysis tools like Wireshark, with a growing interest in embedded systems, Artificial intelligence engineering, and telecom networks.

EDUCATION

Saint Joseph University of Beirut

Computer and Communication Engineering Degree

Predicted Grade: 3.4/4.0 GPA

Key Modules: Programming, Antennas and Propagation, Computer Networks, Signal and Systems, Communication Theory, Electromagnetics, Operating Systems, Wireless Communication, and Mobile networks.

Sep 2022 – Present

Mansourieh, Lebanon

VOLUNTEERING

Environmental Volunteer

Harouf Tree Planting Campaigns 2020-2022

Contributed to local environmental initiatives through participation in tree planting and community sustainability campaigns in Harouf.

ACHIEVEMENTS

- Winner of Model Arabe League at Lebanese American University (First Place). April 2022
- Winner of Translation Competition at American University of science and technologies. May 2022
- Winner of Okaz Poetry Competition June 2020
- Winner of AL Ghadir Marathon. Winner of Jebshit Marathon. March 2017

Projects

- **PIC18F4520 LCD Ski Game — Embedded Systems Project**
 - Developed a real-time skiing game in Assembly language for the PIC18F4520 microcontroller using MPLAB/MPASM.
 - Designed a complete interrupt-driven embedded architecture using Timer0 and external interrupts for game timing and button handling.
 - Implemented LCD 4x16 interfacing in 4-bit mode, including low-level display control, cursor management, and RAM-based screen buffering.
 - Programmed player movement, obstacle generation, collision detection, scoring system, level progression, and game-state management entirely in Assembly.
 - Integrated hardware peripherals include push buttons, buzzer control circuitry, timers, interrupts, and internal oscillator configuration.

Built and simulated the full hardware system in Proteus, including PIC18F4520, LCD, input buttons, and buzzer interface.

- Optimized memory management and real-time execution using direct register manipulation, RAM addressing, and interrupt service routines.
- Technologies: PIC18F4520, MPLAB, MPASM Assembly, Proteus, LCD Interfacing, Timer0, Interrupts, Embedded Systems

- **Smart Fetch Bot – Autonomous Robotics Project**

Autonomous robot capable of object detection, navigation, pickup, and delivery using embedded systems and computer vision with autonomous mode. Controlled by a joystick on a mobile application with manual mode. Features an omni-wheel base, robotic arm, sensor-based safety system, and Raspberry Pi–Arduino architecture.

- Developed modular Arduino Mega firmware for an autonomous assistant robot
- Implemented UART communication between Raspberry Pi and Arduino using custom command protocol
- Designed state-machine based robotic control architecture with telemetry and safety handling
- Integrated omni-wheel motor control, ultrasonic sensors, wheel encoders, and robotic arm/gripper actuation
- Implemented obstacle detection, communication timeout safety, and real-time motion execution
- Technologies: Embedded C/C++, Arduino Mega, Raspberry Pi, UART, PWM, ServoEasing, Git/GitHub.

- **Smart Agriculture Monitoring & Automation System**

- Designed and integrated an Arduino-based smart agriculture system for automated environmental monitoring and control.
- Implemented real-time sensing using soil moisture, temperature, and humidity sensors to monitor field conditions continuously.
- Developed automatic irrigation and cooling control using a water pump and fan based on sensor thresholds.
- Integrated a 16x2 LCD interface for live system status, sensor readings, and operational feedback.
- Performed full hardware integration including sensor interfacing, actuator control, power distribution, and circuit cabling.
- Programmed embedded control logic in C++ using Arduino IDE for autonomous decision-making and reliable system operation.
- Contributed to system testing, debugging, calibration, and validation of sensor-actuator interactions.
- Technologies:
Arduino Uno, Embedded C++, IoT Sensors, Soil Moisture Sensor, DHT Sensor, LCD I2C, Relay Modules, Water Pump, DC Fan, Hardware Integration, Automation Systems.

ADDITIONAL SKILLS

Languages: Arabic, English, French
Microsoft Office: Proficient in Word and PowerPoint
Technical Skill: Proficient in Ubuntu operating system, Kali Linux, Arduino Projects, MATLAB, Programming (C++, Python), Packet tracer, GNS3, Proteus, Meta trader 5, Trading View, Market charts reading.