

CHARBEL J. ESTEPHAN

Computer & Communication Engineering Student | Ajaltoun | 71/616363 | charbelstephan12@gmail.com | charbel-j-estephan.com

EDUCATION

Notre Dame University – Louaize (NDU), Zouk Mosbeh, Lebanon **September 2023 – Present**

B.E. in Computer and Communication Engineering

- Coursework: Embedded Firmware, Digital Electronics, Signals & Systems, Telecom, PCB Design

EXPERIENCE

Junior Software Engineer (Part-Time) — Isy, Lebanon **2026 – Present**

- Build and ship cross-platform mobile features in Flutter and React Native.

SharePoint Framework Developer Trainee — Soft Flow Group, Jal el Dib **June 2024 – September 2024**

- Built 3+ SPFx web parts and extensions in TypeScript, React and Microsoft Graph, delivering live Microsoft 365 dashboards for business teams.

Manager & Operations Lead — Librairie Le Crayon, Ajaltoun **2021 – Present**

- Run a profitable retail business since 2021 (procurement, inventory, 3+ person team) alongside full-time study; built internal stock and pricing tools.

PROJECTS

NXP Cup — Autonomous Racing Car | *S32K144 · Embedded C/C++ · Pixy2 · BLDC · PID · S32 Design Studio*

- Building an autonomous line-following car on an S32K144 MCU — Pixy2 vision, dual PID loops (steering + cruise), and BLDC control in register-level C/C++.

CNC PCB Plotter | *PIC16F877A · ESP32 · Embedded C · Flask · Google Cloud Run · MPASM · JTAG*

- **Built an in-house PCB fabrication system:** Flask cloud service for Gerber-to-G-code, ESP32 Wi-Fi UART bridge, and motion firmware on PIC16F877A (Bresenham, 24-bit fixed-point).

TTL Logic Gate Clock | *7400-series TTL · 555 · 4026 · 7485 · Verilog · Icarus Verilog*

- Clock and alarm built entirely from discrete 7400-series logic, no microcontroller: 555 pulse, 4026 counter chains, 7485 comparator alarm, 12/24-hour AM/PM display. Four-person team.
- Rewrote the same design as synthesisable Verilog — five RTL modules, a testbench each, verified across midnight and noon rollovers in both modes.

Intel 8085 Control Unit — VHDL | *VHDL · GHDL · GTKWave · WSL2 · Linux*

- Implemented a full 8085 control unit in synthesisable VHDL — 256-entry instruction decode table, T-state FSM, and interrupt handling — verified cycle-accurately in GTKWave.

Dietician Portal — Client Project | *Flutter · Firebase · Real-time Sync*

- Shipped a production Flutter and Firebase app for a practising dietician: client food, water, exercise and weight tracking plus a dietician dashboard, synced in real time.

TECHNICAL SKILLS

Embedded & Firmware Embedded C and Assembly, Intel 8085, Arduino, BLDC control, Timer/PWM/ADC/UART/SPI/I2C, register-level design

HDL & Digital Design VHDL (GHDL), Verilog (Icarus), 7400-series TTL, FSM and T-state control units, GTKWave, synthesisable RTL

PCB & Hardware Proteus, KiCad, Altium, OpenSCAD, PCB routing and etching, S32 Design Studio

Full-Stack & Mobile React, React Native, Flutter, TypeScript, Node.js, REST APIs, Python (Flask, FastAPI), SQL, Firebase

Cloud & Platforms Google Cloud Run, SharePoint Framework (SPFx), Linux, Agile/Scrum, technical writing

Signals & Vision MATLAB, Simulink, PSD analysis, signal modulation, Pixy2 vision; Fusion 360, FDM 3D printing

ACTIVITIES & VOLUNTEERING

Scout — Troop Member & Leader

2015 – 2020

Volunteer Usher — Notre Dame University – Louaize

2023 – Present

- Event usher across university ceremonies, open days and official events.