Khalil Soumri

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SUMMARY

Recent graduate in Computer Systems Engineering with a specialization in IoT and Embedded Systems, currently pursuing a Master's degree in Networks and Virtualization. Skilled in microcontroller programming (ESP32, Arduino, STM32), sensor integration, embedded C/C++, and Python for AI applications. Experienced in developing and testing IoT solutions, hardware–software co-design, and cloud integration. Passionate about leveraging technical and analytical skills to contribute to innovative projects in embedded systems, IoT, and AI, with a strong foundation in problem-solving and leadership.

EXPERIENCES

Embedded Systems & IoT Developer – Ministry of Agriculture, Tunisia

Feb 2025 – Jun 2025

- Developed monitoring system with real-time sensors and troubleshooting of data transmission issues.
- Designed and implemented an ESP32-based bee flow monitoring system using IR break-beam sensors.
- Integrated DHT11/DHT22 sensors for real-time temperature & humidity monitoring.
- Optimized power consumption by controlling IR sensors with an LDR-based night detection system.
- Programmed a 16x2 LCD for alternating sensor display and used LEDs to indicate bee activity.
- Assisted in web app development for remote monitoring and data visualization.
- Created test procedures, validated accuracy, and documented system performance.
- Validated system accuracy, achieving 95% correct bee flow detection.

Embedded AI Developer – Personal Project: Smart Garbage Sorting System

Oct 2024 – Nov 2024

- Built and tested automated classification pipeline, resolving integration issues between hardware and AI software.
- Developed an ESP32-based automatic waste sorting system using servo motors.
- Built an image classification pipeline in Python with a pre-trained VGG16 model for recyclability detection.
- Integrated real-time serial communication between the microcontroller and AI module.
- Conducted tests for servo control, classification accuracy, and logged results.

SKILLS

Programming Languages	**Embedded Systems**	**IoT & AI**	**Soft Skills**
C / C++, Python,VHDL	ESP32, Arduino, STM32, Circuit Design, Power Management, LCD/LED Displays, Sensor Integration, Debugging & Testing	Cloud Integration, API Communication, IoT Security Basics, Machine Learning (TensorFlow/Keras), Image Classification,Ubuntu,cloud concepts(AWS),Monitoring & troubleshooting	Leadership and project ownership, Teamwork and collaboration, Critical thinking and problem solving

EDUCATION

Faculty of Sciences of Bizerte (FSB) – Bachelor of Computer Systems Engineering
Sep 2022 – Jun 2025

- Graduated with Honors (Very Good distinction) – Final Grade: 17/20
- Relevant Coursework: Embedded Systems, Real-Time Systems, Computer Networks, Performance Optimization, Digital Design.

Sep 2025 – Jun 2026

- Currently pursuing the first year of a Master's program focused on computer networks, cloud systems, and virtualization technologies.

Leadership & Activities

- **Team Leader** – AIESEC Bizerte (project coordination & leadership)
- **Communication Manager** – Microsoft Club (event organization & community engagement

Languages

- English
- French