BAHRI ONS

+33 6 60 05 43 69 · ons.bahri@etu.unice.tn

SOFTWARE ENGINEER STUDENT

I am a motivated software engineering student specializing in embedded systems, with a strong passion for robotics and innovation. My engineering background has equipped me with solid technical skills and problem-solving abilities, enabling me to design and implement effective solutions through programming. I thrive on tackling complex challenges, pushing boundaries, and delivering impactful results.

EDUCATION

Université Côte d'Azur – UNICA | Nice, France
Master – IoT & Cyber-Physical Systems (Double Degree Program)   **2025 - Present**
- Focus on Embedded Software, IoT System Design, Cyber-Physical Systems Development, Full-Stack Engineering for IoT, AI for Embedded Devices, and Security for IoT & CPS. Includes Scientific Research in Computer Science and a Study & Research Project

Private higher school of engineering and technology - ESPRIT
Software Engineer Student | Ariana   **2023 - Present**
- Java, Algorithmic, Language theory, Linux, CCNA Network, Web and Mobile Developments, Testing and Validation, Mathematics, Spring Boot, .Net, Machine Learning, Docker, Service-Oriented Architecture, Communication Protocols in Embedded Systems, Sensor Networks, the Internet of Things (IoT), Linear Programming, Computational Complexity and Advanced and Embedded Operating Systems.
- Option: Ambient and mobile embedded systems and software.

Higher Institute of Computer and Mathematics of Monastir - ISIMM
Preparatory cycle in mathematics and computer science | Monastir   **2020 - 2023**
- C/C++, Python, Java, Algorithmics, Linux, Language theory, Network Fundamentals, Web Developments, Testing and Validation, Mathematics, Physics.

WORK EXPERIENCE

Capgemini Engineering & Altran Telnet Corporation | Internship
Wireless Battery Management System (BMS) for Electric Vehicles: **July - August 2025**
- Designed and implemented a wireless **BMS** prototype using **ESP32** and **Raspberry Pi**. Worked with sensors (**INA219**, **thermistors**, **multiplexers**) for voltage, current, and temperature monitoring.
- Developed communication architecture combining **ESP-NOW** for intra-node communication and **TCP** for data aggregation.
- Implemented data acquisition, transmission, and visualization to simulate large-scale **EV** battery monitoring.

ACTIA ENGINEERING SERVICES | Internship
BLE-Based Battery Monitoring System Prototype with ESP32:   **July - August 2024**
- Developed a prototype **BMS** using **ESP32** and **BLE** to transmit battery data to a smartphone. Implemented data fragmentation, **GATT-based** communication, and data parsing to simulate real-time battery monitoring.

BIONIC SOUL STARTUP | Academic Project
Bionic Arm Controlled via EMG Signals: **January - May 2024**
- Built a bionic arm controlled by **EMG signals** using **AI** on **Raspberry Pi 4** to interpret muscle activity and trigger movements. Developed a **Flutter app** for user guidance and monitoring, and a **full-stack Angular/Spring Boot** web app with a marketplace for the startup.

BAHRI ONS

+33 6 60 05 43 69 · ons.bahri@etu.unice.tn

PROJECTS

MIoT Project – Smart Coffee House

- Built a smart coffee house with two ESP32 nodes for sensors and actuators. Data flows via MQTT to Raspberry Pi, then to Firebase through Node-RED, enabling real-time monitoring and control from a web app.
- **Technologies:** ESP32, MQTT, Node-RED, Firebase, Raspberry Pi, Web App
- **Skills:** IoT system design, real-time data transmission, MQTT communication, web-based control, cloud integration

Smart Mini-Market System

- Built a smart mini-market system on Arduino Uno using UART, I2C, SPI, and NRF24. Integrated gas, flame, and DS1621 sensors for monitoring, with data logging to an SD card and remote alarm control via NRF.
- **Technologies:** Arduino Uno, NRF24, I2C, SPI, UART, DS1621, SD Card
- **Skills:** Embedded systems, multi-protocol communication, sensor integration, data logging, remote control

AuraHome - IoT Smart Home System

- Developed a smart home system that integrates multiple sensors and devices for real-time monitoring and control. The system includes lighting, security alarms, temperature and humidity monitoring, and environmental sensors (gas, flame, rain) controlled via the Blynk app.
- **Technologies:** ESP32, Blynk, Wifi, NRF, SolidWorks, Arduino IDE, Proteus
- **Skills:** IoT development, sensor integration, app-based control, prototyping

Bike Rental Management App

- Developed a mobile app for bike rental management using Android Studio. Integrated phone sensors (GPS, light sensor, step counter, accelerometer) and used Room database for local data storage and tracking.
- **Technologies:** Android Studio, Java/Kotlin, Room, Google Maps API
- **Skills:** Mobile development, sensor integration, local storage, location tracking

SKILLS

Technical Skills

- **Programming languages:** C, C++, C#, Python, Java
- **Web & Mobile Frameworks:** Spring Boot, Angular, .NET Framework, Flutter/Flutter Flow.
- **IoT Platforms:** Blynk, Firebase, Node-RED.
- **Tools:** Arduino IDE, Visual Studio Code, IntelliJ IDEA, Android Studio, Git/GitHub, Proteus, CupCarbon5/6.
- **Communication protocols:** BLE, MQTT, I2C, SPI, UART, MQTT, ESP-NOW.
- **Microcontrollers:** ESP32, Arduino, Raspberry Pi.
- **Databases:** Firebase, SQL.

Soft Skills

- **Competitive** mindset with a drive to excel and stand out
- Strong sense of **responsibility** and **ownership**
- Proven **team leader** with group **management experience**
- Effective **communicator** in collaborative and technical settings
- **Fast learner**, adapts quickly to new challenges
- Delivered robotics training sessions with hands-on guidance
- **Proactive**, **goal-oriented**, and **results-driven**

LANGUAGES

Arabic	English	French
Native	B2 Level	B2 Level

ASSOCIATIVE LIFE

Senior Member (CPU ISIMM) :   2022-2023
- Participation in decision making and implementation.
- Trainer in the electronic training group (microcontroller, C and algorithm, Motor Drivers ...)
- Designed and built multiple robots: all-terrain, line follower, maze solver, PCB-designed robot, and an NRF-based gamepad-controlled robot.

Office Member (CPU ISIMM):   2021-2022
- Responsible of the integration of new members and the implementation of the activities.
- Participation in robotics competitions (Line Follower , all terrain ...)