

Hachem Salsabil

Mechatronics Engineering Student | Robotics Specialization

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PROFILE

Mechatronics engineering student passionate about robotics and autonomous systems. Experienced in developing real-time control systems, autonomous navigation, and integrating complete robotic solutions.

EXPERIENCE

Kitx-Lab

Robotic Motion Control Engineering Intern

Sousse, Tunisia

06/2025–08/2025

- Developed real-time control system for robot servodrives via EtherCAT
- Implemented deterministic control loop under Linux PREEMPT-RT
- Configured EtherCAT network and PDO mapping for servodrives in CSP/CSV mode
- **Technologies:** C++, EtherCAT (IGH Master), DS402, Raspberry Pi 4, debugging, cmake

Kitx-Lab

Robotics Designer - 5-Axis Robot Project

Sousse, Tunisia

03/2025–05/2025

- Designed 5-axis robot with technical analysis and dimensioning
- Mass optimization and 50% cost reduction through component selection
- 3D modeling with SolidWorks including cable routing simulation

XPERT-MECA

Robotic Systems Integration Intern

Sousse, Tunisia

06/2024–07/2024

- Assembly of special machines and electrical control cabinets
- Component inventory management and quality control

EDUCATION

Mechatronics Engineering Student | National Engineering School of Sousse (ENISo) | In progress
Robotics, Control Systems, Embedded Systems, Computer-Aided Design

Preparatory Classes for Engineering Schools | IPEIK | 2020-2022

SKILLS

- **Programming:** C++, C, Python, MATLAB, ROS (Robot Operating System)
- **Control Systems:** PID, Adaptive Control
- **Computer Vision:** OpenCV, RL, TensorFlow
- **Hardware:** Raspberry Pi 4, ESP32, Motors, LiDAR
- **Simulation:** Gazebo, MATLAB Simulink
- **Manufacturing:** CAD (SolidWorks), 3D Printing, CNC
- **Communication:** EtherCAT, TCP/IP

ACADEMIC PROJECTS

Autonomous Mobile Robot

- Developed complete ROS2 stack: SLAM, Navigation, Localization
- Integrated Nav2 with Behavior Trees for decision logic
- Designed real-time web interface for teleoperation and monitoring
- **Tech:** ROS2 Humble, Nav2, OpenCV, Web, Python
Conversational Robotics Agent
- Developed ROS2 agent with LLM integration (Ollama)
- Natural language command understanding system for robot control
- **Tech:** ROS2, Python, LLM

LANGUAGES

Arabic: Native
French: Fluent
English: Technical

CERTIFICATIONS

ROS2 Advanced
AI for Robotics

INTERESTS

ENISo Robotics Club
Robotics Competitions