



EUROPASS CERTIFICATE SUPPLEMENT

Following line robot programming

Verssion_20251128





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The holder of this certificate has acquired the following skills and competences:

Technical and Professional Competences

- **Design and assembly of programmable electronic circuits:** Capacity to build small-scale electronic systems for equipment control, ensuring neat assembly according to technical regulations.
- **Microcontroller programming:** Proficiency in writing, debugging, and uploading structured code to microcontrollers (Arduino/ESP32) to manage hardware behavior.
- **Sensor and actuator integration:** Selection and connection of diverse peripherals, including sound sensors (FC-04), ultrasonic and infrared distance sensors, color sensors, and RFID readers.
- **Advanced output management:** Implementation of visual and mechanical feedback systems using LCD displays (via I2C), OLED screens, Dot Matrix displays, and Step-per/Servo motors.
- **Data management and storage:** Capability to handle external data logging using SD card modules and managing digital/analog signals for real-time monitoring.
- **Automated systems testing:** Designing and executing systematic test plans to verify circuit functionality, drawing technical conclusions, and implementing necessary adjustments.

Transversal Competences

- **Logical and algorithmic thinking:** Ability to translate complex requirements (e.g., automated crowd alarms or autonomous line-following robots) into logical software sequences.
- **Technical documentation:** Proficiency in creating preparatory documents, test reports, and improvement proposals in a professional and understandable language.
- **Analytical research:** Capacity to evaluate and compare different hardware technologies (e.g., Arduino vs. Raspberry Pi) to determine the most efficient solution for a specific project.

DATE

FACILITATOR SIGNATURE

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