Apprenticeship Description

Advanced Emotor Control Software Development & Verification (*SM-STA005 / 2022*)

Description

Company	**SILICON MOBILITY SAS** *(numbered 815 085 659 000 28 RCS Grasse)* Head office : Les Aqueducs – Bât 2 – 535, route des Lucioles – 06560 Valbonne Sophia-Antipolis The Automotive industry is living a revolution. Electrification, autonomous driving, diverse mobility, connectivity are trends that are drastically changing the industry's rules. Among all decisive topics revolutionizing cars in the next future, Silicon Mobility is committed to supporting the rapid advent of electric and hybrid cars. Silicon Mobility is a technology leader for cleaner, safer and smarter mobility. The company designs, develops and sells flexible, real-time, safe and open semiconductor solutions for the automotive industry used to increase energy efficiency and reduce pollutant emissions while keeping passengers safe. We are looking for a good candidate to join our R&D team working in Sophia-Antipolis on the French Riviera. Please contact us: **internship2022@silicon-mobility.com**
Offer Number	SM-STA005-2022
Project Title	New E-motor Control Software: Development & Verification
Period	12 months from September 2022 to September 2023
Working hours	35 hours a week at Silicon Mobility office
Income	From 1300€/month + Tickets Restaurant
Student level	Last year of Masters (BAC+5 or equivalent)
Project Description	The candidate will integrate the R&D System and Software team as an embedded software engineer assistant. The Silicon Mobility solution is based on OLEA® FPCU (Field Programmable Control Unit) that embeds a CPU core, programmable logic, memories, and peripherals. The candidate's responsibility consists of analysing, defining, developing, and testing embedded software that will be executed on OLEA® FPCU. This project will be divided into 3 main phases: Ramp-up: • Learning OLEA FPCU, tools (OLEA COMPOSER, ARM debugger, CAN XCP tool) • Learning phase on the e-motor control Software application • Understand and apply the ASPICE Flow put in place Requirements analysis In the context of this task, the intern will have to learn the Inverter control algorithms supported, the architecture of OLEA® FPCU, the development tools used, including OLEA® COMPOSER environment and flow. Particular attention will be paid to the interface and resources to be used by the application and the relevant safety concepts. System and Software specification Basing on the previous analysis, the intern will assist team to write a detailed specification of the solution in collaboration with other R&D team members as well as the customer support team. This specification shall cover following aspects: • Host software design, configuration, and integration principles • Embedded software design for code generation • User guide and engineering documentation compliant with the ISO 26262 standard. System and Software development and validation During this task, the intern will participate to develop, integrate, and validate the different components of the embedded system and software.

Profile	For this internship, we are looking for a candidate with good knowledge of embedded systems, embedded C programming, and high-level programming language. Good skills in hardware design for embedded systems would be appreciated. The candidate shall be autonomous, rigorous with a strong team spirit. English speaking is required.
Skills developed	• General knowledge in microcontroller development • Development of embedded software on ARM processor • Critical real-time embedded software on ARM processor • Safety • Matlab/Simulink • Advance algorithm control • Requirements analysis and specifications writing • Notions of planning and project management • Quality management skills