

# Silicon Mobility

An Intel Company

## Internship Description

### Automotive Power Control Application Development (SM-STC007 / 2025)



## What we offer

<b>Company</b>	<p><b>SILICON MOBILITY SAS, an Intel Company</b></p> <p>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 support the rapid advent of electric and hybrid cars.</p> <p>Silicon Mobility, an Intel company, is a technology leader for cleaner, safer and smarter mobility. The company designs, develops and sells flexible, real-time, safe and open semiconductor solutions named FPCU (Field Programmable Control Unit) for the automotive industry used to increase energy efficiency and reduce pollutant emissions while keeping passengers safe. The Company is looking for a motivated candidate to join our R&amp;D team based in Sophia-Antipolis on the Riviera.</p> <p>If you are interested, please send us directly your application and CV on the Intel Website careers or send them to <a href="mailto:recruitment@silicon-mobility.com">recruitment@silicon-mobility.com</a> .</p>
<b>Offer ref.</b>	SM-STC 007-2025
<b>Subject – Offer title</b>	Automotive Power Control Application Development
<b>Duration</b>	5-6 months– between February/March/April and September 2025
<b>Work hours</b>	35 hours per week, job location at Silicon Mobility office
<b>Education</b>	Last year of Master (BAC+5 or equivalent)
<b>Content/ mission</b>	<p>The Silicon Mobility solution is built on the OLEA® FPCU (Field Programmable Control Unit), a System-on-Chip designed for automotive applications. This chip integrates a CPU core, programmable logic, memory, and peripherals, offering advanced control capabilities.</p> <p>As part of the R&amp;D team, the intern will contribute to the development of a powertrain control application. This will include working on e-motor/inverter control and DC/DC converter control, using OLEA® U FPCU platform.</p> <p><u>Main responsibilities:</u></p> <ul style="list-style-type: none"> <li>• Utilize pre-existing control algorithms and assist in their integration onto the controller chip.</li> <li>• Participate in the Model-in-the-Loop (MIL) and Hardware-in-the-Loop (HIL) development and validation processes.</li> <li>• Collaborate with the team to define system constraints for powertrain control application.</li> </ul> <p>During the internship period, several tasks will be addressed:</p> <ul style="list-style-type: none"> <li>• <u>Phase learning</u> The intern will get familiar with e-motor/inverter control and DC/DC control algorithms as well as the development flow.</li> <li>• <u>Specification and implementation</u> The intern will conduct research on system constraints for powertrain control application. This task involves identifying key limitations and requirements of e-motor, inverter, and DC/DC control systems to ensure seamless integration and optimal performance across several applications. The intern will document findings and propose solutions for addressing these constraints in the design and implementation phases using MATLAB/Simulink.</li> </ul>



	<p>This development shall comply with the ISO 26262 development guidelines</p> <ul style="list-style-type: none"> <li>• <u>Verification and Documentation</u> The intern will verify and evaluate the performance of control algorithms under various configurations using Model-in-the-Loop (MIL) and Hardware-in-the-Loop (HIL) test environments. This will involve testing the algorithms to ensure their efficiency and functionality in different operational scenarios. The intern will also be responsible for characterizing the results, identifying potential improvements, and ensuring the algorithms meet performance benchmarks. After the verification process, the intern will draft a user guide to assist users in configuring and optimizing the algorithms for their applications.</li> </ul>
<b>Profile required</b>	Engineer in power electronics, embedded software or control systems
<b>Expected Skills/knowledge</b>	<p>Control algorithm development in MATLAB/Simulink          Embedded software development in C code          Electrotechnics and power electronic systems (DC/DC, Inverters, electrical machines)          Inverter and motor control application          Understanding the flow of energy between the battery, DC/DC converter, inverter, and electric motor.          Electric vehicle architecture</p>
<b>Remuneration</b>	€1400/month + Tickets Restaurant + Public transport

