

Infineon Technologies – Master’s Thesis Proposal

Development of a Demonstrator for Evaluating the Next-Generation Infineon eFuse Devices

Thesis Description:

This Master Thesis focuses on the design and implementation of a demonstrator aimed at showcasing the performance and features of next-generation Infineon eFuse power devices used to supply electric vehicle auxiliary systems. The primary goal is to develop a test platform capable of comparing the next-gen Infineon eFuse device against competing solutions from other manufacturers. More about eFuse technology can be found here: <https://www.infineon.com/cms/en/product/power/smart-power-switches/high-side-switches/profet-wire-guard-12v-automotive-smart-high-side-switch/>

The project is structured into two main development areas:

- **Hardware Development:**

A demonstrator will be designed and manufactured to test eFuse devices from different manufacturers. Key hardware elements include an off-the-shelf AURIX microcontroller board, a DC-DC converter, and representative passive load configurations.

- **Firmware Development:**

Firmware will be developed on an AURIX MCU to control and monitor eFuse devices from different manufacturers, utilizing existing reference drivers and extending functionality for comparative analysis. Communication protocols (SPI/I2C), power sequencing, and load behavior under various conditions will be examined.

Additional Info:

- The thesis will be conducted at Politecnico di Torino, with two planned visits to Infineon Austria (Villach) to align technical progress and gain insights from company experts
- Infineon Technologies will provide financial support to the candidate in the form of a scholarship of around 500 euros/month
- Thesis duration 5-6 months

Application Process:

Candidates interested in pursuing this opportunity should submit their CV and any inquiries to:

Dr. Fausto Stella (fausto.stella@polito.it)

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