# MARELLI AUTOMOTIVE LIGHTING

## TOLMEZZO PLANT

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# THESIS PROJECTS

a. Application of the image recognition techniques to be applied in rear lamp testing.
b. Integrate the tools used for SW static, dynamic analysis, and SW integration tests in the development toolchain.
c. Electromagnetic simulation of an automotive application for EMC: modelling, simulation and validation of the conducted emission test.
d. Artificial intelligence, techniques and applications to support designers of car lighting devices.
e. Design and implementation of a python based car body computer emulator for CAN-FD bus
f. Study and analysis of microLED technologies in the automotive market.
g. Study and integration of a tool for Model based design.
h. Size migration of electronic components in automotive: a comprehensive feasibility and validation study towards miniaturization.
i. Feasibility and implementation of a multi-band optical physical layer to carry automotive grade communication protocol.
j. Study of the flash bootloader for automotive products starting from the customer functional requirement to the cybersecurity related requirements.
k. Implementing a tool for automatic calculation of the project Software & System development metrics and integrate it with the eazyBI platform.
l. Designing a configurable SW module for implementing a gateway in order to make transparent (from the master prospective) the usage of different led drivers devices.
m. Identify possible review checks on development work products that can be automatized and implement a tool for perform this activity automatically.
n. Development of virtual led driver models to perform the Software in the loop testing in Vector toolchain environment.
o. Study of Cybersecurity aspects related to the software development in the vehicle exterior lighting domain.