



MSc thesis project

Health monitoring in electronic drivers

Assignment

When: Flexible starting date
Duration: 9 months

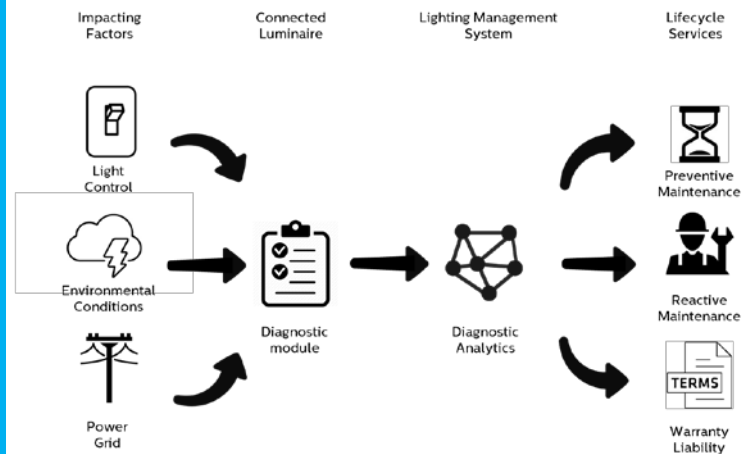
Where: ECTM Laboratory & EKL cleanroom at the EEMCS faculty

Who: Creative and motivated MSc students
Background in microelectronics, material science or nanotechnology

What: This project is connected to the EU project iREL, funding by Signify is possible

Summary:

- Health monitoring of electronics
- Predictive maintenance, circular design
- Sensor synthesis in the cleanroom
- Developing digital twin concepts for drivers



Background

Prognostics and monitoring is not just about creating a more reliable product: it is about creating a more predictable product based on real-world usage conditions. Electronic components or its interconnects in drivers may fail over time due to the “overstress” caused by the operational conditions. The focus of this work is to discover a smart canary component which could be built on the board to detect the “overstress” and the failure of the critical components and its interconnects in advance. The proposed work streams are:

- To understand the typical failure mode and the failure mechanism of electronics components/interconnects in drivers using accelerated tests.
- To discover/study available stressors which could work as a feasible canary component in the driver
- To build up the component in a trial board and demonstrate the feasibility and sensitivity.
- To demonstrate the feasibility, certain high accelerating tests need to be done to generate the “over stress”.

