

RETROFIT DIGITAL TWIN RESEARCH

Scania Productions Zwolle (www.scania.nl) is a lean manufacturer which produces trucks. They assemble 200 trucks per day, each configured to customer requirements. This requires strict control over production, whereby coordination between people and machines is crucial. The uptime is currently 97% which means that 3% of the time no production can take place. The goal of Scania is to increase uptime.



Scania and the Ambient Intelligence research group have joined forces to achieve this goal. Ambient Intelligence (Aml) is a research group of Saxion that focuses on making environments smart, mainly in the areas of safety, sports and smart industry.

For this project we choose a data-driven approach. In this case, we will look specifically at the carrier system that transports the trucks through the hall. The carriers on which the chassis of the trucks rest are controlled by a central PLC (programmable logic controller) and it is critical that these carriers keep on working. At this moment, the carriers are equipped with dataloggers to acquire a lot of detailed data about their behavior during the production runs. The ultimate goal of the project is to create a predictive maintenance model of this carrier.

In this project you will be working for and at Scania and are coached by Saxion the Aml lectorate. Also a close co-operation with the Scania data analysis group in Sweden is part of the assignment.

TASK DESCRIPTION

Your assignment is to investigate the state of the art on Digital Twins: real-time virtual representations of a physical object or process. Based on this you will research the possibilities and alternatives of developing a retrofit Digital Twin for the carrier. Together with this we expect you to investigate the feasibility of such a retrofit Digital Twin, providing an advice report on the adoption of Digital Twin technology.

Concretely, we expect you to investigate if the currently available data streams are sufficient for the development of a Digital Twin. Your advice should include an analysis of possible additional data to be acquired during the production runs.

PRACTICAL INFORMATION

- **Student profile:** HBO-ICT Business, Applied Computer Science
- **Contact person(s):** Jan Veltman (j.w.veltman@saxion.nl)
- **Lectoraat Ambient Intelligence:** saxion.nl/ami