

SCANIA GENERIC IOT SENSING PLATFORM FOR PREDICTIVE MAINTENANCE



Scania Productions Zwolle (www.scania.nl) is a lean manufacturer which produces trucks, assembling on average 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.

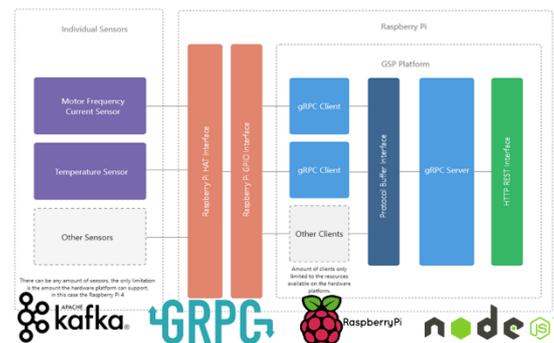
Scania and the Ambient Intelligence (Aml) research group have joined forces to achieve this goal. Aml is a research group of Saxion that focuses on making environments smart, mainly in the areas of safety,

sports and smart industry.

For this project we will look specifically at the carrier system that transports the trucks through the assembly line. The carrier system 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 normally. To understand the reasons for disruptions in carrier operation, the carriers are currently equipped with a generic sensing platform (GSP) developed by Aml that it is used to non-invasively acquire a lot of detailed data about their behavior during the production runs, that will help to collect data that will be analyzed to obtain indicators for predictive maintenance.

Task Description

The main goal of this assignment is to re-design the Generic Sensing Platform, in order to provide greater flexibility in the usage of different sensor systems and multiple communication protocols (ie. MQTT, Kafka), as well as providing a failure proven system that will retain its data even when connectivity or power is dropped. The main goal is to provide a resilient GPS platform that is reliable, easy to configure, runs lightweight (restricted embedded platform) and stable. As a part of this assignment you would be building on, but not limited to:



- Analysis of current GSP platform, state of the art research and design on an improved GPS platform. Analysis system requirements of software platform.
- Analysis, state of the art analysis and selection of an industrial embedded platform to deploy the GSP platform. Analysis of system requirements of hardware platform.
- Design, development and design the new improved GSP platform. Developed unit tests for system performance analysis and stress tests.
- Perform system tests and validations at the carrier during normal operation at Scania manufacturing facilities.

In this project you will be working for and at Scania and coached by Saxion the Aml research group.

PRACTICAL INFORMATION

- **Student profile:** Electrical Engineering student/s with knowledge of power systems, embedded systems, programming and passionate about electronics.
- **Contact person(s):** Javier Ferreira Gonzalez (j.ferreiragonzalez@saxion.nl), Jan Veltman (j.w.veltman@saxion.nl) or visit www.saxion.nl/ami