SCANIA ROFA CARRIER OBSTACLE DETECTION SYSTEM

Scania Productions Zwolle is a leader in lean manufacturing with a production capacity around 200 trucks per day. To achieve such a result, the production line uptime must be very close to 100%, with a current figure around 97%. To further improve the facilities capacity and ensure flawless production times, Scania's intention is to further improve his uptime by introducing predictive maintenance analysis on the major parts of the production line. Previous analysis by Scania, together with the research group Ambient Intelligence of Saxion and Windesheim, revealed that a major thread of this uptime lies in the <reliability of the RoFa carrier used to move the truck chassis throughout the factory during the assembly process. To identify system status, errors and malfunction causes of this carrier, it is eminent that detailed data on the performance of the carrier must be collected and transmitted to a cloud platform for further predictive maintenance analysis. One of the identified problems in carrier availability are obstacles in carrier path, obstructing a smooth carrier ride. As a part of this research project, a Generic Sensing Platform (GSP) has been previously developed, which it's responsible of collecting sensor data at the carrier and transmit to an external cloud platform, based on a Raspberry Pi embedded computer and a modular software architecture. An important problem in the production line process, it's the presence of unwanted objects (dirt, screws and other parts) on the RoFa carrier guidance track and path, which sometimes interferes with the normal carrier operation, that produces some sporadic stops of the production line.

PROJECT DESCRIPTION

The main goal of this assignment is to research and developed a monitoring system that detects and records the presence of unwanted objects in the RoFa carrier path, as well as incorporating this system solution into the developed Saxion GSP system, as part of the predictive maintenance objective.

During this assignment you would be working on:

- Research methods for detecting obstacles on the RoFa carrier path, for example by means of image recognition, RADAR technologies or LIDAR among others.
- Develop the sensing system, algorithms to detect and classify obstacles, as well as incorporating it into the GSP System.
- Build, test and validate the developed system in an actual RoFa carrier in the production line.

PRACTICAL INFORMATION

- **Profile:** Electrical engineering, applied computer science or software engineering student/s with knowledge of object detection, programming and passionate about solutions to real live problems.
- **Assignment**: The assignment will be carried out at Scania Production Zwolle with the technical coaching from the Ambient Intelligence research group and Scania members.
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