aerOS
EUROPEAN IOT-EDGE-CLOUD

aerOS: Autonomous, scalablE, tRustworthy, intelligent European meta Operating System for the IoT edge-cloud continuum

PILOT 1.3: Zero ramp-up safe PLC reconfiguration for lot-size-1 production
## SIEMENS

Pilot & Scenario Overview

Siemens is the responsible for the 3rd scenario that takes place in the "TechHall" (A technological laboratory), in Nuremberg. The company is involved in the development and application of innovative technologies for many areas, mainly industry, infrastructure, transport, and healthcare. Siemens creates solutions that add real value to the diverse customers and verticals that those areas represent.

Siemens Digital Industries, a core segment within Siemens, is committed to delivering tailored automation solutions to customers, encompassing product design, installation, implementation, and after-sales service.

The goal of this scenario is to establish a versatile production system distinguished by modularity, efficiency, and adaptability to dynamic manufacturing conditions.

A key focus is placed on the development of a cyber-physical system that synergizes the capabilities of automated guided vehicles (AGVs) and robotic arms. This integration is facilitated through aerOS decentralized intelligence and communication technology, complemented by Siemens cloud systems services known as SIMATIC Industrial EDGE.
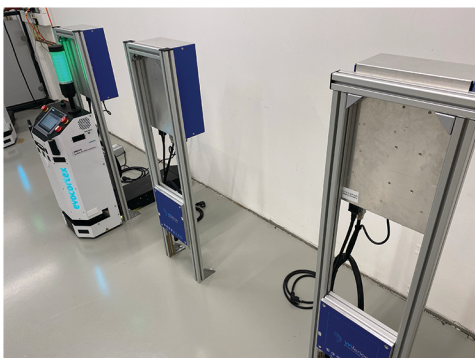
Infrastructure & Technology

The cloud infrastructure is provided by Nasertic, for all scenarios within pilot 1.

The main equipment used contains:
- 4 AGVs with charging stations,
- 2 robotic arms,
- 3 Raspberry Pi,
- Industrial PC (Representing Industrial Edge in aerOS).

The setup includes industrial communication (PROFINET, OPC-UA,ROS2, MQTT,etc.) through all components in the scenario.

At this stage, the scenario has started deploying the aerOS domains and is progressing towards the targets and KPIs achievement.
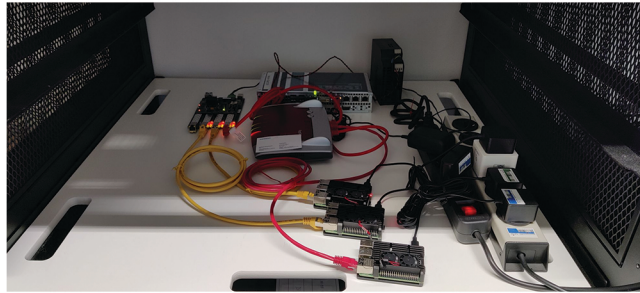
Objectives & Benefits

Working in aerOS, Siemens Use Case aims to highlight the importance of flexible production facilities in an increasingly connected environment. The aerOS platform is designed to improve the efficiency and productivity of manufacturing processes while allowing for greater flexibility and customization.

As part of aerOS, Siemens aim to develop innovative solutions that will meet the demands of a rapidly changing manufacturing landscape. The focus of this use case will enable organizations to adapt to changing market demands and optimize their manufacturing processes to stay ahead of the competition.

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