KUKA Systems GMBH Robotized Engine Cold Test station for Porsche A.G. Zuffenhausen

CLIENT

Porsche A.G. is an automobile manufacturer specializing in high-performance sports cars and SUVs. Porsche AG is headquartered in Stuttgart - Zuffenhausen, and is owned by Volkswagen AG.

KUKA Systems GmbH is a division of KUKA Aktiengesellschaft, Augsburg, an international supplier of engineering services and flexible automated manufacturing solutions. KUKA Systems designs automated application for various automotive manufacturers such as BMW, GM, Chrysler, Ford, Volvo, Volkswagen, Daimler AG as well as manufacturers from other industrial sectors such as Airbus, Astrium, Siemens and others. The range includes products and services for task automation in the industrial processing of metallic and non-metallic materials for various industries including automotive, energy, aerospace, rail vehicles, and agricultural machinery.

TASK

Programming and commissioning of Engine 'Cold Test' station for testing 12 new Porsche engine models. Main components of machine are: 3 KUKA Robots, XCT2 Measuring System, 5 Sinamics Drives with positioning, 3 Bosch tightening Spindles, 20 actuators, 2 RFID readers and many other devices controlled by Simatic PLC and visualized on 2 HMI Panels.

Most significant features of control system was:

➢ Engine position adjustment: Engines are carried by AGVs (Automated guided vehicles) arriving at different positions. With each cycle machine performs engine position measurement, adjustment of Sinamics Drives positions and base calculation for KUKA Robots,
➢ Base transformation for final adapt position using changeable adapter by KUKA KRC-4 robots,
➢ Optimized cycle time: all movements are programmed with maximum possible level of simultaneity allowing to test daily several hundred engines,
➢ Precise alarm diagnostics using ProDiag Functionality (around 1500 detailed messages),
➢ Advanced safety functions.

TECHNICAL SPECIFICATION:

- 1x Siemens 1517F-3 PN/DP Cont   Controller,
- 2x Siemens Sinamics S120 Control unit,
- 3x KUKA KRC4 Controller,
- 1x TP1500 Comfort HMI Panel,
- 1x KTP900F Mobile panel (using SmartServer functionality),
- 5x IM 154-4 PN HF IO Module (using IO-Link functionality),
- 25 other Profinet devices.

PHOTO: