MOBILE ASSISTANCE SYSTEMS FOR MAINTENANCE

Application for manufacturing industry -
Mobile assistance systems for maintenance in production

SUMMARY

Based on a user-centric development process, mobile assistance systems are created for maintenance and integrated into digital production. The focus is on the user-friendly hardware and software environment and also on connectivity to the production system.

CURRENT SITUATION

As a result of digitalization, mobile devices are increasingly being introduced into the industrial environment. These are generally commercial tablet PCs which are not suitable for industrial use. Problems include operating tablets while wearing gloves, screen glare when working outdoors and operating devices that are very dirty. For daily use in a production environment, specially designed devices are needed.

PROJECT DESCRIPTION

The demonstrator features a typical production maintenance scenario of the future using a mobile assistance system. Building on the results of the S-CPS project, a functional prototype was created in the form of a machine demonstrator. The machine demonstrator incorporates a commercial controller with a single-board computer connected via a relay card. The assistance system consists of a consumer tablet with ergonomically developed handles and buttons and a micro-controller that transmits input data to the tablet. All devices run specially developed software that has access to the machine data. Wireless data transmission is provided via WLAN.

SOLUTION

Using real production scenarios, operator errors are generated on the demonstrator. The error and the error correction routine are then displayed on the mobile assistance system (tablet). The operator can then navigate through the visual troubleshooting guide using the touchscreen, the new buttons and the joystick. The operator receives feedback from the machine demonstrator, in real time, as soon as the current fault correction step has been correctly performed, until eventually the machine is fully functional and operational again.

CONTACT

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PARTNERS

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INDUSTRY 4.0 FEATURES

Mobile assistance system for maintenance in a digital production environment

STANDARDIZATION APPROACHES

The demonstrator was created by a user-centric development process as defined in DIN EN ISO 9241-210 and the engineering method according to Wächter (2018).