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Industrial Teleassistance with the Help of Augmented Reality

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This paper details the integration of augmented reality (AR) in a new factory, focusing on enhancing maintenance efficiency and optimization. The innovative approach involves combining AR technology, an Android application, and Siemens PLCs (Programmable Logic Controller), for efficient automation. The robustness of the PLC enables seamless integration within manufacturing environments, accommodating diverse programming paradigms. The software aspect features Human Machine Interface (HMI) configuration using Siemens' WinCC software, offering dynamic visualizations, alarm handling, and data logging. WinCC's scalability suits applications of varying sizes. The HMI architecture is designed for easy parameter display. The Android application, developed with Java and Python, leverages their respective strengths in Android app development and image processing. Data exchange is facilitated by OPC-UA, supporting multiple programming languages for seamless communication. The AR Teleassistance is highlighted as a revolutionary solution, fostering real-time communication among global experts, technicians, and operators. Beyond gaming origins, AR teleassistance enhances efficiency in various sectors, minimizing downtime and facilitating global knowledge transfer. The integration of Teleassistance promotes effective collaboration between human expertise and automated systems, crucial for optimal performance in modern industrial settings. Continuous development is suggested through the addition of more 3D mechanical drawings and real-time stock information for parts in the application, aiming for future optimization and performance enhancement.

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