Technology Network Case Study – Automated Service Auditing via Mobile Maintenance Application

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Festo is a family-owned company and a global player in automation.
Around 20,100 employees worldwide share the same goal:
to maximize our customers' productivity and competitiveness in industrial and
process automation and technical education.

BACKGROUND

Jacobi Eloxal is a renowned company when it comes to anodized Aluminum parts. They handle highly sensitive chemical tanks to treat surfaces and thus must prove security and maintenance auditing. The company must prepare maintenance and service checklists for plant management and local authorities to receive approval twice a year. Besides being times consuming, the approval process is quite frustrating, as it means travelling and time to read through racks full of paper for everyone involved.

Jacobi has been one of Festo´s first customers to use its fully digital mobile maintenance app Smartenance and has been a vital source of inspiration for new features such as an upcoming prototype for automated audit approval.
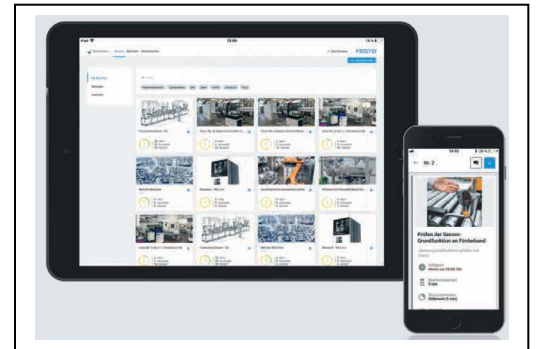
CHALLENGE

Customers such as Jacobi must provide a full history of work done on their machines to enable certifying authorities to determine if all required steps for the certificate have been fulfilled. Traditionally this is done manually in notebooks attached to the machines where technicians write up their work. With FESTO Smartenance, this process is now digitized. Instead of several notebooks scattered throughout the company, one central application holds all information regarding their machines. Certification authorities do not allow digital logging solutions as it is difficult with a digital product to understand which date in a database has been changed, by whom and why.

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SOLUTION

One primary trait of Blockchain and Distributed Ledger Technology, data is saved as tamperproof. For this, data is stored in a ledger and distributed over a peer-to-peer network. This network is then maintained by a game-theoretical algorithm and secured through cryptography. With the peer-to-peer network, there is no need for central administration. A copy of the data replicates on every participating computer. The replicated data leads to a network that can only be manipulated if more than 50% of nodes become corrupt. Another useful feature of blockchain and DLT, in general, is the ability to execute so-called smart contracts. These are software programs that run on the blockchain-infrastructure. Smart contracts provide the possibility to implement agreements between parties on the blockchain. The transactions may be simple things like automated cash transfers or complicated policies applied to IoT-data. Keeping this in mind, Festo's approach to securing maintenance data consists of combing our digital logging tool, Smartenance, with Distributed Ledger Technology. By doing so, in Smartenance, written logs get stored to the blockchain and are now immutable. This process helps the certifiers to rely on digital data at hand without the need to print records out and sign them by hand. For our customers, this means they can use an overall digital solution, which boosts their productivity, and reduce the needed time and employers for audits.

RESULT

Currently, Festo is working together with a German certification authority to further automate the auditing and certification process. With Smart Contracts, automated audits can be programmed. These programs may check the stored logs for regular maintenance of machines or if for example, approved lubrication greases where used. For the certifier and their customers, this means they save even more time by not having to do manual auditing.