MACHINE DATA ACQUISITION IN PRODUCTION

Automatic OEE Evaluation

SUMMARY

Real-time data from the existing machine control system is used to automatically calculate an OEE (overall equipment efficiency). The data is also prepared for visualization and used for efficient fault management.

INITIAL SITUATION

Sennheiser uses CNC lathes of various year models to manufacture components for audio equipment. Until now, test stations have been integrated into the in-house manufacturing execution system (MES) via workstations. Difficulties in integrating the CNC machines meant that this was not implemented into the MES.

SOLUTION

The machines should be able to report current changes of status independently so that the OEE can be calculated automatically. In addition, the data should be available for visualization and enable efficient fault management.

PARTNERS

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IFW

SENHEISER

The first step in the project is to identify possible interfaces for access to the machine control system, and to review these in terms of their applicability. The control system is a Siemens 840d powerline with a DDE interface. Using software developed by IFW, the data can then be transferred to a gateway. The logic stored in the gateway takes care of linking the machine data, and writes the resulting planning data (production, setup, etc.) to a database. The volume of data generated means that communication with the MQTT protocol must be reduced to a minimum. From the database, the planning data can be used as required for display and evaluation purposes.

CONTACT

Christian Wagener
Mittelstand 4.0-Kompetenzzentrum Hannover
0511 / 762 5950
wagener@mitunsdigital.de

INDUSTRIE 4.0 – FEATURES

The OEE can now be calculated dynamically on the basis of the machine data, making this metric more accurate and informative. In addition, the new data generated can be used more efficiently with the help of evaluation algorithms (dashboard, production analysis, etc.).

STANDARDIZATION APPROACHES

MQTT is used for communication. The new software converter opens up the possibility of integration into future industry protocols such as RAMI 4.0.