

Press release

Centralization and standardization of data and analysis in real time

iTAC enables machine learning and AI applications for SMT manufacturing

Montabaur, July 18, 2022 – Data is the basis for increasing efficiency, avoiding errors and creating more added value. SMT manufacturers are faced with the challenge of having to collect and analyze data appropriately in order to exploit such benefits. The MES/MOM specialist iTAC Software AG (www.itacsoftware.com) offers iTAC.SMT.Edge for this purpose. This machine integration platform is used to standardize and centralize data. The subsequent data analysis in real time and further processing is handled by the iTAC.IIoT.Edge software. Machine learning and AI applications, among others, can be implemented on the basis of the combined solutions.

"In SMT production, there are machines and systems from different vendors and of varying vintages that use different communication methods. This makes data transfer and analysis more difficult," explains Peter Bollinger, CEO of iTAC Software AG, adding: "The data must be transferred reliably to higher-level systems. Our iTAC.SMT.Edge and iTAC.IIoT.Edge make it possible to easily collect, link and analyze data from all SMT machines in real time."

Analysis tools such as iTAC.IIoT.Edge combine IIoT data with MES data to form flat data structures and analyze this data in real time. The data packets can also be forwarded to other analysis or ML/AI tools used by the customer.

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AI algorithms for monitoring and analysis

By using the two edge solutions as components of iTAC's MOM (Manufacturing Operations Management), numerous use cases for advanced and digitalized SMT manufacturing can be developed. For example, cycle time monitoring: AI algorithms intelligently monitor the cycle time for abnormal device behavior.

"In production, the strive for greater efficiency requires a continuous reduction in cycle times," says Peter Bollinger, and continues: "By actively monitoring times and using AI to detect abnormal plant behavior and alerting in the event of deviations, significant time savings are achieved. This is because response times in the event of problems and, consequently, throughput times are reduced. In addition, targeted, proactive problem solving is possible."

Another use case is the reduction of AOI pseudo errors. AI algorithms minimize the pseudo error rate of automatic test equipment. This is because most SMT lines with AOI have to deal with a high rate of pseudo errors (30 to 80%). With the use of AI, it is possible to distinguish between real defects and false callouts with a high degree of reliability. The need for manual inspection and the associated time and costs are reduced by up to 60%. This results in higher throughput while supporting zero-defect production.

Also, based on the iTAC solution, AI algorithms can calculate the remaining useful life cycle of equipment in favor of predictive maintenance. By monitoring machine condition data, AI algorithms can predict problems or emerging system failures, for example, to enable timely machine maintenance repairs or to estimate remaining useful life cycle.

These are just three of numerous possible scenarios that can be used to achieve efficiency increases, cost savings and digitalization advances in SMT production.

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SMT production of iTAC customer RAFI. Image source: RAFI GmbH & Co. KG

About iTAC

iTAC Software AG, an independent company of the mechanical and plant engineering firm Dürr, provides internet-enabled information and communication technologies for the manufacturing industry. Founded in 1998, the company is one of the leading MES/MOM providers. The iTAC.MOM.Suite is a holistic Manufacturing Operations Management that is used worldwide by companies in different industry sectors such as automotive, electronics/EMS, telecommunication, medical engineering, metal casting and energy. Additional services and solutions for implementing IIoT and Industry 4.0 requirements complete the portfolio. iTAC Software AG is headquartered in Montabaur, Germany and has offices in the USA, Mexico, China and Japan and has a worldwide partner network for sales and service. iTAC's philosophy is to connect people, data and systems.

The Dürr Group is one of the world's leading mechanical and plant engineering firms with extensive expertise in automation and digitalization/Industry 4.0. Its products, systems and services enable highly efficient and resource-saving manufacturing processes in different industries. The Dürr Group supplies sectors like the automotive industry, mechanical engineering, chemical, pharmaceutical, medical technology and woodworking industries. It generated sales of € 3.54 billion in 2021. The company has around 17,800 employees and 120 business locations in 33 countries.

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