Manufacturing AI from Dresden goes Global

Artificial Intelligence Paves the Way to Autonomous Manufacturing

- *Industry 4.0 international: Vietnamese spinning mill goes high-tech with Detact AI software platform*
- *AI analyses data: Detact provides cross-process transparency and reveals interactions*
- *Milestone for Symate: Further step towards Detact's international presence*

Dresden (Germany)/ Da Lat (Vietnam), 20th September 2022 - The Detact® software platform, an innovative tool set for the autonomous manufacturing of the future, is now also being used in Vietnam: The state-of-the-art wool yarn spinning mill 'Dalat Worsted Spinning' (DWS Vietnam), a subsidiary of the German Südwolle Group, will in future use Detact to systematically monitor its automated production and detect possible deviations in the process chain area at an early stage.

For this purpose, Detact will bundle countless process and quality data from the manufacturing shop floor of DWS Vietnam in a special cloud, analyse them and visualise them like a classic MES (Manufacturing Execution System). But Detact goes far beyond these classic MES functions: the Big Data-capable and scalable system makes complex interactions visible and offers individual notifications as valuable recommendations for action for production planners and plant operators. This valuable information is generated using artificial intelligence (AI) methods, for example.

The project goal:
With the help of Detact, DWS Vietnam wants to ensure that the manufacturing processes on all machines are stable at any time, that external factors do not exert negative influences and that more than 400 different products are manufactured in the shortest possible time without loss of quality.

Press Photo:

Caption:
Digital process control at Dalat Worsted Spinning in Vietnam

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A State-of-the-Art Shop Floor

DWS Vietnam is a young and emerging company with more than 220 employees. State-of-the-art machines with countless sensors spin around 2,000 tons of high-quality yarn every year and large parts of the air-conditioned production are automated - some of the work is even done in a vacuum.

Based on that, DWS Vietnam's technologies are already prepared for the future and autonomous production even seems feasible. An important key to this is machine, process and quality data, which are already recorded at DWS Vietnam, automatically - creating an excellent basis for transparent and plannable processes. However, much of these data has not yet been used, or have only been used inadequately. Systematic analysis has so far only been carried out in part and exclusively manually. This task alone costs a lot of time. Moreover, real-time control is practically impossible. In addition, the machines are not connected to any central evaluation system. Therefore, valuable information is wasted.

Transparency for all processes

So far, at least! Meanwhile, the production planners at DWS Vietnam have recognised the enormous potential of data analysis and now want to take advantage of its opportunities. Therefore, they have started a digitalisation project that realises a cross-process and largely automated analysis. The goal is to use the Detact software system as an AI infrastructure that analyses all manufacturing processes in the Symate cloud in real time and provides clear recommendations for action - these are based on regular notifications regarding relevant process states on individual machines or possible deviations from a predefined process window (using key figures such as weight, diameter, twist, material, etc.). This is of central importance for DWS Vietnam, because the quality of products can be improved by a wider control of the process as a whole. An extremely large number of variables have to be controlled, because only then can consistently high quality be guaranteed.

Alessandro Di Palma, General Director at Dalat Worsted Spinning Limited, explains: "We want to ensure that the quality of our products is at 100 per cent. At the same time, of course, we have to produce quickly and efficiently. Therefore, we need extremely stable processes on all mills. With this in mind, we decided to Implement continuous inline measurement. Theoretically, this is easy to realise, because our machines are equipped with so many sensors that enable us to record all process states and the current status of our products at any time. But on the practical side, this task poses numerous challenges, because the sensors themselves have no intelligence of their own and the amount of data that accumulates is so high in our case that we have only been able to take isolated and tiny samples so far. The results were practically out of date as soon as we finished the manual analysis of data. For this reason, manual analysis was of little use and a manufacturing system (MES) would not have met our requirements in terms of a cross-system view, transparency and intelligence. Therefore, we have been looking for a solution that really suits us for a long time. We finally found it with Detact, because this software analyses our data in real time and compares them continuously. And: it can be adapted to our conditions, easily. As soon as we have trained the AI, it knows how long or thick a thread has to be so that it meets all our requirements. The same applies to the twist and weight of the bobbin, but also to other factors such as humidity and much more. To achieve this, we have now defined clear criteria that Detact uses to detect very early on when a potential deviation is imminent or a machine is not working optimally. If this is the case, we are informed immediately and we automatically receive objective suggestions on what we can do to prevent a deviation from the defined process window from occurring in the first place. In this way, we not only get to know our machines and processes better, but can also define narrow framework conditions in advance for new products or when starting up a new process, which lead to a clear result. This idea convinced us right from the start! In addition, the crucial knowledge is stored firmly in the cloud with Detact. Therefore, for the daily work on the machine, we don't need highly trained specialists who know their process inside out and know from experience when they need to readjust at a certain point. Start-up processes, handovers at shift changes and changeovers for new products can also be significantly simplified with the help of Detact.

About Symate GmbH

Symate GmbH is a specialist for Artificial Intelligence (AI) and Big Data as well as the manufacturer of the AI system Detact® 'AI Infrastructure & Apps'. Detact collects, analyses and processes manufacturing and quality data for the systematic monitoring and optimisation of processes. The innovative system works with almost all data sources and interfaces and uses the methods of artificial intelligence. It thus offers flexible functionalities for automated process monitoring and sustainable process transparency. Detact thus also takes over various tasks of a classic MES (Manufacturing Execution System), but goes far beyond this. If required, the software system from Symate can even be connected to an existing MES, BDE or CAQ in order to significantly expand its functionalities.

Detact not only provides users with a more detailed understanding of the process, but also digital assistants for a wide range of scenarios relating to their manufacturing process. The basis for this is formed by more than 15 browser-based apps that can be individually adapted for small, medium and large applications. Detact is used very successfully by numerous companies in the automotive, plastics, mechanical engineering, aerospace, lightweight construction, medical technology and additive manufacturing sectors, etc. **You can find more information about Detact and Symate GmbH on the Internet at detact.com**

About DWS Vietnam

DWS Vietnam (Dalat Worsted Spinning) is a spinning company based in the south of Vietnam. The company was founded in 2017 by the German Südwolle Group and has been growing steadily ever since. Meanwhile, more than 220 employees ensure an annual capacity of 2,000 tonnes. DWS Vietnam works with state-of-the-art machines and produces a variety of different yarns and wools, which are offered on bobbins. The product portfolio comprises more than 400 different articles. In its daily work, DWS Vietnam focuses on social and ecological commitment. Therefore, the company attaches great importance to occupational safety, fair payment and sustainable working conditions.

The German parent company 'Südwolle Group' is one of the world's leading manufacturers of wool yarns. The Nuremberg-based family business with more than 3,200 employees operates Dalat Worsted Spinning, one of the most modern worsted spinning mills of its kind. **You can find more information about DWS Vietnam on the Internet at https://www.suedwollegroup.com/dws/.**

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