

ZEBLOK COMPUTATIONAL

INDUSTRY 4.0 CASE STUDY

Henkel achieves 90% plus accuracy in chemical consumption prediction on its customer line with Ai-MicroCloud

COMPANY PARTNERS WITH ZEBLOK COMPUTATIONAL TO USE AI/ML TO ADDRESS CHALLENGES IN DEMAND FORECASTING AND ANOMALY DETECTION OF CHEMICALS ACROSS AUTOMOBILE DIVISION

CHALLENGE

Henkel Adhesive Technologies (India) provides a comprehensive portfolio of technologies, solutions and services for the automotive industry, including adhesives, sealants and functional coating products used in the manufacturing process. Customers include domestic and international automotive manufacturing companies.

To control costs Henkel wants to address logistics challenges related to planning shipment of chemicals for surface treatment, coating and finishing to customer plants.

To do this, the company needs to detect line defects, and better predict chemical consumption requirements. Manual monitoring and a reactive approach to line issues have low success in defects detection, cause costly delays, and high labor costs.

Accurate consumption prediction is vital to keep lines productive. Henkel's goal is to build 90% plus accuracy levels in demand forecasting for customer production lines and deliver predictive analytics of defects.

SOLUTION

Henkel partnered with Zeblok Computational to address the challenges related to demand forecasting and anomaly detection of various chemicals across their automotive customer base.

To achieve 90%+ demand forecasting Zeblok proposed a solution based on the Ai-MicroCloud®, a scalable AI services and application lifecycle management platform. Running on the AWS Public Cloud, the Ai-MicroCloud® includes pre-aggregated algorithms from Time Series and Explainability third party ISVs for usable as low-code or no-code workstations.

Henkel

Henkel Adhesive Technologies Pvt. Ltd. (India)

Henkel India Automotive OEM unit provides adhesives, sealants and functional coatings for cars, trucks, aircraft, and transportation manufacturers for domestic and export markets.

Challenge

Lower costs through line defect detection and better prediction of chemical consumption requirements.

Solution

Ai-MicroCloud® platform to rapidly build, test and deploy models to analyze production data, and using inferences to generate insights.

Results

Highly tailored, 90% prediction models for chemical usage based on historical consumption patterns.

Inferences delivered for internal consumption, dashboards and sharable data for customers.

Inferences delivered as secure APIs for internal consumption, dashboards and sharable data for customers.

Real-time data monitoring, quality indicators, and alerts.

Achieved 90% forecasting accuracy of surface coating production line.

Components like Workstation, Microservices and data management was used to create a highly collaborative environment between ISVs, Zeblok and Henkel staff.

The Ai-MicroCloud® environment was used to rapidly build and deploy time-series autoML and LSTM DL models, which were deployed to test and analyze Henkel customer data sets and understand prediction accuracy.

Initial analysis was based on 3 months of customer production line data. Subsequently this dataset was increased to six months of production line data to increase the accuracy levels on the consumption prediction.

RESULTS

Delivery of inferences as API within the environment simplified generation of insights, dashboards and corresponding integration for both Henkel customers and partners. This allowed greater understanding of the data, leading to greater usability of information.

The solution achieved a chemical consumption forecasting accuracy of more than 90% specific to the surface coating production lines.

Given the variability in the customer line specific datasets, the time-series autoML didn't produce consistent results. By using the Ai-MicroCloud® support for multi-class algorithms and use cases, multiple algorithms were used to drive up accuracy levels.

The Ai-MicroCloud® exceeded the Henkel expectations, and met all the use case targets.

EXPANDING NUMBER OF USE CASES

Do to the successful demonstration of the Ai-MicroCloud® yielding better results by aggregating multiple ISVs and algorithms, Henkel has chosen to expand the number of use cases and ISVs with the objective of enhancing operational flexibility.

The company expects the platform to achieve results across various other service assembly lines, enabling a comprehensive strategy to improve company-wide performance.

Henkel envisions utilizing a single platform enabling aggregation of insights from structured (consumption) and unstructured (computer vision, etc.) data while offering deployment flexibility to meet variations in customer infrastructure, such as different public cloud usage (AWS, Azure, etc), on-premises server manufacturers, and hybrid cloud/on-premises production lines.

Such Ai-MicroCloud® capabilities to Scale AI across topologies and heterogenous infrastructure will give Henkel increased competitive advantage against their competitors.



The Zeblok Ai-MicroCloud® results exceeded our target expectations of 90% plus defect detection accuracy. The ability to bring in more algorithms to deploy more use cases will help us further improve quality and customer satisfaction which is the key to Henkel's continued success.

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ZEBLOK COMPUTATIONAL

Zeblok Computational, Inc. is the developer of the Ai-MicroCloud® a cloud native, turnkey Ai services platform for AI/ML ops with full lifecycle management to optimize, integrate and scale Ai inferences from from cloud to 1000s of edge locations at scale.

Ai-MicroCloud® is available on Public Cloud, On-Premises OEM hardware platforms, and Edge servers of any form factor.

Learn more at www.zeblok.com.

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