

MindSphere Open Space Challenge

Case Specification

Company

MTI Mischtechnik International GmbH

Company Details

Industry	Plant construction
Size (empl. / turnover)	60 employees / turnover € 8.5 million
Main Products / Innovations	Latest-generation mixing units for solids
Customer structure	Globally renowned customers from the areas of plastics, food, chemical industry and pharma

Case Title

Mixology meets Technology: Interactive Analysis App „MIA“

User Story

The plant operator of a mixer, be it a production plant or a laboratory mixer, has to deal with many process factors, which provide information about the mixing process. In the first step the MIA App is dedicated to simply and understandably visualize the generated data to be able to analyze and compare them in detail afterwards and to retrieve them in the form of a protocol.

In the second step, this app must be extended to generate a production load history, which helps to highlight and correlate process fluctuations in order to avoid potential drops in product quality by adjusting the process parameters.

Problem Description

Mixing processes are rather complex and depend on many process parameters. Even minor fluctuations in the process can influence the quality of the end product. The search for causes involves comparing and analyzing many data points. Therefore, the recording of process parameters is essential in mixing technology. This applies to laboratory tests, but even more so for production plants.

Currently a lot of production plants do not record and save process data at all, as no feasible solution exists yet. Therefore there is no way of visualizing changes in the mixing parameters; changes in the characteristics of the product are only detected in the follow-up processes. At that point, a lot of waste has already been generated. Process data are missing, to be able to support the client at this point, and the cause is hard to detect. Often it takes weeks and countless emails to determine the cause.

With the standardized recording of all process data, a plant operator is able to detect process fluctuations early, which enables him to start counteractive measures or to seek the help of an expert who will also have the data at hand. Using the MIA app would have an immediate impact on all current mixing plants and help to optimize productivity.

The MIA app should also have the additional benefit of generating charts of individual mixing processes, particularly for laboratory use. Currently this takes a lot of time, as all data must be assessed by hand. Optimally, the app allows a quick interactive visualization of the process factors, to be able to undertake process analyses directly after the experiments. The aim is to generate complete protocols.

Technical Provision

Type of machinery / plants

All plants are state-of-the-art technology and connected through a decentralized periphery (Siemens ET 200 SP / Siemens S7 1500). All plants are connected to Siemens MindSphere via NanoConnect. As all sensors and actors are exclusively connected via Profinet/SProfisafe, all process data are available as individual digital signals.

Questions?

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