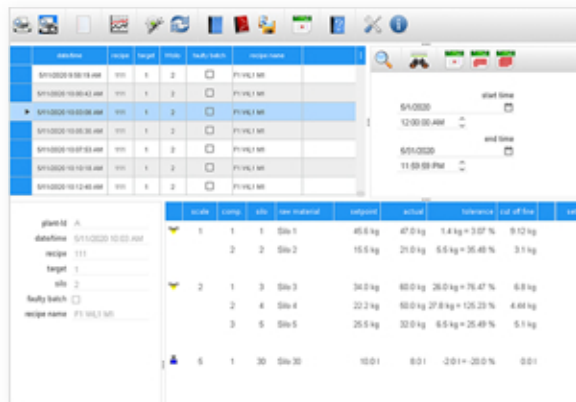


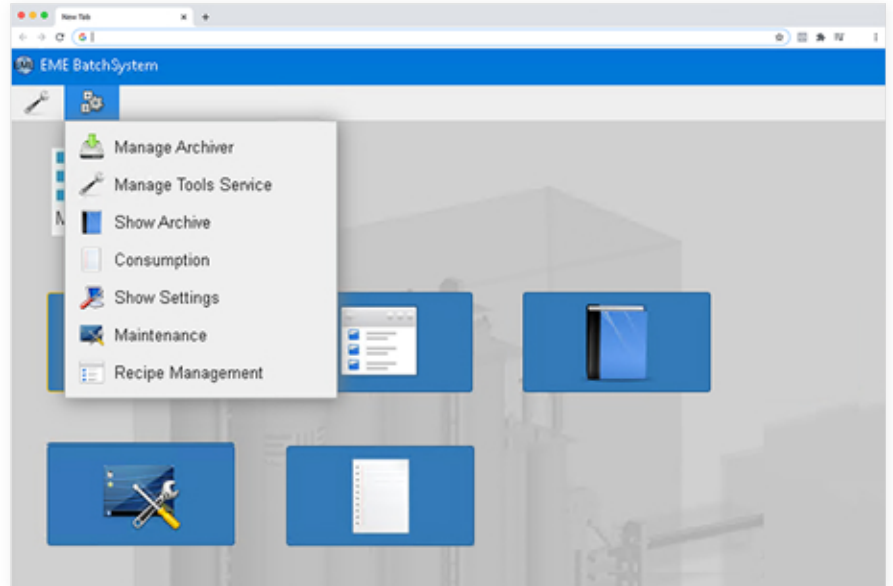
EME GmbH

Smooth Web-enabling for SCADA and OPC-based Systems with Wisej.NET

batch id	start	target	prod	batch batch	reference
5110202-10-00-18 AM	11:00	1	2	P1-VGL1.ME	
5110202-10-00-43 AM	11:00	1	2	P1-VGL1.ME	
5110202-10-00-08 AM	11:00	1	2	P1-VGL1.ME	
5110202-10-00-30 AM	11:00	1	2	P1-VGL1.ME	
5110202-10-10-10 AM	11:00	1	2	P1-VGL1.ME	
5110202-10-12-45 AM	11:00	1	2	P1-VGL1.ME	

plant id	scale	comp	site	see material	setpoint	actual	reference	cut off time	unit
distillation	1	1	Site 1		40.0 kg	47.0 kg	1.8 kg = 3.07 %	9:12 kg	
recipe	2	2	Site 2		15.0 kg	21.0 kg	6.0 kg = 35.40 %	3.1 kg	
target	2	1	Site 3		34.0 kg	60.0 kg	26.0 kg = 76.47 %	6.8 kg	
site	2	4	Site 4		22.2 kg	60.0 kg	27.8 kg = 125.23 %	4.66 kg	
batch batch	3	5	Site 5		25.5 kg	32.0 kg	6.5 kg = 25.49 %	5.1 kg	
recipe name	5	1	Site 20		100.1	80.1	-20.1 = -20.0 %	0.0	



EME GmbH Realizes Web-based Batch System for Glass Industry with Wisej.NET.

Germany-based EME GmbH is a supplier of batch preparation and batch charging technologies for the glass industry. The company was founded 100 years ago and is today one of the leading suppliers for customers around the world. Glass manufacturers count on the reliability and efficiency of the plants and technologies developed by EME.

First web-based batch system for the glass industry

Traditionally, Windows-based computers were needed to manage and control the glass production process. EME's software development department designs and implements modules to manage the plants and machinery. Batch handling, recipe management and predictive maintenance are core features supported by the application and used locally at client sites.

Machine to machine communication and management is realized with the SCADA protocol. OPC servers are being used to connect devices, plants, and software modules, in order to implement a failure-proof system management architecture. OPC is an acronym for "Open Platform Communication", originally referred to as "OLE for Process Control".

Roger Knüttel, in charge of the Control Development Department at EME, summarizes the core requirements:

“The new EME BatchSystem uses the advantages of browser-based software, which can be used without local

installation on any type of hardware solution such as tablets, smartphones, desktop computers (Windows and Linux) and with any operating system while taking advantage of desktop-based software like direct access to the control hardware and a high performance database.”

Recipe	Target	Recipe Name	changed at	Active Mixer	Master Line	Cullet Line	Enabled
1	2	F2 WL2 M1	08.05.2020 18:59:35	1	2	1	0
2	2	F2 WL2 M1	18.05.2020 17:38:53	1	2	1	0
3	3	Download Test VS017	01.04.2020 11:29:42	2	1	1	0

Recipe 1	Scale	Comp.	Silo	Raw Material	Setpoint	Coarse	Fine	Tol.+	Tol.-	Max	Min	Max.Time
Target 2	3	1	6	Silo 6	33 kg	10 kg	6,6 kg	10 kg	10 kg	1000 kg	0 kg	0 s
Plant Plant 1		2	7	Silo 7	45,4 kg	10 kg	9,1 kg	10 kg	10 kg	1000 kg	0 kg	0 s
Recipe Name F2 WL2 M1		3	7	Silo 7	0 kg	0 kg	0 kg	0 kg	0 kg	0 kg	0 kg	0 s
created at 08.05.2020 18:59:35												
changed at 08.05.2020 18:59:35												
Batch Size 455,478 kg												
Mixer 1												
	4	1	9	Silo 9	31,4 g	6 g	6 g	30 g	30 g	1000 g	0 g	0 s
		2	10	Silo 10	22,1 g	6 g	4 g	30 g	30 g	1000 g	0 g	0 s
		3	11	Silo 11	24,5 g	6 g	5 g	30 g	30 g	1000 g	0 g	0 s

Data Source=SERVER16\WINCC;Initial Catalog=ExternalArchives;Integrated Security=SSPI;Connection Timeout=60;Trusted_Connection=Yes

Moving to the web with business requirements in mind

With a long track record and hundreds of plants and systems installed around the globe, a simple rewrite of the entire EME application logic stack seemed impossible. Based on a first contact at a German developer conference BASTA for .NET development, the development team at EME started to explore Wisej.NET as a fast and reliable migration path to move to the web.

The makers of Wisej.NET, Ice Tea Group, had published a migration guide on how to bring Windows Forms based applications to the web. With this documentation at hand and a little advice and support, Roger Knüttel and his team managed to tackle the migration. In a matter of months, all existing .NET based applications were up and running in

the browser and first plants equipped with the new software stack. Mr. Knüttel explains: “Thanks to Wisej.NET, we were able to deliver the first web-based application suite for batch management in the glass industry. Our customers and maintenance staff appreciate the benefits: Access to our systems is now possible at any time and from any place in the world while considering and maintaining a high level of security – just using an internet connection.”

With a long track record of Windows-based software modules, EME was looking for a smooth transition to move their application suite to a fully web-based solution. The goal was to keep existing features and maturity of the software while reaching platform and device independence for those that operate EME equipment at the glass manufacturing sites. Roger Knüttel continues:

“Thanks to Wisej.NET, the new EME BatchSystem uses a modern web framework as a base of the development, which provides us with the flexibility to include any upcoming technology. We were able to take over most of the existing functionality and proven algorithms, combining the benefits of a new web-based solution with the reliability and stability of our existing code base.”

Integrating Wisej.NET with SCADA, OPC, SAP and other systems

The suite of applications developed by EME supports:

- Batch archiving and consumption analysis (MS SQL Server)
- Diagnosis and analysis of dosing accuracies by means of curve, standard deviation, etc.
- Powerful recipe management
- Preventive and predictive maintenance
- Standardized maintenance objectives based on EME maintenance guidelines
- Fully flexible adaption of these settings to meet specific customer needs
- Universal data Interfaces -> XML, XLS, CSV, PDF, EXCEL, RTF, MS SQL
- ERP Interfaces (SAP, etc.)
- Direct integration with the EME SCADA System
- OPC Server as interface for the process communication
- Interfacing with third party software, such as batch calculation programs
- Automatic backup of all system parameters, setpoints, settings, etc.
- Sophisticated data redundancy concepts
- Simple changes to the styling of all forms and dialogs
- Multi-lingual user interface
- Responsive design, also supporting Smartphones and Tablets

datetime	recipe	target	prod.	fully batch	recipe name
5/1/2020 9:58:19 AM	111	1	2	<input type="checkbox"/>	F1 VLL1 M1
5/1/2020 10:00:42 AM	111	1	2	<input type="checkbox"/>	F1 VLL1 M1
5/1/2020 10:03:38 AM	111	1	2	<input type="checkbox"/>	F1 VLL1 M1
5/1/2020 10:05:30 AM	111	1	2	<input type="checkbox"/>	F1 VLL1 M1
5/1/2020 10:07:53 AM	111	1	2	<input type="checkbox"/>	F1 VLL1 M1
5/1/2020 10:10:18 AM	111	1	2	<input type="checkbox"/>	F1 VLL1 M1
5/1/2020 10:12:40 AM	111	1	2	<input type="checkbox"/>	F1 VLL1 M1

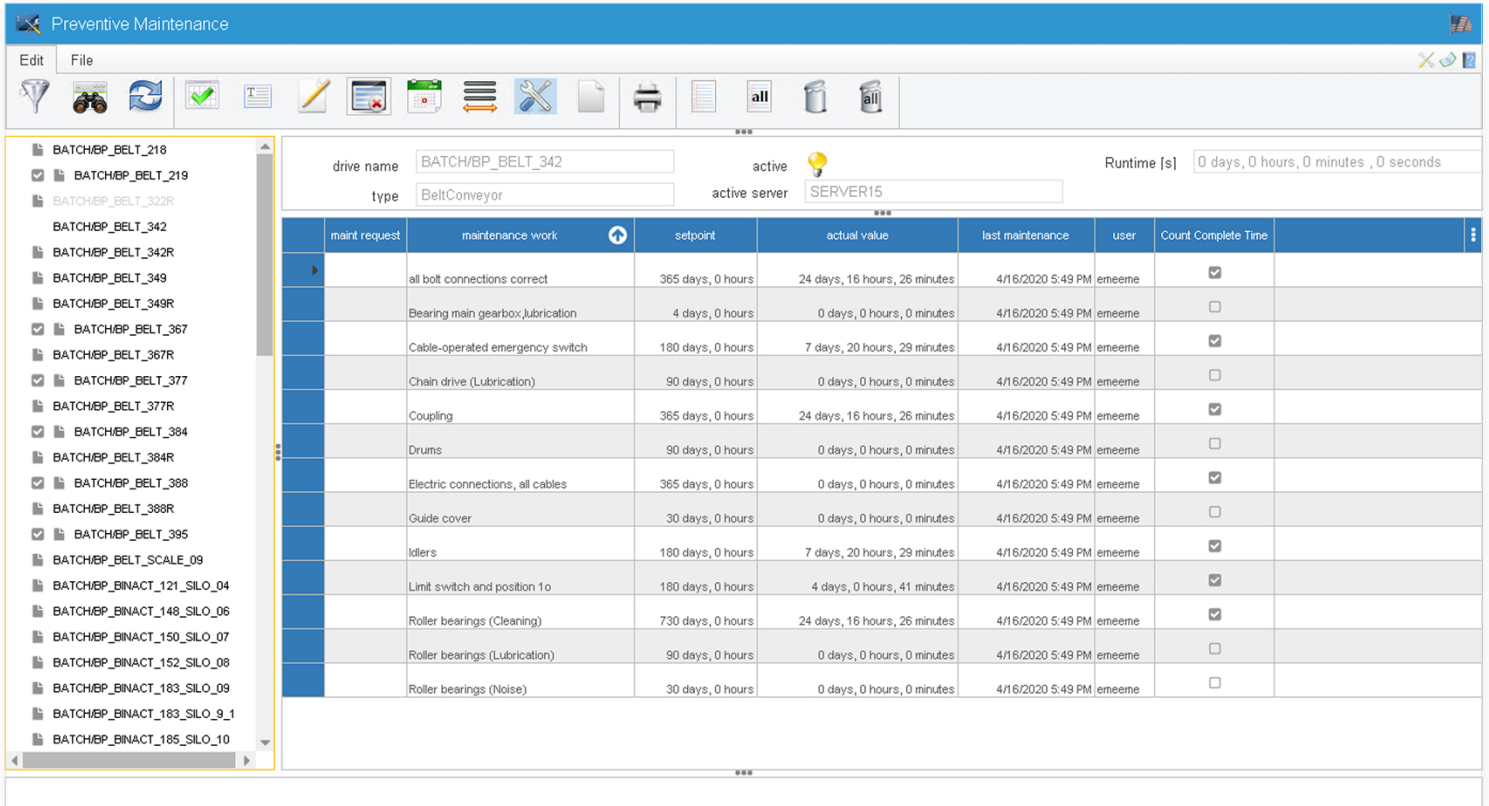
plant-id	scale	comp.	sls	raw material	setpoint	actual	tolerance	cut off line	val
A	1	1	1	Silo 1	45.6 kg	47.0 kg	1.4 kg = 3.07 %	9.12 kg	
				Silo 2	15.5 kg	21.0 kg	5.5 kg = 35.48 %	3.1 kg	
2	2	1	3	Silo 3	34.0 kg	60.0 kg	26.0 kg = 76.47 %	6.8 kg	
				Silo 4	22.2 kg	60.0 kg	27.8 kg = 125.23 %	4.44 kg	
3	5	1	5	Silo 5	25.5 kg	32.0 kg	6.5 kg = 25.49 %	5.1 kg	
				Silo 30	10.0	8.0	-2.0 kg = -20.0 %	0.0	

Results Achieved

- Successful web migration of a SCADA-based glass production systems in a matter of months
- Preventive and predictive maintenance concepts powered by Wisej.NET
- OPC Server as interface for the process communication
- UI/UX improvements and cross-browser/cross-device support
- Easy upgrade approach for existing software installations
- Integration with SAP and other ERP systems along with additional software interfaces
- Sophisticated redundancy with fallback strategy
- Flat learning curve of EME's development team

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About EME GmbH

For almost 100 years EME GmbH has been a leading supplier of batch preparation plants, cullet handling equipment and batch charging technology for the glass industry. Glass manufacturers in the container, flat and special glass industry depend on the reliability and efficiency of EME's machines and systems.

EME belongs to the German SORG Group, providing tailor-made solutions for the glass manufacturing process from delivery of the raw materials through to the start of the forming process.

<https://www.eme.de/>

About Ice Tea Group

Ice Tea Group LLC, located in Washington DC, is a worldwide specialist for enterprise application modernization and business web frameworks.

We help developers and organizations stay competitive. Our mission is to strengthen and increase the value of enterprise-scale software assets by providing modernization paths throughout technology changes.

Since 1998, our services and frameworks have been used by more than 600 companies, in 4,800+ applications, over 50 countries. Some of our clients are: Fujitsu, Lidl, Goodyear, Xerox, Skanska, Volvo, Merck, GE Healthcare, IFS, Air New Zealand, CBS, SAGE, Ericsson, Siemens, ASFINAG, Markel, Ameriprise, Europ Assistance.

<https://icetgroup.com/>

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