

Pruduction line in Construction Industry

REFERENCE
October 2016

The priority of most companies is to produce quality products and services at the lowest costs. It not only means having quality materials and employees but also a reliable control of the processes and their effective uses. To be ahead of the competition, the international company Saint-Gobain Construction Products CZ a.s. has decided to get ready for the fourth industrial revolution (Industry 4.0) with a modern, efficient and trustworthy visualization tool which guarantees a general overview of their plants and helps with the optimization of processes afterwards.

Project assignment

The Saint-Gobain company has chosen one of its divisions – Weber - as a pilot project for this task. Weber's main field of activity is mixing and bagging of dry mixtures in the construction industry. The general overview is provided by a Czech company mySCADA Technologies s.r.o. – an expert in visualizing production and allocating shortcomings. This company was able to meet all of the functional requirements of the project assignment.

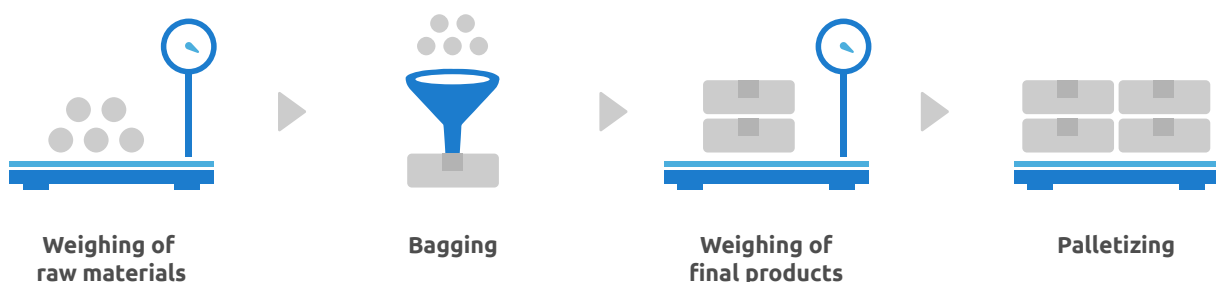


The management of the production line required:

- monitoring of production (in real time);
- general overview of production (logging data for future analysis).

One of the most important functions for Weber's production line is to **monitor and control the processes** in the plant. The main activity for them is to have an overview about the measurement of raw materials or the total weight of final products.

The next part of the production line splits the resulting mixture into bags and then packs and distributes them to the customers. The main processes are clearly shown below:



Customized solution

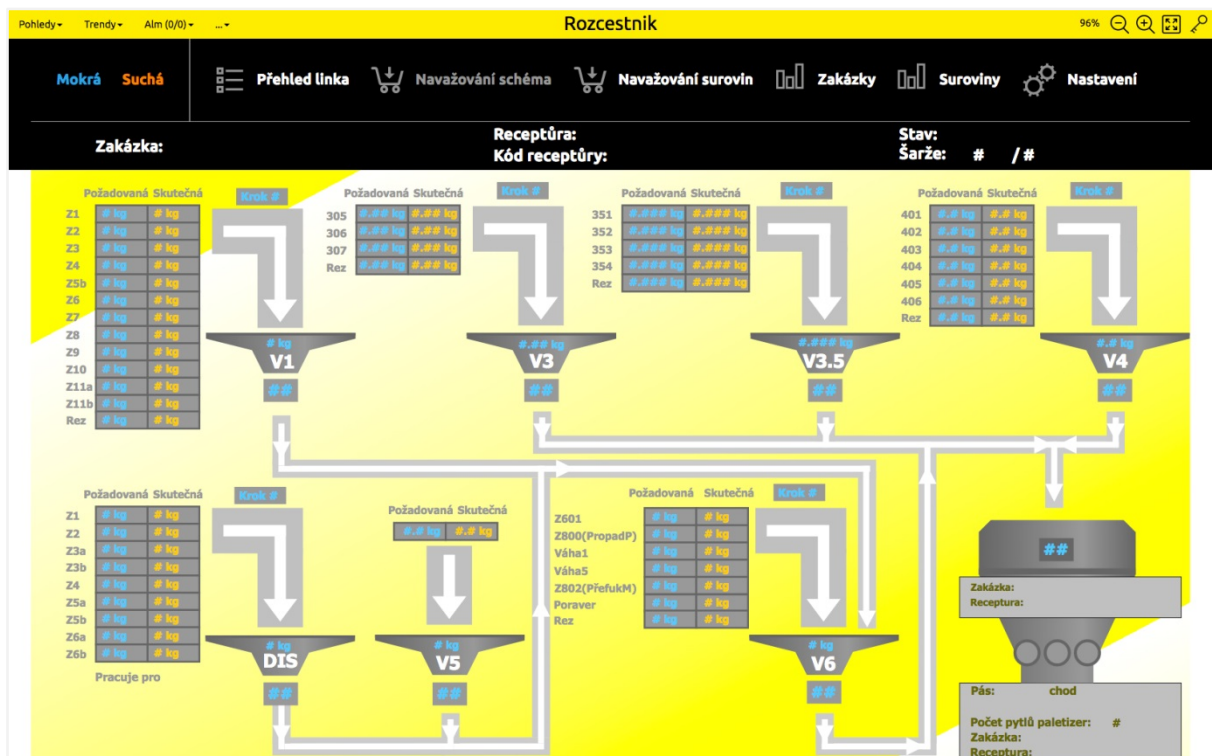
The distributor of visualization software (mySCADA) came up with a solution that is based on customer needs – it controls each process in the factory 24/7 and also collects all data for future analysis and evaluation. There is a brief overview of screens used in the factory for remote control.

Picture 1 – General overview of the factory



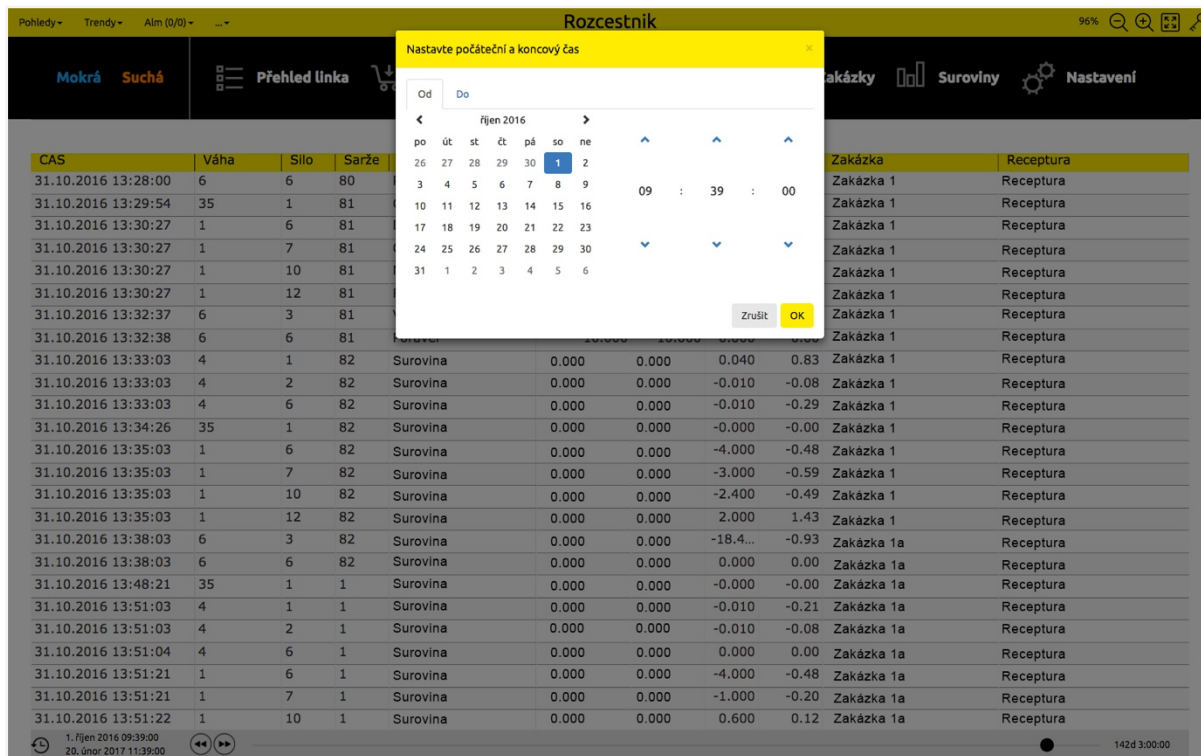
On the home screen, there is an overview of which processes are available within the visualization. The user can easily choose exactly the one they are interested in.

Picture 2 – General overview of the ingredients weighting



It is an overall view of ingredients which are necessary for the final product. After the measuring of each ingredient, the mixture is kept in the large tank (bottom right in the picture). The mixture has to be divided according to the requirements and checked if the weight is as expected. If there is a deviation, the system evaluates whether the bag is within the limits or not and makes a record about it.

Picture 3 – Overview of raw materials (time period)



There is always a possibility to choose just the time period which is actually needed. With this function, it is really easy to compare the various orders or the performance of each work shift.

Picture 4 – Overview of raw materials (in detail)

Pohledy

Trendy

Alm (0/0)

Rozcestník

96%

Mokrá

Suchá

Přehled linka

Navažování schéma

Navažování surovin

Zakázky

Suroviny

Nastavení

LIMIT: 1000

FILTER

TIME ON

Export

CAS	Váha	Silo	Sarže	Surovina	Požadováno	Skutečně	Rozdíl	Rozdíl%	Zakázka	Receptura
31.10.2016 13:28:00	6	6	80	Surovina	0.000	0.000	0.000	0.00	Zakázka 1	Receptura
31.10.2016 13:29:54	35	1	81	Surovina	0.000	0.000	0.002	0.50	Zakázka 1	Receptura
31.10.2016 13:30:27	1	6	81	Surovina	0.000	0.000	-5.000	-0.60	Zakázka 1	Receptura
31.10.2016 13:30:27	1	7	81	Surovina	0.000	0.000	-5.000	-0.98	Zakázka 1	Receptura
31.10.2016 13:30:27	1	10	81	Surovina	0.000	0.000	-1.400	-0.28	Zakázka 1	Receptura
31.10.2016 13:30:27	1	12	81	Surovina	0.000	0.000	-6.000	-4.29	Zakázka 1	Receptura
31.10.2016 13:32:37	6	3	81	Surovina	0.000	0.000	-39.4...	-1.99	Zakázka 1	Receptura
31.10.2016 13:32:38	6	6	81	Surovina	0.000	0.000	0.000	0.00	Zakázka 1	Receptura
31.10.2016 13:33:03	4	1	82	Surovina	0.000	0.000	0.040	0.83	Zakázka 1	Receptura
31.10.2016 13:33:03	4	2	82	Surovina	0.000	0.000	-0.010	-0.08	Zakázka 1	Receptura
31.10.2016 13:33:03	4	6	82	Surovina	0.000	0.000	-0.010	-0.29	Zakázka 1	Receptura
31.10.2016 13:34:26	35	1	82	Surovina	0.000	0.000	-0.000	-0.00	Zakázka 1	Receptura
31.10.2016 13:35:03	1	6	82	Surovina	0.000	0.000	-4.000	-0.48	Zakázka 1	Receptura
31.10.2016 13:35:03	1	7	82	Surovina	0.000	0.000	-3.000	-0.59	Zakázka 1	Receptura
31.10.2016 13:35:03	1	10	82	Surovina	0.000	0.000	-2.400	-0.49	Zakázka 1	Receptura
31.10.2016 13:35:03	1	12	82	Surovina	0.000	0.000	2.000	1.43	Zakázka 1	Receptura
31.10.2016 13:38:03	6	3	82	Surovina	0.000	0.000	-18.4...	-0.93	Zakázka 1a	Receptura
31.10.2016 13:38:03	6	6	82	Surovina	0.000	0.000	0.000	0.00	Zakázka 1a	Receptura
31.10.2016 13:48:21	35	1	1	Surovina	0.000	0.000	-0.000	-0.00	Zakázka 1a	Receptura
31.10.2016 13:51:03	4	1	1	Surovina	0.000	0.000	-0.010	-0.21	Zakázka 1a	Receptura
31.10.2016 13:51:03	4	2	1	Surovina	0.000	0.000	-0.010	-0.08	Zakázka 1a	Receptura
31.10.2016 13:51:04	4	6	1	Surovina	0.000	0.000	0.000	0.00	Zakázka 1a	Receptura
31.10.2016 13:51:21	1	6	1	Surovina	0.000	0.000	-4.000	-0.48	Zakázka 1a	Receptura
31.10.2016 13:51:21	1	7	1	Surovina	0.000	0.000	-1.000	-0.20	Zakázka 1a	Receptura
31.10.2016 13:51:22	1	10	1	Surovina	0.000	0.000	0.600	0.12	Zakázka 1a	Receptura

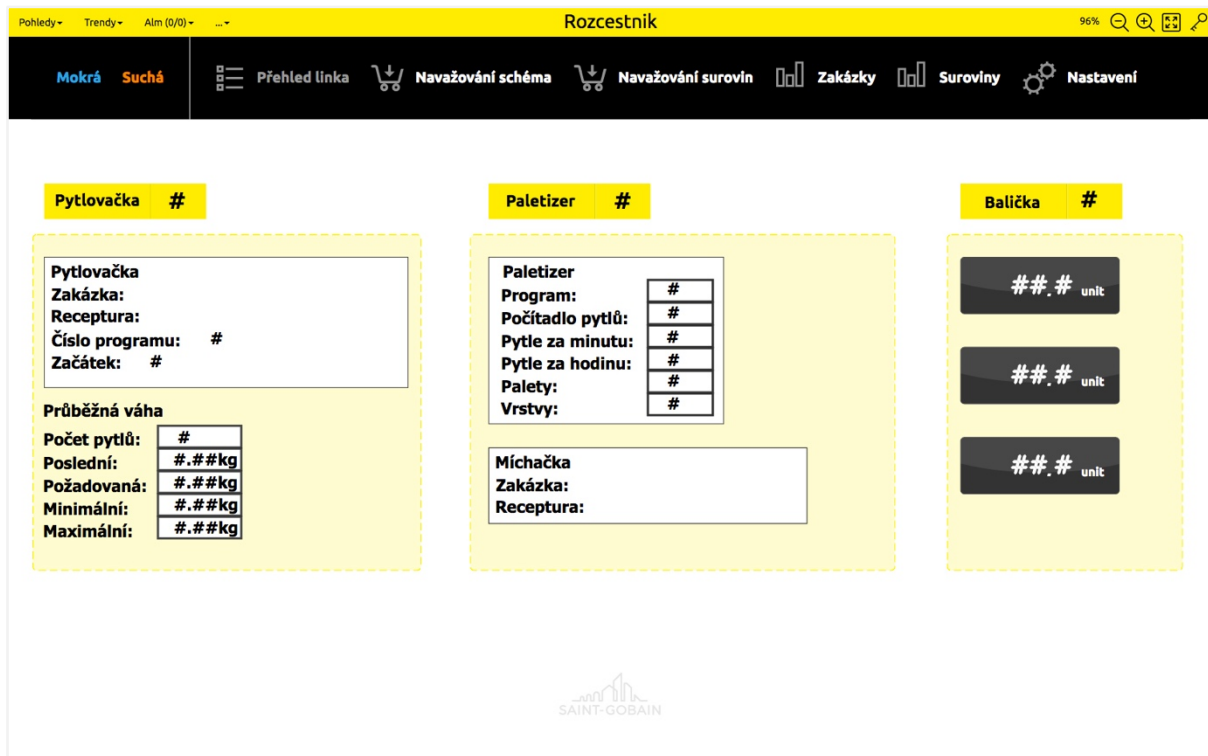
1. říjen 2016 09:39:00

20. únor 2017 11:39:00

142d 3:00:00

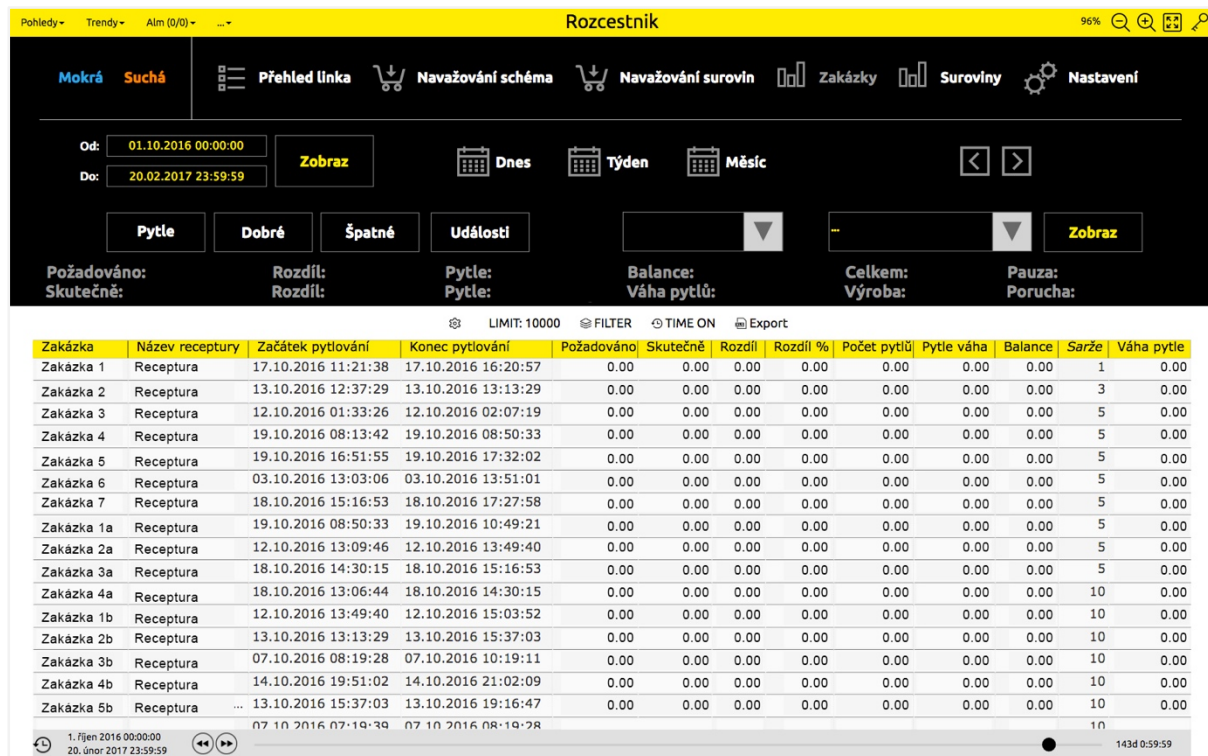
The production data can be easily converted to tables which are used mainly for data analysis and reporting. On the screen, there are examples of which information the system stores, such as the differences between real and required values, time duration, manufacturing processes, and the order number. The greatest advantage is the immediate availability to process the collected data, export it as a PDF or to MS Excel with just one mouse click. The data can be filtered based on individual preferences.

Picture 5 – Overview of the production line



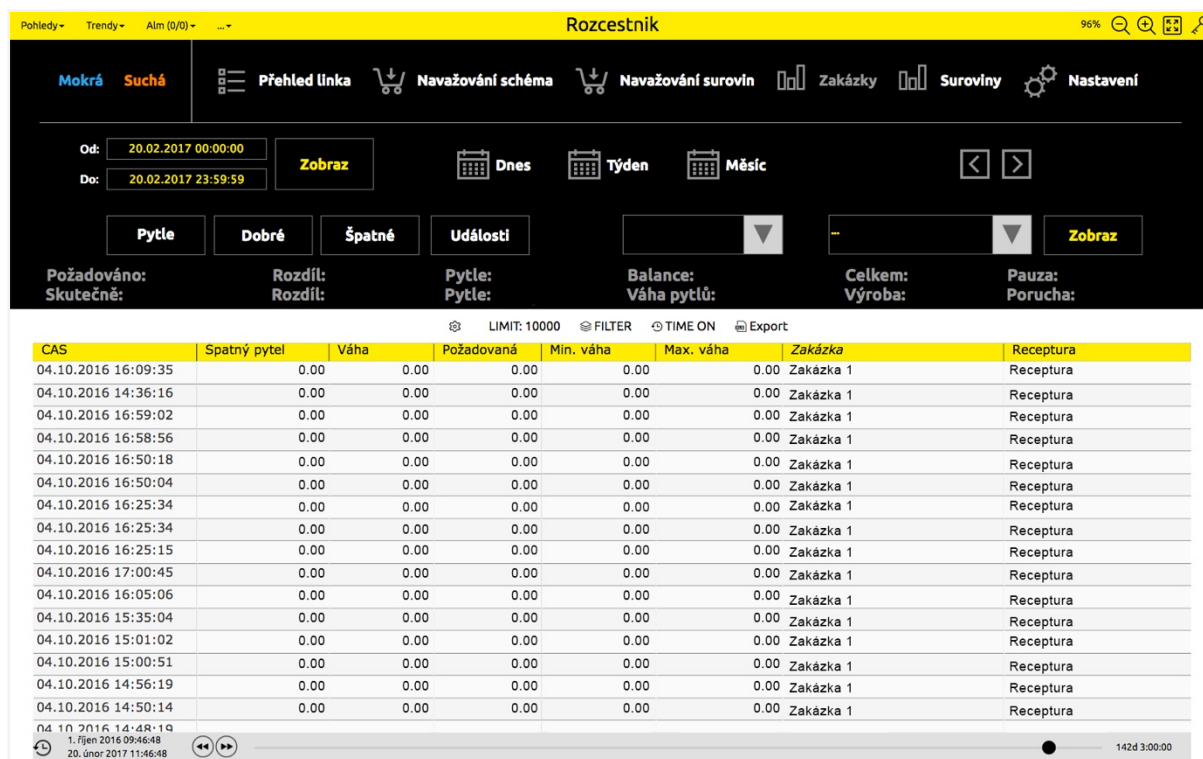
The visualization enables the general overview of the whole production line – Bagging (Pytlovačka), Palletizing (Paletizer), Packing (Balička).

Picture 6 – Orders overview



The main benefit remains in the detail overview of the orders within a particular time period. The production operator or other employees have specific information for each order including order number, time duration of each bag, weight, order status, and so on.

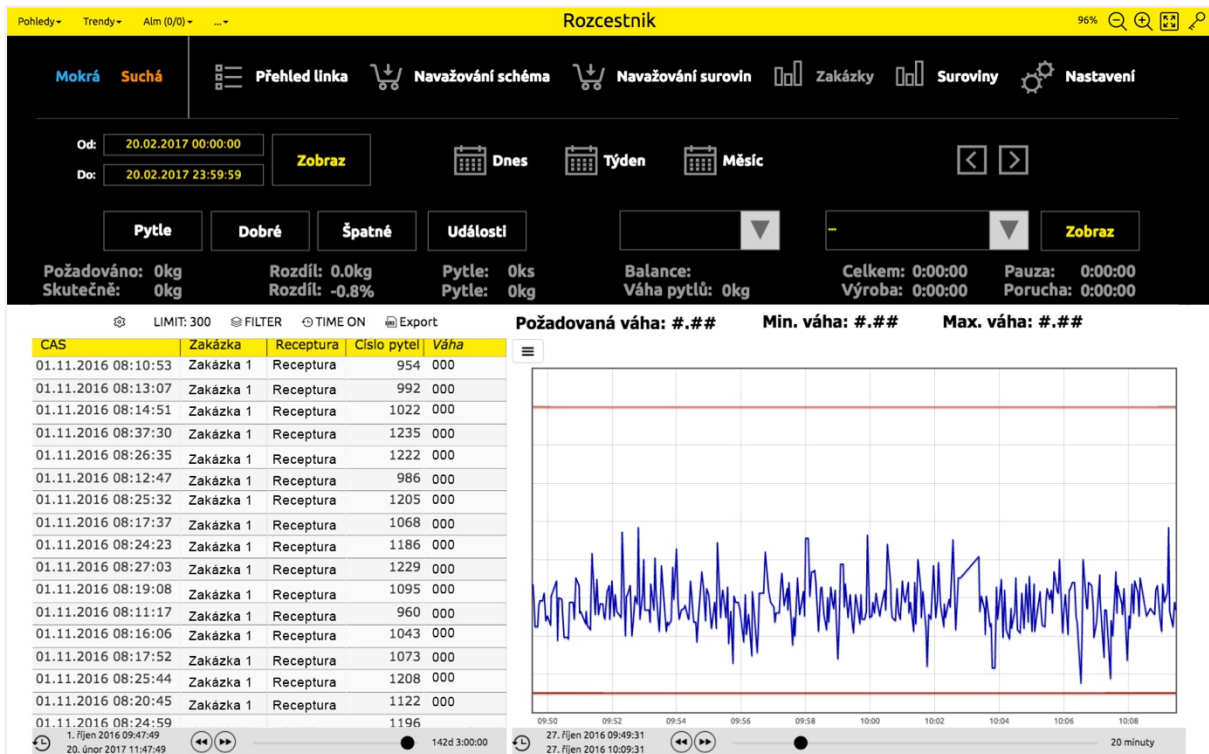
Picture 7 – Order overview 2



An even more detailed overview can be seen on this screen. It says how many bags of the total production has a shortcoming and which one. These findings help to optimize the performance and contribute to cost savings.

Example. Each line says why this concrete bag cannot be distributed. Most of the shortcomings come from the irregularity in weight (the bag did not fit within the limits). It can be solved by recalibrating the limits or measuring system in the mixing valve to decrease the production costs.

Picture 8 – Detail of specific order



The benefit for an effective functioning production line is the possibility to display the order and its specifications via graphs. This feature is highly appreciated by workers who have to make reports for their management. With this tool, the reporting is not a nightmare anymore.

The added value

Division Weber has the general overview of the production in the factory, about all orders, the percentage of errors 24/7, and also about the shortcomings origin. Because of this, Weber optimizes processes and collects, analyses, and evaluates production data. The whole production is available for all employees with the right level of access and the results are easily exported to MS Excel or PDF for presentations or reports.



Evropska 11
160 00 Prague,
Czech Republic



info@myscada.org



+420 224 904 121