SIGNAL AG

SIGNA E-Paper

PASSENGER TRANSPORT

In real-time and self-sufficient: passenger information

SIGNA E-Paper is a SIGNAL AG product that which is setting standards in passenger information:

- The captivating display offers very good readability – even in bright sunlight – with low power consumption
- A cloud-based management platform provides convenient management of all displays

In addition, the most important parameters such as the charge status or temperature of a display can be scanned at any time on the cloud platform.

We supported SIGNAL AG in setting up the cloud-based management platform and have been responsible for the software development since the start of the project in 2019.

Our commitment to passenger transport makes daily life easier for people.

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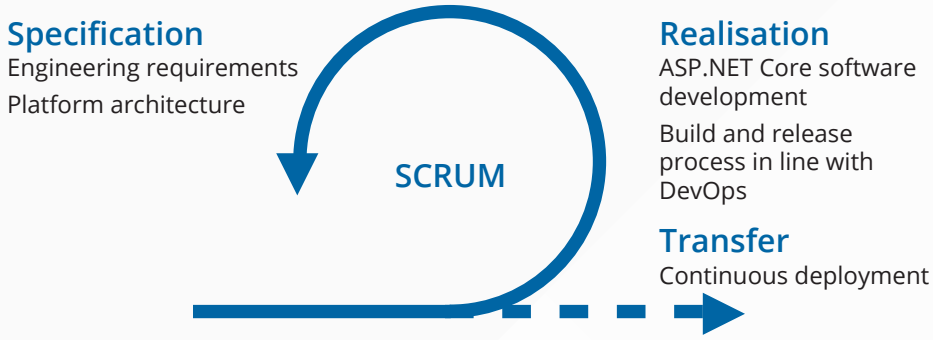
Services provided by CSA as part of the project



Project

The SIGNA E-Paper project was launched with the aim of creating a management interface for the e-paper displays produced by a third-party supplier. The focus of the application was on intuitive operation on both desktop and mobile devices (responsive design) as well as simple expandability with new functions in the future.
Ultimately, the project was made up of the following two main components, which were both planned and implemented by CSA employees:

- A web platform for transport company technical operators to enable them to manage and configure the displays with ease.
- A constant background process that continuously scans and follows the status of the displays and immediately triggers an alarm by e-mail in the event of abnormal parameters.

Technology

The future was to the forefront right from the start of development for the SIGNA E-Paper project. By selecting ASP.NET Core, we have built on a future-proof framework that is an integral part of the new Microsoft strategy. In addition, this cross-platform technology allows the environment to be used on a wide variety of systems (Windows, Linux) with little effort. Both the background process and the web platform are thus independent of a specific operating system.
Using the SQL Server for data storage guarantees optimal performance even with the large telemetry data volumes which are to be expected.

Methodology

By comprehensively recording the requirements at the beginning of the project, it was possible to create a prioritised product backlog with the tasks for the project team in cooperation with the customer, SIGNAL AG. Various stakeholders' expectations were thus clear to the project team at all times. The agile SCRUM approach turned out to be the best choice for this project. The functionality of the platform was expanded piece by piece with each completed sprint – visible and iterative progress, which not only delighted the customer but also motivated the development team.

The carefully designed architecture of the web platform allows for an easy exchange of infrastructure if necessary, thanks to loose coupling of the components. For example, the database used can be selected according to the needs and requirements or the e-mail sender used can be changed at a central location without much effort. This cuts down on development work and offers maximum flexibility and independence in terms of the components used.

As a service provider for various customers, SIGNAL AG had in mind a multi-tenant SaaS (Software as a Service) solution for the SIGNA E-Paper platform from the outset. Thanks to the experience and expertise of the CSA employees, a solution was found that covers all requirements and still guarantees the security of the stored data and the performance of the entire solution.

A considerable part of the project work was the establishment of a continuous delivery pipeline. By using Azure DevOps, a process was created that makes it possible to deploy a release easily and quickly to the test or production environment at any time, so monthly or other fixed release cycles are thus a thing of the past. Each release to the production system is also automatically reported to the SIGNAL AG product owner for approval, making unintentional deployment impossible.

Summary

The SIGNA E-Paper project was put in place as a solid foundation for future developments in the field of digital signalling at SIGNAL AG. Good cooperation between CSA Engineering AG and SIGNAL AG is also demonstrated by the constant further development of the platform for the benefit of SIGNAL AG's customers. The straightforward way of publishing new versions of the platform makes the cooperation a success story on both sides.