

# CASE STUDY

## BILFINGER MAINTENANCE

**Bilfinger Maintenance** has set up a process engineering test and demonstration system on behalf of Interessengemeinschaft Regelwerke Technik (IGR) e.V. The aim is to enable the evaluation of technologies and applications for the process industry in relation to Industry 4.0 and IIoT under the most realistic conditions possible. In addition, the data from the system will be made available to one or more cloud platforms, which will serve as the basis on which a wide range of applications can then be implemented and tested by members.



Graphic: Test and demo system of Interessengemeinschaft Regelwerke Technik (IGR) at Höchst industrial park, Frankfurt.

### Starting point

There are many components in the system, including approximately 40 field devices from various manufacturers with different communication protocols (HART, Wireless HART, Profibus, Profinet). Previously, the field device data was made available via FDT/DTMs and various asset management tools. This meant that while it was basically possible to access all of the device data, user interaction was required in order to do so. For example, there was previously no standardized way to query the status and diagnostic messages of devices (according to NE 107) for all devices. For IIoT and Industry 4.0 applications, however, machine access to the data via standardized interfaces is all that is required.

### The project

The task was to develop access to the device data of all field devices via OPC UA (Open Platform Communications Unified Architecture). This also serves as the basis for implementing applications for centralized monitoring and optimization, e.g. through the use of NOA (NAMUR Open Architecture).

The initial phase involves recording the device data in continuous operation for NOA applications. In a subsequent phase, this can be used as the basis for improving and adapting maintenance management, with a view to optimizing maintenance activities and minimizing downtime.

### Implementation

The CodeWrights IIoT server is installed on an edge gateway. The data from the HART and Profibus PA field devices are made available via the integrated OPC UA server. The solution is easily configured and managed via device management software based in the cloud.

The OPC UA information model of the devices contains the complete data record (parameters) of the devices. New devices installed in the system are automatically detected and are available immediately via OPC UA. Changes are automatically detected and the information model updated accordingly. It is thus possible to establish if, for example, a device has been removed from one measuring point and re-installed in another. This enables the user to make the device data available via OPC UA to any applications, both onsite as well as in the cloud.

### Benefits to the customer

- Zero engineering
- Automatic detection and integration of new devices
- Operates independently of device manufacturer
- Easy availability of device data for additional automated processing and evaluation

### Outlook

The next phase of the project has already started. By using the PA-DIM (Process Automation Device Information Model), the data is displayed not just independently of manufacturer but also in accordance with a standardized information model.

Karlsruhe, October 2019

Author: Dr. Michael Gunzert, Director Business Development,  
CodeWrights GmbH