

Project Note

Getting heating costs under control

This project involved a mobile device for accelerating and simplifying the entire process surrounding heating cost accounting. Zühlke implemented the requirements for secure data transmission and efficient usability for the software.

Task

The world's leading company for the consumption-based recording and invoicing of energy, water and ancillary building operating costs wanted to implement a big project in short order. The project involved putting in place an efficient system for reading the sensors on radiators by radio in a way that would not disturb tenants. Different equipment was installed at several million consumers. The new technology supports both the older measuring sensors with optical interface and the new generation of radio-based equipment. Another requirement was that the mobile solution be easy to operate.

Implementation

The customer stipulated a robustly built PDA with Windows CE plus Bluetooth and serial interface as the platform for the mobile solution. To ensure the efficient handling of routine processes, the PDA application has to respond quickly to user inputs and communicate reliably with the units. Data integrity is ensured with a mobile database. Data are synchronised with the back-end at night over a modem or DSL line using Web services. The planned software architecture was critically analysed and validated in performance measurements of the user interface, database and equipment communication. Detailed use cases served as the basis for developing the software in several phases. The PDA application was modelled in UML and implemented in C# using the .NET Compact Framework 2.0 and SQL Server 2005 Compact Edition. This greatly simplified implementation and serviceability. To satisfy the real time requirements for device communication, the hardware-related components were implemented in C++.



Technical Data

MS Visual Studio 2005
WinCVS

Telelogic Rhapsody
MagicDraw/ArcStyler
Bugzilla

C#/C++,
Windows CE 5.0
MS .NET Compact
Framework 2.0

MS SQL Server 2005
Compact Edition

WebServices

Customer benefits

- Zühlke critically analysed and refined the software architecture.
- Use of existing Windows CE expertise from other projects.
- Investment is secure for the long term thanks to the use of standard technologies.
- Communication with the devices can be tested automatically using unit tests.
- The modular software architecture simplifies future extensions.

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