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Project List BaSystem Martin Raabe

This list contains all projects sorted by topics and customers:

I. Long Term Development Projects	2
1. <i>BaSystem Martin Raabe, Bechenheim, own engagement</i>	2
2. <i>IBM Deutschland, Mainz</i>	2
3. <i>Siemens PSE, Wien</i>	2
4. <i>IBM, Mainz</i>	2
5. <i>Tektronix, Cambridge, UK</i>	2
6. <i>Sirona Dental – X-Ray, Bensheim</i>	3
7. <i>Sirona Dental – Super Sonic, Bensheim</i>	3
8. <i>Bombardier Transportation, Mannheim</i>	3
9. <i>DePuy Synthes, Innomedic, Rheinsheim, a Johnson&Johnson Company</i>	4
10. <i>AESKU.SYSTEMS – Test Laborautomat, Wendelsheim</i>	5
11. <i>SME Informatik GmbH – Test Windows Gerätetreiber, Weingarten / Baden</i>	5
II. Training Projects	6
III. Short Term Development Projects	8
IV. Complex Consulting	9

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I. Long Term Development Projects

1. BaSystem Martin Raabe, Bechenheim, own engagement

Co-development of the knowledge management and collaboration system 'TWiki'

Details: Perl, HTML, Open-Source Community

Duration: 2002 until today – 2 hours per week – total ca. 400 hours

Co-development of the knowledge management and collaboration system 'FOSWIKI'

Details: Perl, HTML, Open-Source Community

Duration: October 2008 until today – 2 hours per week – total ca. 180 hours

2. IBM Deutschland, Mainz

Introduction of a RTOS and BSP abstraction layer for an already implemented telemetric application for trucks

Details: pSOSystem ARM C/C++

Duration: 10 months in 2003-2004 – 16 hours per week – total ca. 750 hours

3. Siemens PSE, Wien

Evaluation of an alternative compiler environment for the ARM SDT 2.5.1 for pSOSystem

Details: Diab 5.2, RVCS 2.1 ARM C/C++

Duration: 3 months in 2004 – 20 hours per week – total ca. 300 hours

Evaluation, selection and introduction of a debugging environment for JTAG ARM with pSOS awareness

Details: Trace32 ARM C/C++

Duration: 3 months in 2004 – 20 hours per week – total ca. 300 hours

Design, implementation and test of a memory manager for a telemetric device for trucks

Details: pSOSystem ARM C/C++

Duration: 3 months in 2004-2005 – 12 hours per week – total ca. 160 hours

4. IBM, Mainz

Consulting for and adaptation of the real time operating system embOS and of the file system embFile for a telemetric device for cars

Details: CPU Philips (NXP) LPC2292/ARM 7

Duration: 3 months in 2006 – 12 hours per week – total ca. 160 hours

Evaluation of the real time operating system smxOS and of the file system smxFile for a telemetric device for cars

Details: CPU Philips (NXP) LPC2292/ARM 7

Duration: 3 months in 2006 – 12 hours per week – total ca. 160 hours

5. Tektronix, Cambridge, UK

Adaptation of a complex embedded C++ application to a new version of C++ Compiler/STL library

Details: Wind River Compiler PowerPC 5.5, Nucleus 1.1.2, Lauterbach Trace32

Duration: 4 months in 2007 – 8 hours per week – total ca. 75 hours

6. Sirona Dental – X-Ray, Bensheim

Design, implementation and test of a network protocol for a 2D X-Ray device for dentists

Details: VxWorks PowerPC Diab 5.4 C++ / Win32 Visual Studio 6 C++

Duration: 4 years in 2003-2005 – 32 hours per week – total ca. 2900 hours
(four days per week: two days on site – two days remote)

Further development, maintenance and test of a network protocol for a 3D X-Ray device for dentists

Details: VxWorks PowerPC Diab 5.5 C++ / Win32 Visual Studio 6 C++

Duration: 18 months in 2005-2006 – 32 hours per week – total ca. 2800 hours
(four days per week: two days on site – two days remote)

Further development, maintenance and test of a network protocol for an intra oral X-Ray device for dentists

Details: VxWorks PowerPC Diab 5.4 C++ / Win32 Visual Studio 6 C++

Duration: 2 years in 2006-2008 – 32 hours per week – total ca. 1300 hours
(four days per week: two days on site – two days remote)

7. Sirona Dental – Super Sonic, Bensheim

Creation and maintenance of a style guide – including the definition of the software development environment - for C programmers for medical devices

Details: ATMega128, Eclipse, Subversion

Duration: 4 months in 2008 – total ca. 240 hours

Team size: 5 developers of embedded hardware and software

8. Bombardier Transportation, Mannheim

Development, maintenance and test of data acquisition software (onboard data base) for trains - multi platform project for: VxWorks 5.4, VxWorks 6.x, µC-Linux, Linux, Wind River Linux, Windows – IA32, PowerPC, ARM, 68K.

Details: C/C++, release responsibility

Duration: 24 months in 2008-2010 – 35 hours per week – total ca. 1300 hours
(four days per week: two days on site – two days remote)

Handling of review and release meetings and processes of software (data base) for trains - onboard firmware and PC software - multi platform project for: VxWorks 5.4, VxWorks 6.x, µC-Linux, Linux, Wind River Linux, Windows – IA32, PowerPC, ARM, 68K.

Details: release responsibility

Duration: 2 months in 2011 – 20 hours per week – total ca. 130 hours
(two days per week: one day on site – one day remote)

9. DePuy Synthes, Innomedic, Rheinsheim, a Johnson&Johnson Company**Development and migration PC software****(Calculation of 3D visualization of medical systems from 2D X-ray images).**

Position: Developer (Software) – pre-market

Details: Porting of an algorithm incl. GUI from C#/DirectX to C++/Qt/OpenGL/vtk and C++ (unmanaged and managed code)/.Net/WCF/Unity

Tools: Visual Studio 2008 and 2012, C++ (unmanaged and managed code), C#, DirectX, OpenGL, vtk, Qt, .Net, WCF

Duration: 2011 bis 2014 – 32 hours per week

(four days per week: zero to one day on site – three to four days remote)

Further development of the software incl. unit tests**(Calculation of 3D visualization of medical systems from 2D X-ray images).****Integration of a web application.**

Position: Chief-Developer (Software) – pre-market

Details: Further development of the software incl. unit tests

(Calculation of 3D visualization of medical systems from 2D X-ray images)

Integration into a web environment ASP.Net MVC (MAXFRAME)

(external supplier: web-application on IIS)

Tools: Polarion, svn, Visual Studio 2012, C++ (managed und unmanaged code), C#, .Net, Parasoft C++

Duration: 2014 - 2016 – 32 hours per week

(four days per week: zero to one day on site – three to four days remote)

Further development of the software incl. unit tests.**Takeover of the web application.**

Position: Developer (Software) & DevOp – pre-market

Details: Further development of the software incl. unit tests

(Calculation of 3D visualization of medical systems from 2D X-ray images)

Takeover of the web application (Windows / MacOS) and further development until product maturity (MAXFRAME – five languages)

Tools: Polarion, svn, Visual Studio 2012, C++ (managed und unmanaged code), C#, .Net, Parasoft C++

Duration: 2016 - 2017 – 32 hours per week

(four days per week: zero to one day on site – three to four days remote)

Further development of the software incl. unit tests.**Further development of the web application.**

Position: Chief Developer (Software) & DevOp – pre-market / post-market

Details: Further development of the software incl. unit tests

(Calculation of 3D visualization of medical systems from 2D X-ray images)

Product-ready further development of the web application (Windows / MacOS) (MAXFRAME – five languages)

Tools: AWS, IIS, Windows Server 2012, Polarion 2018/2021, svn, Visual 2012, C++ (managed und unmanaged code), C#, ASP.Net, Unity 2017, JavaScript, CSS, jQuery, KendoUI, ReSharper, TeamCity (CI/CD), Veracode Cyber Security Scan

Duration: 2017 - 2022 – 32 to 40 hours per week

(four days per week: zero to one day on site – three to four days remote)

Support of the algorithm and web application for a follow-up product (MAXFRAME II).

Position: Developer (Software) – pre- market / post-market

Details: Support of the product-ready algorithm and web application for a follow-up product (MAXFRAME II)

Tools: AWS, IIS, Windows Server 2019, Polarion 2021, svn, Visual 2017, C++ (managed und unmanaged code), C#, ASP.Net, Unity, JavaScript, CSS, jQuery, KendoUI, ReSharper, TeamCity (CI/CD), Veracode Cyber Security Scan

Duration: 2019 – 2022

10. AESKU.SYSTEMS – Test Laborautomat, Wendelsheim

Position: Embedded Software Developer

Details: Support of a test application for testing a laboratory automation device to analyze human fluids.

Tools: Linux, Qt, C++, GitLab, Visual Studio Code, CAN-bus

Duration: 3 months in 2023

Team size: 4 Embedded Software Developers

11. SME Informatik GmbH – Test Windows Gerätetreiber, Weingarten / Baden

Position: Software Developer

Details: Extension of a test environment for testing a Windows device driver for Coprocessor PCI cards.

Tools: Windows 10 und 11, Jira, Confluence, Visual Studio Code, C++, HLK, PCI-Karte

Duration: 3 months in 2023

Team size: 2 Software Developers

II. Training Projects

Lectureship for the Multimedia-Akademie Mainz e. V.:

Professional training class networking

Details: Basics of networking for web developers
Customer: Multimedia-Akademie Mainz e. V.
Duration: 4 days in 2003
Participants: 14

Training of a software development team in English language:

SNiFF+ - user's and administrator's training

Details: Interdisciplinary software development in the team
Customer: Wind River Germany, Ismaning, for the customer Siemens, Birmingham
Duration: 3 days in 2005
Participants: 12 embedded software developers

Training of a software development team:

SNiFF+ - user's and administrator's training

Details: New paradigms of the software development in the team
Customer: Sirona Dental Systems, Bensheim
Duration: 2 days in 2005
Participants: 10 developers of embedded software

Training of a group of developers of hardware related software in English language:

Tips and Pitfalls in the Software-Development of 16-bit MCUs

Details: Renesas M16C29, R8C1B
Customer: Neueda, Bristol, UK, for the customer Kostal, Ireland
Duration: 2.5 days in 2007
Participants: 8 developers of embedded hardware and software

Training of developers of hardware related software:

Introduction into UML Embedded

Details: UML Tools for deeply embedded device software
Customer: ml-consulting, Cologne, for a manufacturer of building automation equipment
Duration: 1 day in 2008
Participants: 12 hardware and 12 software developers of deeply embedded devices

Training of developers of hardware related software:

Introduction into Real Time Operating Systems

Details: Software for deeply embedded devices, FreeRTOS, PIC, ARM, IA32, PowerPC
Customer: ml-consulting, Cologne, for a manufacturer of building automation equipment
Duration: 1 day in 2008
Participants: 12 hardware and 12 software developers of deeply embedded devices

Training and consulting of a complete development department for hardware related software:

C-Programming of micro controllers – Basic and advanced classes

Details: PIC, ARM, IA32, PowerPC, department size 36 persons
Customer: ml-consulting, Cologne, for a manufacturer of building automation equipment
Duration: 5 times 2 days in 2008 + 5 days consulting
Participants: 12 hardware and 12 software developers of deeply embedded devices

Training of the version control system CVS for members of different teams:**User's and administrator's training**

Details: Development process, version control system, team work
Customer: Moog, Böblingen
Duration: 2 days in 2008
Participants: 10 software developers und testers of embedded devices

Lectureship of the University of Applied Science Mannheim, for the Summer School 2008**Introduction into Real Time Operating Systems.**

Details: PowerPoint slides, interactive exercises, source code examples FreeRTOS
Customer: University of Applied Science Mannheim
Duration: 2 days in 2008
Participants: 12 students

Lectureship of the University of Applied Science Mannheim, for the Summer School 2009**Introduction into Real Time Operating Systems and Leadership.**

Details: PowerPoint slides, interactive exercises, source code examples FreeRTOS
Customer: University of Applied Science Mannheim
Duration: 2 days in 2009
Participants: 12 students

Lectureship of the University of Applied Science Mannheim, for the Summer School 2010**Introduction into Non-Violent Communication and Leadership.**

Details: Multimedia material, interactive team games
Customer: University of Applied Science Mannheim
Duration: 2 days in 2010
Participants: 12 students

Lectureship of the University of Applied Science, Mannheim, for the Summer School 2010**Introduction into Real Time Operating Systems and Leadership.**

Details: PowerPoint slides, interactive exercises, source code examples FreeRTOS
Customer: University of Applied Science Mannheim
Duration: 2 days in 2010
Participants: 12 students

Teacher for the University of Applied Science Bingen**Industrial Automation class for Bachelor of Electrical Engineering**

Details: Lecture and exercises
Customer: University of Applied Science Bingen
Duration: one semester (6 hours per week) in 2012, 2013 and 2014
Participants: 33 students

Teacher for the University of Applied Science Bingen**Microprocessor Technology class for Bachelor of Electrical Engineering**

Details: Lecture and exercises
Customer: University of Applied Science Bingen
Duration: one semester (6 hours per week) in 2012 and 2013
Participants: 33 students

**Teacher for the University of Applied Science Bingen
Real Time Operating Systems class for Bachelor of Computer Science**

Details: Lecture and exercises
Customer: University of Applied Science Bingen
Duration: one semester (4 hours per week) in 2014
Participants: 12 students

Beginner's workshop Qt for embedded devices in English language

Details: Lecture and exercises
Customer: Automation company in Switzerland
Duration: four days in 2014
Participants: 3 students (one from Thailand and two from China)

III. Short Term Development Projects

Development of a Bus Trap Error Handler for OS-9000/68040

Details: PowerPC, Interrupt Vector Table
Customer: OS-9 user, Hungary
Duration: 2 days in 2003

Introduction into the knowledge management tool 'TWiki' for a software development project with 20 team members

Details: Wiki basics, open document management, team work
Customer: Sirona Dental Systems, Bensheim
Duration: 3 months in 2003 – 2 hours per week

Integration of the Diab Compiler V5.0 into pRISM+ 2.0 PowerPC

Details: Extension of a deprecated development environment
Customer: Wind River Germany, Ismaning, for a customer in Norway
Duration: 10 days in 2004

Development of a subversion adaptor for SNIFF+ 4.2

Details: Extension of a deprecated development environment by an adaptor for the version control system svn
Customer: Kieback & Peter, Berlin
Duration: 80 hours in 2008

Extension and maintenance of a PC application for the 3D handling of a cube and a tetrahedron

Details: Extension and maintenance of a Windows application (GUI, GPL licensed, OpenGL, Qt 4.6) for 3D programming of a LED cube and of a LED-tetrahedron including the construction of the tetrahedron and layout. The application has been ported to Linux.
Customer: BaSystem Martin Raabe, Bechenheim
Duration: 250 hours in 2010

IV. Complex Consulting

Support of the development of drivers of PCI devices (PowerPC) for pSOSystem and VxWorks.

Details: Debugging, concept, architecture and design of device drivers
Customer: Bruker Daltronik, Bremen
Duration: 3 days in 2003

Introduction into the knowledge management system 'TWiki' for a small software development company.

Details: Project documentation, collaboration of the members of distributed teams
Customer: uib GmbH, Mainz
Duration: 10 days in 2004

Introduction into the version control system CVS for a small software development company.

Details: Team work, project planning, project controlling, version control
Customer: uib GmbH, Mainz
Duration: 10 days in 2004

Support for the introduction of a new real time operating system for a mobile medical device.

Details: Migration from pSOSystem to VxWorks
Customer: Dräger Medical, Lübeck
Duration: 3 days in 2005

'Fire Fighting' for pSOSystem 2.3 PowerPC, network interface card driver, reboot: Analysis and solving of the problem.

Details: Error investigation without source code, 4 error situations per year, highest problem-solving pressure, exclusively executed via phone and email
Customer: Siemens, Bern, CH
Duration: 8 days in 2005 (across 8 months – total 50 hours)

Support of the migration of a real time operating system of a mobile medical device.

Details: Migration of boot time, configuration and device drivers from pSOSystem x86 2.1 to 2.5, exclusively executed via phone and email
Customer: Versamed, Israel (GE Healthcare)
Duration: 400 hours in 2002-2006

Adaptation of the software development environment SNiFF+ for a team of 20 members. Migration to Eclipse/SVN/CVS.

Details: Use of development tools in distributed teams
Customer: Robert Bosch, Salzgitter
Duration: 4 days in 2008

'Fire Fighting' for pSOSystem 2.3 PowerPC, network pNA+ memory leak problem: Analysis and solving of the problem.

Details: Error investigation without source code, highest problem-solving pressure
Customer: Wind River Deutschland, Ismaning, for automotive customer, Stuttgart
Duration: 5 days in 2008

Support (Software development) for and extension of the development processes of a supplier of devices for the radio broadcasting infrastructure.

Details: Teamwork, project planning, project controlling, revision control
Customer: Qbit GmbH, Bruchsal
Duration: 20 days (by phone and on site) in 2014 – 2016

Support for Software Architecture Review of a new Device Product Line (Medical Device).

Details: Workshop with 12 Software developers and managers
Customer: Sirona Dental Systems GmbH, Bensheim
Duration: 2 days in 2016

Support (Selection of a service provider for a Linux distribution) for a supplier of devices for the radio broadcasting infrastructure.

Details: Teamwork, project planning, project controlling, revision control
Customer: Qbit GmbH, Bruchsal
Duration: 2 days (by phone and on site) in 2017

Extension of the software review processes of a supplier of devices for the radio broadcasting infrastructure.

Details: Teamwork, project planning, project controlling, revision control
Customer: Qbit GmbH, Bruchsal
Duration: 3 days (by phone and on site) in 2017

Support for a test application for a laboratory automation device for the analysis of human fluids.

Details: Teamwork, software development, revision control
Customer: AESKU.SYSTEMS, Wendelsheim
Duration: 6 weeks in 2023