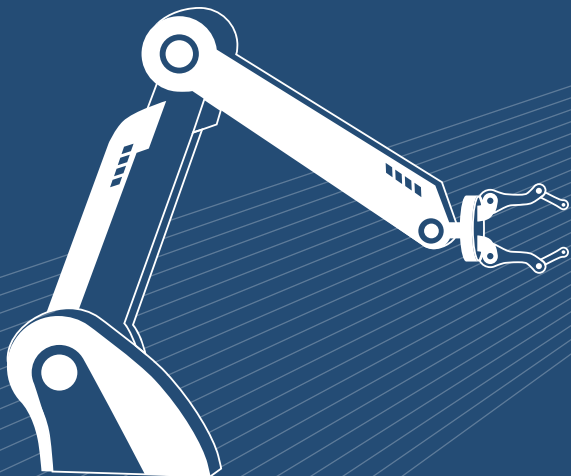


## Technology

Die Linguwerk GmbH als kompetenter Dienstleister für sich rasch weiterentwickelnde Technologien vereint langjährige Erfahrung, Flexibilität sowie Branchen-Know-how unter einem Dach. Je nach Kundenwunsch realisieren wir Produktideen auf PC-Plattformen, ressourcenarmen Mikrocomputern, Signalprozessoren oder auf Smartphone-Umgebungen. Dabei setzen wir auf modernste Technologien:

- Software Engineering
- Embedded Systems Engineering
- Messtechnik
- Intelligente Sensorlösungen



Die Linguwerk GmbH ist als Technologieunternehmen kompetenter Partner, Hersteller und Dienstleister in den Bereichen Signals, Technology und Media. Ob es um klassische Technologieprodukte, Zukunftstechnologien oder um die Erarbeitung von maßgeschneiderten Lösungen geht, wir stellen uns mit Erfolg jeder Herausforderung.

Linguwerk GmbH is a competent partner, manufacturer, and service provider in the fields of signals, technology, and media. We successfully face every challenge whether it is a classic product, future technology or creating custom challenges.

## Kontakt

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# Technology



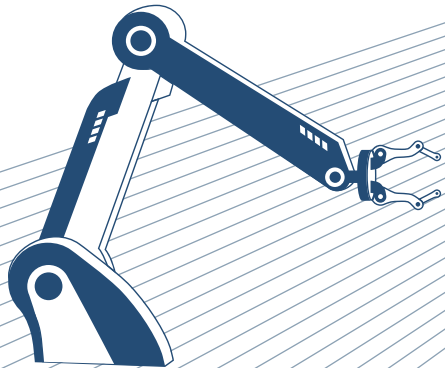
[www.linguwerk.de](http://www.linguwerk.de)

# Technology

Linguwerk GmbH is a competent service provider for fast developing technologies. We combine many years of experience, flexibility, and industry know-how. Depending on our customers' wishes, we realize product ideas on PC platforms, low power microcomputers, signal processors or smartphone environments. We rely on the most modern technology for software design:

- Software engineering
- Embedded systems engineering
- Measurement processing
- Intelligent sensor solutions

## SELECTED REFERENCES ►



## SOFTWARE ENGINEERING

### CRANE MANUFACTURER | REMOTE DATA LOGGING

Creation of software for transferring measurement values from crane control systems over TCP/IP networks with long delay times or strong disturbances (worldwide field operation). 3D visualization of crane movements and development of a process to handle errors for long data delay times.  
C++, Qt, Coin3D

### POSTAGE METER MANUFACTURER | DATABASE PORTING

Porting complex databank software from an Informix version to PostgreSQL. The program includes managing devices, customers, software and account balances, as well as data servers, web applications, and tools.  
C++, C#, SQL (Informix 9.4, PostgreSQL 9.x)

### DENTAL PROSTHESIS MANUFACTURER | DENTAL SOFTWARE

Extension of software for generating milling data for dental prostheses (caps, crowns, bridges, etc.) in order to optimize functions and workflow.  
Bugtracking Systems (Trac), C++/Ct

## EMBEDDED SYSTEMS ENGINEERING

### INDUSTRIAL METROLOGY MANUFACTURER | MEASURING DEVICE FOR LINE LOCATION

Software startup of a central DSP in a measurement device (Hardware Abstraction Layer). Simulation of measurement algorithms of digital signal processing and implementation on the DSP (in C and Assembler).  
C, Assembler, Matlab/Simulink, Blackfin DSP BF53x, VisualDSP++

### AUTOMOBILE SUPPLIER | µCLINUX

Adaption of a development board (from uClinux to µC). Porting and adaptation of embedded Linux to µC. Development of a communication protocol between further DSPs and the µC.  
GNU Toolchain, gdb, JTAG, Linux, uClinux, Freescale Coldfire MCF5484, TigerSHARC DSP

### LINGUWERK GMBH | LINGUBOARD

Development of electronic boards (Linguboard Vol1/Vol2) for implementing an embedded speech HMI. These run a speech recognizer, speech output, and dialog management software. Interfaces: Audio IO, SD card, FAT32, SPI, I2S, I2C.  
C, Assembler, Blackfin DSP BF52x (Vol1), Microchip PIC32 (Vol2), ASR, VisualDSP++, MPLAB

## SENSORS & METERING

### INDUSTRIAL METROLOGY MANUFACTURER | MEASURING DEVICE FOR HIGH VOLTAGE CABLES

Software development for a complex measuring process on an embedded platform with operation using a display (GUI in Qt) and provision of a generic software stack.  
C, C++/Qt, Bash, uBoot, Busybox, GNU Toolchain, JTAG, GIT, CVS (Embedded), gdb, Ethernet, LON, RS485, 1-Wire, Embedded Linux, Atmel AT91SAM9261 µC, Echelon FT 5000

### SENSOR MANUFACTURER | GESTURE DETECTION

Development and simulation of a process of pattern recognition, event detection, and gesture classification in Matlab for an optical 3D APD sensor with low resolution. Implementation of the process in C on a microcontroller with limited resources.  
C, Matlab, SVN, Visual Studio, Digital Image Processing, Freescale iMX27, LIN BUS

### MOBILE NETWORK MEASUREMENT TECHNOLOGY MANUFACTURER | AUTOMATIC GAIN CONTROL

Development of an automatic gain control (AGC) system for a measurement device for mobile networks (UMTS LTE). Creation of a Matlab model and test with real test data (MiL). Creation of test cases for SiL and HiL.  
LTE, UMTS, Digital Signal Processing, Matlab