Łukasz Przeniosło

Curriculum vitae

✍ Goleniów, Poland
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ϟ www.przenioslo.com

Work experience

• July 2017 – Present

Przenioslo Electronics & Software, Szczecin

Hardware & Software Engineer (Owner)

Hardware and software design according to the client's needs and/ or specifications. See Appendix sections for more clients and projects references.

• May 2020 – December 2021

Icotera Sp. z o.o., Szczecin

Hardware Subject Matter Expert

Hardware development processes management and verification.

• June 2013 – July 2017

Mechatronic Engineering Sp. z o.o., Szczecin

Hardware & software engineer

Development and maintenance of hardware for the produced SMT machinery, writing firmware for the created hardware, writing testing PC applications, building prototypes.

• July 2012 – June 2013

Mechatronic Engineering Sp. z o.o., Szczecin

Hardware & manufacture engineer

SMT machinery hardware assembly, faulty parts service, existing designs debugging.

Education

2014–16 **Electrical engineering**
MA diploma
ZUT, Szczecin

2010–14 **Electronics engineering**
BA diploma
ZUT, Szczecin

Courses & licenses

2022 **Sages MISRA C**
Safe code based on MISRA C course

2020 **The Technology Academy**
RF & Microwave course

2018 **C++ Institute CLA & CLP**
Advanced C11 programming course

2017 **Unmanned Aerial Vehicle Operator**
Visual Line of sight (VLOS) license

Document last update date and time: 2023/12/16, 15:59. Up-to-date CV always under github.com/bremenpl/cv/blob/master/tex/cv.pdf

Honors and scholarships

2017 **Szczecin's city president best thesis award**
Received for MA thesis: Universal smart electric motors controller for industry applications

2015 **Polish Minister of science and higher education scholarship**
Received in 2015 for academic achievements

Skills

HW PCB design & production, soldering, rapid prototyping, Altium Designer, Orcad/ Allegro, AVR, PIC, ARM, PowerPC, STM32, FPGA, C2000, MEMS, RF/analog, power electronics, low power, BMS, SBC

SW Assembly, C, Modern C++, MISRA C, Qt, QML, Matlab, Plecs, Spice, GIT, VHDL, DSP, FreeRTOS, motor control, Buildroot/ Yocto (Poky), Linux drivers, IoT, OPCUA, Unit testing

MISC Documentation (LaTeX, Doxygen, Office), HW/SW product management (design, pricing, production, BOM optimization)

Communication

Polish Native language

English Full professional proficiency

German Elementary proficiency

Social networking

LinkedIn linkedin.com/in/przenioslo

Github github.com/bremenpl

Github github.com/przenioslo

Appendix A: extended competence list (Hardware)

- Digital circuits development based on discrete components or advanced IC's
  - MCU based designs, using IC's such as ARM Cortex M0/M3/M4/M7, PIC, AVR or C2000 families,
  - CPU based designs, using IC's such as NXP i.MX 6 and i.MX 7 series application processors or TI AM335x Sitara application processors,
  - FPGA based designs, using IC's such as Xilinx Spartan family or Lattice Mach family,
  - experience in high speed designs for SBCs (Single Board Computers) consisting of memories IC's such as: NOR/ NAND Flash, DDR3 RAM, SD cards and eMMC chips, Sata drives,
  - familiar with high speed designs utilized for:
    - reducing cross-talk and distortions,
    - reducing ground bounce,
    - reducing radiation (EMI),
    - differential pairs design and routing,
  - familiar with signaling/equalization and signal integrity provision techniques
  - knowledge about serial interfaces, such as: UART/ USART, I2C, I2S, SPI, QSPI, CAN, LIN, Ethernet, Ethercat.
- Analog circuits development based on discrete components and dedicated IC's
  - experience in audio analog front-end designs,
  - experience in building low voltage measurement circuits,
  - utilizing high resolution ADC's and DAC's,
  - good knowledge about analog circuits shielding and separation (i.e. ground start connections, guard rings, via shielding and stitching),
  - experience in RF analog front-end design. Utilized techniques:
    - output to antenna matching impedance circuits (Wavelength and Microstrip),
    - PCB antenna length tuning,
    - knowledge about network analyzer usage,
  - built devices in the following technologies/ frequencies (and wrote firmware for them):
    - Wifi, 2.4 Ghz (ESP8266 and ESP32),
    - Zigbee, 2.4 Ghz and 868 Mhz (Digi Xbee Digimesh),
    - Bluetooth, 2.4 Ghz (Nordic NRF chips),
    - 2G/ 3G, 820 - 2200 Mhz (u-Blox SARA U201),
  - good knowledge about the principles of operation of the basic discrete components such as BJT's, Mosfets, OP Amp's, Flip-flops, Multiplexers/ Demultiplexers etc.
- Power electronics circuits development based on discrete components and dedicated IC's
  - motor control drivers (from ground-up) for the following motor types: Stepper motors, DC motors, VCM (Voice coil) motors, BLDC and PMSM,
  - experience in creating hardware for industry grade robots utilized in SMT production, such as: Pick and Place machines, Stencil printers, conveyors and reflow ovens,
  - DC-DC converters (Buck and Boost converters),
  - built and programmed high voltage/ current (Lithium and Lead acid based) Battery Management Systems (BMS) and Uninterruptible power supplies (UPS) for power backup applications (civil, maritime and medical),
  - experience in building various battery chemistry devices and chargers (i.e.: Li-ion, Li-pol, LiFePo4 (LFP), Nimh, lead acid),
  - experience in building low power, energy harvesting, battery powered IoT devices.
- CAD/ CAM/ Simulation technologies, tools knowledge and usage experience:
  - long time Altium Designer user,
  - experience in schematics design and simulation,
  - experience in mixed signals design's PCB creation consisting of up to 12 layers stackups,
  - experience in creating multi PCB designs
  - experience in using SPICE and other simulation tools, such as: LTSpice, SIMetrix, Simulink, Plecs,
  - experience in WiFi technology based (incl. AX) hardware development and testing.

Appendix B: extended competence list (Software)

- Hardware description languages:
  - proficient in VHDL code design,
  - less experienced in Verilog code design.
- Assembly
  - experienced in AVR Assembler space efficient code development for memory constrained devices,
  - generic knowledge of ARM and x86 assemblers for debugging purposes.
- C
  - long time experience in C89, C99 and C11 standars usage,
  - bare metal applications (no operating system),
  - real time operating systems applications, such as FreeRTOS,
  - embedded Linux based applications (ARM and PowerPC),
  - high efficiency x86 multiplatform applications,
  - Linux Kernel drivers development (character and network),
  - knowledge in the memory management field (MMU, DMA, dynamic memory allocation, memory structure architectures),
  - experience in multiprocess and multithread applications (good knowledge of multithreading principles),
  - experience in using generic and self written DSP libraries for applications such as: PID control, Fuzzy Logic control, audio signals processing, measurement data processing).
  - experience in using MISRA C and various Linter applications.
  - long time experience in designing firmware for various power management devices (BMS, UPS, motor control, switched converters).
  - long time experience in various Bootloader programs design.
- C++
  - long time experience in C++11, C++14 and C++17 standards,
  - build efficient applications for multiple operating systems: Windows, Linux, Mac OS, iOS, Android,
  - utilizing modern C++ concepts, such as Smart Pointers, Futures, Lambdas, Templates, Move semantics,
  - familiar with design patterns and principles such as SOLID or RAII,
  - familiar with Unit Testing principles,
  - experience in multithreaded application in low and high level domain,
  - long time experience in using Qt with QML and/ or Felgo frameworks. Utilized Qt technology for building truly multiplatform (desktop and mobile) applications,
  - experience in creating event driven applications,
  - built both backend (headless) and front end (GUI) applications,
  - knowledge about maintaining good balance between code readability/ quality and high performance,
  - knowledge of data structures and algorithms,
  - experience in both low level (TCP/IP, UDP) and high level (HTTP, FTP, SFTP, OPCUA, MQTT etc.) networking protocols and applications.
- Tools and Operating Systems
  - proficient in Unix/Linux, Windows and MacOs environments,
  - Linux build systems maintenance and design using Buildroot and Yocto (Poky) tools,
  - familiar with make, qmake and cmake building tools,
  - worked with multiple compilers: MSVC, GCC and LLVM,
  - working efficiently with GIT version control (and SVN if forced to),
  - familiar with Valgrind dynamic analysis tool,
  - familiar with GDB debugging tool both locally and remotely,
  - familiar with Gtest, Ceedling and Catch2 unit testing frameworks,
  - familiar with Jira and Confluence management and documentations tools.

Appendix C: extended competence list (Miscellaneous)

- Proficient in documentation preparation using
  - LaTeX,
  - Doxygen,
  - MS Office/ Libre Office
  - Confluence
- experience in hardware, software and mixed type of products leading in small teams. Long time interdisciplinary experience provides good diversity for various projects,
- can act as a standalone developer or a team player in a project,
- good at multitasking, can handle multiple sub-tasks simultaneously,
- experienced with developer to client relations handling,
- experienced with client to ODM relations handling,
- good at Power Point presentations (both preparing and giving them),
- experienced with working in multicultural environments.
- experienced with leading engineering teams in various embedded projects.
- experienced in 3D design (Rhino) and general 3D printing (mostly for support products, such as electronics devices prototype cases).

Appendix D: Work references: clients/ employers

This section lists some of the companies (clients or employers) I have worked for in the past. It provides only the basic information that is not covered by the NDA's/ contracts, such as company name, manager/ supervisor name + position at the time and contact info. The list is not sorted in any specific way- it is (time wise) randomly ordered.

- **Icotera Sp. z o.o.**
  Kim Esben Jorgensen (CTO), Danny van der Poel (CCO)
  contacts: Linkedin, Linkedin
- **Mechatronic Engineering Sp. z o.o.**
  Zygmunt Mijakowski (R&D director)
  contact: Linkedin
- **MacGregor Germany GmbH & Co. KG**
  Joerg Hering (Chief of Hardware & Software dept)
  contact: email
- **idoc A/S**
  Peer Mork (CEO), Morten Ford (Head of Projects & International Defense)
  contacts: Linkedin, Linkedin
- **West Pomeranian University of Technology**
  Krzysztof Penkala (PhD, EEng, Senior Lecturer)
  contact: Linkedin
- **Global Power Source Pte. Ltd.**
  Vinit Dipak Gandhi (Head of Business Development)
  contact: Linkedin
- **LINA Medical Polska Sp. z o.o.**
  Kamil Lata (Project manager
  contact: Linkedin
- **Apptimia Sp. z o.o.**
  Robert Rak (CCO)
  contact: Linkedin
- **Mpower Sp. z o.o.**
  Michał Bonisławski (CCO)
  contact: Linkedin

Appendix E: Work references: projects

The section presents some of the projects I have participated in commercially. In some of them I participated partially, as an engineer in a bigger team. In others, I participated fully, providing a complete product from ground-up. The order in which the projects are listed is random and has no correlation with the order of listed companies in the prior section.

- **Placeholder**
  Placeholder
  Placeholder