Kenneth R. Robson

Professional Summary:

Highly-skilled customer-focused, technical program manager bringing more than 35 years of experience in diverse roles ranging from individual contributor, team leader, project/program manager, system engineering, product architecture, and product manufacturing.

Skills:

• Requirements Management • Formal Process Adherence /Tailoring • Cross Functional Management • Multi-disciplinary Leader • Purchase Requests/Receiving • Vendor Management • Customer Management/Status • Formal Processes (DoD, NASA, FDA, ANSI AAMI, GE, Kodak, IEEE, CMM)	• Direct Line Administrative • Project scoping & system CTQs • Long term planning – 1/3/5 year plans • Product, schedules, budget • Prototypes, Product manufacturing • Certification Process - FCC/IC/CE, PTRCB, GCF • System Engineering • Documentation – content/team coordination • Customer Technical support

Work Experience:

Oct 2007– present: GE MDS L.L.C. , Rochester, NY

Oct 2011– present: Senior Program Manager

- Product/system engineering/development of the multiple products in the realms of software, networking, licensed/un-licensed RF, and cellular products for industrial communications, including IIOT.
- Cross functional, multidisciplinary management and coordination including sales, product management, manufacturing, manufacturing quality, tech services, sourcing, supply chain, regulatory, safety, etc.
- Extensive experience with formal gate based product reviews (GE NPI), full-lifecycle development as well as product roadmap additions. Responsibilities include project scoping & requirements, long term planning, product definition, schedules, budget, prototypes, product documentation, detailed requirements, patent reviews, government/safety certification, cross-functional coordination. technical training, production readiness, manufacturing support and. tier 1/2 customer support
- Direct line management of up to 12 multi-disciplined engineering personnel. Annual reviews, salary adjustments, mentoring, leave approval, training, timecards, career development, promotions, conflict resolution, hiring, de-hiring.
- Systems/Tools: DOORS for requirement development/documents, BOM development/modifications (Enovia, Windchill), factory test specifications and code review (TestStand) , documentation (FrameMaker, Word), Patent review/clearance (Thompson). Oracle experience with system for business operations – purchasing, receiving, parts availability, sales order review, etc.

Significant Projects **(**many projects overlapping in multiple years of development**)**

- **AMI** (2015-present) - Cellular communications single board integrated into I210 meter – HW/SW originally developed by a 3rd party for the customer – required complete HW redesign and many SW fixes to pass FCC/PTCRB. Managed custom antenna design by a vendor for 4G operation inside a meter enclosure. 3rd party and in-house development.
- **Smart Fuse** (2016-present) - Cellular communications single board with GPS and BLE integrated into smart fuse device – GE developed HW/SW based on customer specifications. Co-development with customer had significant requirements churn as application domain evolved. Custom antenna designed by a vendor for 4G operation inside the device enclosure. M2M design with CoAP. In-house development
- **NMS – PulseNET-JPAX** (2017) - Management of new product support within PulseNET. Technical team coordination for requirements gathering, scheduling.
- **Orbit ECR** (2015) - Refactoring of Orbit MCR to reduce size and cost. New mechanical enclosure (case, bezel, lightpipes), refactored/resized digital board. No software updates.
- **Orbit MCR Release 2 & 3** (2013-2015) - Product improvements – addition of 3G cellular modem, addition of AT&T 4G modem, replacement of older 4G modem, multiple phases of additional software features added to code base. Global country certifications resulting in 180 countries – 30+ specific country certs directing 3rd party certification effort.
- **NMS – Element Manager** (2013-present) - Multiyear continuous software feature additions to single device management. Managed all development performed by 3rd party vendor. Included requirements, priorities, funding, progress, end customer support.
- **NMS – Field Network Manager** (2014-present) - Multiyear continuous software feature additions of multiple Network Management Systems of increasing capabilities supporting legacy MDS devices featuring multiple device management with networking capabilities. Managed all development performed by 3rd party vendor. Included requirements, priorities, funding, progress, end customer support,
- **NMS – PulseNET** (2009-present) - Multiyear continuous feature additions of Network Management Systems. Managed all development performed by 3rd party vendor. Included requirements, priorities, funding, progress, end customer support including issuing customer license keys and basic install support.
- **WiYZR-C – Japan** (2016) - Added prototype protocol translation module to On-Ramp (Ingenue) WiYZ remote for specific Japan gas metering application, 3rd party and in-house development.
- **WiYZ** - (2010-present) Customer and application maintenance support for ISA100 based mesh network data acquisition system continued
- **WiYZR-C** (2013-2016) - On-Ramp (Ingenue) radio integration of extremely long range 2.4Mhz low-bandwidth into WiYZ remote - Complete SW re-design included adding Modbus master for serial data acquisition

Additional Accomplishments:

- Advocate, adopter and operator: 3D printing for prototyping (Solidworks, MakerGear)
- Multiple process development and improvements to local GE NPI process tailored for GE MDS.

Sep 2008– Oct 2011: Project Manager

Project lead developing and enhancing products of industrial data radios. Transitioning from software project lead to full project management.

Significant Projects as Project Manager:

- **NMS – PulseNET/PulseNET Enterprise** (2009-present)– Full network

monitoring/management of 1- 10000+ devices. Multiyear continuous software feature additions. Managed all development performed by 3rd party vendor. Included requirements, priorities, funding, progress, end customer support.

- **WiYZ** (2009-present) – took over program management to drive multidisciplinary team to product shipping. Included program roadmap, beta testing, application analysis, marketing, direct customer support and troubleshooting.
- **WiYZ** - Software Project Lead (2009-2010) - ISA100 based mesh network data acquisition system. Low power data acquisition nodes of 2 DI, 2 DI, 2Analogs. Also On-Ramp (Ingenue) radio integration of extremely long range 2.4Mhz low-bandwidth
    - Worked with Marketing to scope, define, and document product features
    - Defined detailed requirements -
    - Developed project plan, personnel assignments, scheduling
    - Tracked progress, adjusted schedule, reporting for schedule, budgets,milestones
- **SD4 – Release 1, 2 &3** (2007-2009) - Software Project Lead - 400 MHz Licensed radio development
    - Took over software project leadership of 5 for new product development
    - Lead effort to fully define and document product requirements in DOORS
    - Developed project plan, personnel assignments, scheduling (Project Insight)
    - Tracked progress, adjusted schedule, reporting for schedule, budgets, milestones

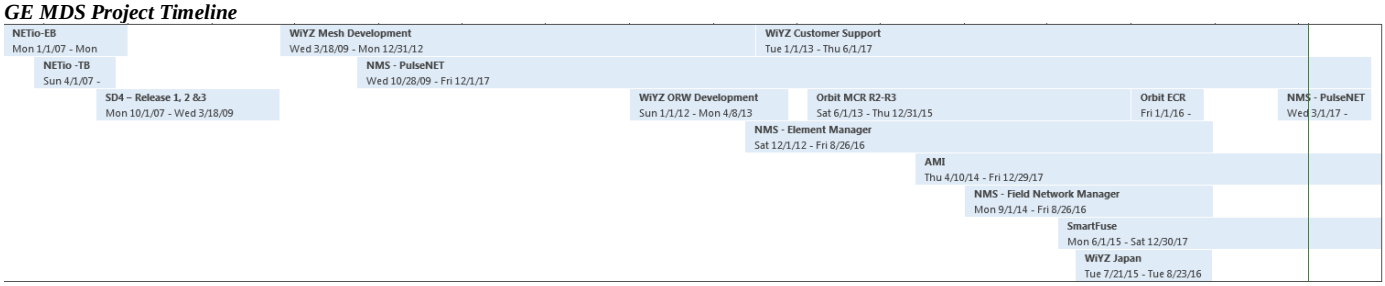
Oct 2007– Sept 2008: Principle Software Engineer

Project lead and technical contributor in developing and enhancing products of industrial data radios.

Significant Projects:

- **NETio -TB** (2007) – Management and development (analysis, scheduling, tracking, design, code, test) of a small team for a new radio device and based on combining separate existing products Developed specialized serial driver for low latency port-to-port communications.
- **NETio-EB** (2007) – Individual contributor to Firmware development NETio project.

GE MDS Project Timeline



Aug 2007 – Oct 2007: Independent contractor:

Consultant for various companies performing software engineering tasks: Software detailed project review and project completion planning for robotic washing system, alternate platform evaluation for hosting raster image processing (RIP) for a printing system.

June 2003– Aug 2007: Quantum Technology Associates, Rochester, NY, Consulting Engineer

Consultant for software engineering expertise to augment client engineering services.

- **Vanteon Corporation 12/06 – 8/07:** Technical Project Manager, Software Lead -Developing a new consumer device using biometrics fingerprint sensor and RF communications on ADI Blackfin processor.

Significant Roles:

- Software Project Manager
    - Team leader of 5 person HW/SW team
    - Task Planning / Scheduling / Project Status collection

        - Issue Identification / Resolution / Tracking
        - Team Coordination and Direction
        - Software delivery and documentation
    - Software Development Lead
        - Application Software Architect/Developer
        - Requirements /Interface Specification Development.
        - Design Specification
        - Developed Hardware Simulator with VC++ Win32 based GUI

- **Vanteon Corporation 11/05 – 01/06:** On-staff consultant to providing software engineering expertise for high-speed data library application development.

- **Renal Solutions Corporation 5/03 – 10/06:**
  Development of Allient Sorbent Hemodialysis System for chronic and acute hemodialysis applications provideing short, standard or extended duration hemodialysis therapy using just 1 & 1/2 gallons of ordinary drinking water.
  Significant Roles:
    - Software Project Manager – promoted 01/15/04
        - Task Planning / Status collection /Weekly meeting
        - Issue Identification / Resolution / Tracking
        - Team Coordination and Direction
        - Software delivery and documentation
    - Hardware/Software Integration Lead
        - Developed Communication "Sniffer" tool for realtime system monitoring
        - Developed High Fidelity Hardware Simulator with Win32 based GUI – FDA approved for validation testing of production software.
        - Customer technical liaison integration and support
        - Project Management support – scheduling, configuration management plan development.
        - PIC 16F877A Firmware development

Dec 2002 – May 2003: RWG Systems, Inc, Rochester, NY, Principal Software Engineer
Provider of software engineering expertise to augment client engineering services.

- **Vanteon Corporation** 12/02 – 5/03: Proof-of-Concept Evaluation of new Application Programming Interface (API) Standard for the Advanced Transportation Controller (ATC) under the auspices of the Institute of Traffic Engineers (ITE) and Federal Highway Administration (FHWA).
    - Detailed evaluation for suitability, completeness, consistency, and portability.
    - Select API function benchmarking in OS9,VxWorks, Linux, and QNX
    - Select Alternate approach recommendations
    - Presentation to API working group post-ITS America Conference

Sep 2000 – Dec 2002: Intrinsix Corp, Rochester, NY, Principal Software Engineer
Providing software engineering expertise to guide corporate initiative to develop strong software engineering capabilities to augment ASIC engineering services.

- Designed tests and test environment support (including Verilog transactor development) for hardware design validation of advanced network processor. Concentrated in communication protocol verification to fabric processors using interface protocols such as Utopia, PowerX, and CSIX-L1. Environment utilized Testbench Plus, GNU C++, LSF, and Signalscan,
- Designed tests for hardware design validation of external sequencer/bridge. Generated numerous

test cases for interface protocols testing such as Utopia Level 3, GMII, and Saturn POS-PHY level 3. Environment utilized Cadence TestBuilder, NC Verilog, NC Sim, GNU C++, and Debussy.

- Designed and developed tests for TI 55xx family of DSPs. co-development environment to include verification and test of: API, Functional Simulation and the new 5502 DSP under development.

May 1999 – Sep 2000: Heidelberg Digital L.L.C., Rochester, NY: Software Engineer:
Kodak's Office Imaging Division was divested to Germany's Heidelberger Druckmaschinen AG, forming a new division called Heidelberg Digital just prior to worldwide announcement of Kodak's advanced digital high volume printer DigiMaster 9110.

- **ImageDirect 665 Scanner**: Senior software engineer and lead architect. Scans 65 page/min front/back and platen including autopage size detect and multifeed. detection PowerPC 403 on an in-house designed SBC with PCI backplane using pSOS. Developed main electro/mechanical sequencing mechanisms to synchronize sheet movement for imaging. Development methodology incorporated Use-Case, scenarios, and SES Objectbench to auto-generate C++ code based on the Shlaer-Mellor OOA. Other development responsibilities included portions of hardware drivers, communications, and image processing for on-line diagnostics.

Mar 1996- May 1999: Eastman Kodak Company - Office Imaging Div. , Rochester NY : Software Engineer:
Senior software engineer involved in development of an advanced digital printer/copier.

- **DigiSource 9110 –**Network Imaging System with an innovative 110 page per minute digital marking engine with extensive finishing capabilities. It is designed to meet the needs of on-demand printing and duplication in centralized reprographics and print-for-pay environments.
    - Utilized SES Objectbench to auto-generate C++ code based on the Shlaer-Mellor OOA analysis models.
    - Utilized PowerPC 603e on a Motorola MVME2600 on a VME backplane. Evaluated and tested MVME1600 and 1300. Involved in all aspects of system development including:
    - Analysis, establishment and documentation of requirements, Interface review and development.
    - pSOS operating system configuration, support and troubleshooting, Boot PROM development.
    - Architecture and modeling including model reviews and development (information models, communication models, behavioral models).
    - ARCNET communications modeling and development.
    - PCI and SCSI system modeling.
    - Assisted other related projects based on OO, pSOS and hardware experience.

Additional Accomplishments:

Software Engineering Conference 1998: Presentation Chair
Software Engineering Conference 1997: Marketing and Registration Chair

Jan 1996 – Aug 1997: Independent Developer:
PTCDAC-100 SCADA System: Developed copyrighted source code to control a System Control And Data Acquisition (SCADA) System for space shuttle mission. Utilized proprietary CPU card developed around an 8051 derivative CPU. Designed of a closed loop control system, based on RTDs from monitoring heaters, to warm samples over a 24-hour period.

May 1987 – Mar 1996: Teledyne Brown Engineering, Huntsville, Alabama: Principal Programmer/Analyst I :
Involved in all lifecycle phases of Commercial, NASA Space Shuttle, and NASA Space Station Payload

software development meeting schedule and cost goals. Additional experience in astronaut/user training and support, project/personnel scheduling, development tools evaluation and purchasing, and customer briefings. Utilized multiple CASE tools and methodologies: TAGS IORL, DeMarco/Yourdon SA/SD, Shlaer/Mellor OOA/OOD. System administrator of Sun & Apollo networked systems for CASE tools including Xwindows.

Significant Projects:

- **Bar and Rod Inspection System (BARIS):** Software architect and developer of a commercial real-time, networked computer system combining 4 68040 CPUs, 144 TI TMS320C40s, and a high powered PC based computer. Utilizing ethernet and high-speed DMA links, this highly networked system processed high speed infrared camera data. Proprietary hardware was developed to control the flow (>9 MB/sec) of infrared data to 3 banks of 48 DSPs. Developed code to reduce the data in multiple steps and scan for flaw information that was reported to the operator station once each second.
- **Crystal Growth Furnace (CGF):** Architect, designer and lead developer of a real-time, embedded computer performing full closed-loop control of a microgravity materials processing furnace for Spacelab. Complete "cradle-to-grave" participation:
    - Requirements analysis and capture from both documented sources (such as the NASA CEI) and engineering staff included: systems, electrical, mechanical, integration, thermal, etc. Utilizing interviews and co-development participation.
    - Lead architect of software partitioning and event identification. This included real-time prototyping, furnace control system "wrapping", data architecture and Shuttle interface design. Developed with VRTX in C and 8086 Assembly, with full "mission critical" software documentation and NASA reviews including PDR, CDR and "As-built" reviews as documented in various Marshall SMAP DIDS.
    - Astronaut training in flight software procedures. Participated in the development and presentation of training materials. This included complete mission plan development and "off-nominal" procedure generation.
    - Supported extensive pre-launch test program, not only to qualify the furnace for space operations, but also including creating control samples for comparison to space based crystals. Software developers were "on-call" 24 hrs/day, 7 day/week to perform key command and control modification as requested by principal investigators.
    - System testing also included POCC based mission simulations, experiment integration and mission simulations in the O&C at KSC and multiple day simulation of shuttle interface at MSFC shuttle simulation facilities.
    - Flight software command and control modifications to sample timeline combined with "On-console" support in the POCC during USML-1 (STS-50) and USML-2 (STS-73) on-orbit activities.
- **Material Science Laboratory (MSL) System Control Unit (SCU):** Upgraded a real-time, embedded, data acquisition system for RS-422 communications with payloads in the Space Shuttle cargo bay. Developed with MTOS in PLM-86, 8086 Assembly and 8085 Assembly. Assisted foreign (CNES) and domestic payload developers with integration, trouble-shooting and support of USMP-1 (STS-52) mission.
- **Space Station Furnace Facility (SSFF) Development Model:** Ported CGF software for a 386-PC based development model of a general purpose, multiple furnace, control system based on the CGF furnace system. Designed and developed a new communications interfaces to utilize TCP/IP and Ethernet. Completed in six months and developed with VRTX-PC/386 in C and 80386 Assembly language.
- **Space Station Furnace Facility (SSFF) Proposal:** Designed a real-time, distributed architecture

of embedded computers performing full closed-loop control of multiple microgravity materials processing furnaces for Space Station. System/software analysis of CEI/SOW specifications as well as the generation of software trade studies and software architecture for the SSFF RFP proposal.

- **Thrust Vector Control / Combined Automated Test System (TVC/CATS):** Ported existing 8086 based software to new 486 based processor board. Re-wrote some drivers and applications to be processor speed independent and correct latent problems including Y2K susceptibility.
- **PACMAN Processor:** Assisted in the design and selection of features for small single board computer based on VME and 68040. Selected commercially available testbench and various commercial real-time PSOS operating systems for multi-processor architecture.

Additional Accomplishments:

- Created tailored project documentation formats using 2167, 2167A and NASA SMAP DIDs. Software requirements generation using Yourdon-DeMarco SA/SD methodology. Extended TAGS IORL methodology to incorporate concepts of object-oriented design.
- System analysis and design using Coad-Yourdon OOA/OOD techniques.
- Led the evaluation, selection, and procurement of new development environment featuring Sun workstations, Cadre TeamWork CASE tool and Interleaf.
- Evaluated and compared the use of other OOA/OOD methodologies (Shlear/Mellor, Rumbaugh, Booch, etc)
- Developed new Structured Analysis Methodology to replace TAGS and ease transition to a OOA/OOD environment.

Sep 1983 – May 1987: General Electric Consulting Services, Syracuse, NY: Systems Analyst/Consultant

Contractor for the U.S. Air Force's Over-the-Horizon Backscatter (OTH-B) Radar developed by the Military Electronics Systems Operation (MESO) division of General Electric. Participated in software development of the Receive and Transmit (RX/TX) Site real-time radar control systems on DEC VAXs in FORTRAN (77) subject to MIL-STD-483, 490:

Significant Roles:

- **Individual Contributor**: Requirements analysis and design of Automatic Fault Location software. Top down, structured design using structure charts and PDL
- **RX/TX Integration Team Leader** - 1/85 to 1/86: Created, organized and led a team to integrate the remote sites software to the radar hardware
- **RX/TX Configuration Control / Integration Team Leader** - 1/86 to 5/87: Software configuration control, advanced radar integration using prototype software, hardware-simulation- software development and support, documentation coordination, and on-site demonstration support.

July 1981- Sep 1983: Transmation Incorporated, Rochester, NY: Systems Specialist

Customized existing software for temperature monitoring and control systems.

Significant Assignments:

- **Individual Contributor:** Developed a fully redundant real-time system with automatic failover to "hot" spare. Utilized Yourdon structured design and Nassi-Sniederman structured flowchart methodologies.
- **Project manager-** Gas compression monitor system for a Venezuelan oil company.

GE Certification/Course Work

- Green Belt - Lean Six Sigma - Jan 2013
- GE Crotonville - New Manager Development Course - Nov 2014
- Continuous training including Environmental-Health-Safety, Cybersecurity, Lock Out / Tag Out, etc.

Technical Background:

Requirements Analysis and Generation, Software Design and Programming, CASE Tools Utilization, SW/HW Integration & Testing, Embedded Real-Time Closed-Loop Control Systems, FCC/IC/CE, PTRCB, GCF, ANSI AAMI, FDA Stds, IEEE Stds, SEI CMM, NASA SMAP DIDs, DOD-STD-2167A

- **Microprocessors and Languages:** VDSP++**,** VC++**,** C, C++, Blackfin 536 PIC 16F877A, TI 55xx DSP Family, PPC 440SP/403/603e/604, 8051,80x86, 680x0, TMS320C40, Multibus, VME, PCI
- **Development/Target Computers and Operating Systems:** Windows, Linux, Sun (Solaris/UNIX), PC
- **Embedded OS:** VDK, VxWorks, pSOS, VRTX, MTOS
- **CASE Tools and Methodologies:** TI CCS, SES Objectbench (Shlaer-Mellor OOA), Cadre TeamWork (SA/SD, OOA/OOD), TAGS (IORL)

Education:

Master of Science, Southeastern Institute of Technology, 1990. *Software Engineering*
Bachelor of Science, Heidelberg College, 1981. *Computer Science and Physics*