ALAN KENT FARNSWORTH

19601 Lakehurst Loop, Spicewood, Texas 78669
512-820-4576 : kent@kfarnsworth.com

Electrical Systems Engineer

Track Record of Excellence in the Development of Electronics Systems

Quality focused Electrical Systems Engineer with experience driving technical development of sophisticated embedded systems including laser imaging systems, subsea remotely operated vehicle control systems, manipulator control systems, blow-out preventer control systems, wired and wireless communications systems, and much more.

Information Security / Systems Engineering / Systems Development Life Cycle / Architecture and Design / LAN, WAN, wireless networking / Data Communications / Specifications and Standards / Deployment and Integration / QA Testing and Product Validation / Team Management

Technical Strengths

Platforms:	AIX, Linux, DOS, Windows (all versions), IBM System 3x, Sperry and CDC mainframes
Tools:	Altium Designer, Protel, Pads PowerPCB, Orcad, SVN systems, MS Office, MS Visio, MS Project, Doxygen, Test Track, Various Directed Cad Programs, and more
Languages:	Assembler, C, C++, C#, Basic, Fortran, Verilog, AHDL, Spice
Design:	Digital, Analog, RF, FPGA, CPLD and ASIC, Schematic Capture, PCB layout, Real Time Operating Systems, High Speed Memory Architectures, Various Bus Architectures, Compliance Testing
Processors:	Motorola 68xx, 680x0; the AMD 29xx0; several MIPS 64 bit variants; PIC, dsPIC, Atmel AVR, ARM, the STPC Industrial and Consumer II, National Semiconductor's Geode, TI and ADI DSP variants.

Professional Experience

2010-Present
FarCom (Farnsworth Communications)

- Consulting in the fields of embedded computing, communications, and general electronics system design.
- Cliental include American Innovations and Kahtec.

- Designed the next generation pipeline monitoring system, incorporating a Freescale Arm processor with 802.15.4 wireless for remote sensor nodes, along with a main controller/concentrator based on an Atmel Xmega which used a GPRS or Satellite modem for WAN communications. These are battery powered with solar charging.
- Designed a very high impedance AC voltage monitor for pipelines with a battery life of greater than 7 years without recharging.
- Designed a 'Smart Stop' design for Kahtec utilizing a 2 axis MEMS accelerometer which modulates vehicle lights according to deceleration forces.

2008-2010
Oceaneering International Inc. – Senior Systems Engineer

- Designed hardware and software systems and provided expert advice for subsea designs, including BOP, ROV, manipulators and valve actuators.

Key Achievements:

- Saved the company a large project by rapidly redesigning subsea natural gas anti-surge valve actuator controllers for Stat Oil Hydro in Norway. This included a main controller based on a TI DSP as well as initial designs for the 480VAC power supply and an 800VDC 3 phase BLDC (BrushLess DC) motor controller. The DSP PCB design incorporated support for 2 LVDTs, a resolver, 2 PWM driven 10 amp solenoid drivers, Modbus RTU over RS-485, 512kb of Sram, 512kb of Fram, redundant communications, 4 magnetic proximity switches, and more. Wrote boot time initialization and POST firmware as well as device drivers for all of the above devices. This system was designed to IEC-16508 and Sil-2.
- Wrote firmware for a BOP (Blow Out Preventer) solenoid driver system. Dual redundant X86 processors were used in this design. Software was written in C using Watcom.
- Wrote firmware for the BOP ground fault and water alarm system. This was written using Hi-Tech C for the Microchip dsPIC30.
- Designed power and filter boards for the Shilling/Oceaneering ROV manipulator, and wrote control firmware for the PWM valve controller and the master arm controller. These are dsPIC30 based and used the Hi-Tech C system.
- Determined suitability of various FOG/traditional gyro/compass systems for use in BOP movement sensing.
- Designed an ROV power controller with programmable 'smart fuses' to control the power for the entire ROV. This includes HVAC voltage and current monitoring. The system controls 65 amperes of 24 volt power in 26 taps. This design utilizes an AVR Xmega processor.

2004-2008
FarCom (Farnsworth Communications)

- Consulting in the fields of embedded computing, communications, and general electronics system design.
- Cliental included Oceaneering International, Inc., AWS (Advanced Workflow Solutions), MicroTrakGPS, American Innovations, Manning Environmental, AMD, Bausch and Lombe Surgical and Nlynx Systems.

- Designed numerous systems for these companies, from automatic vehicle location equipment, X86 thin clients, to a cataract surgical instrument controller for Bausch and Lombe, and more.

2000-2004
eTracker Inc. – CTO
- Designed all hardware and wrote 95% of the unit firmware for these GPS and cellular based automatic location devices. The system operated on the cellular control channel. Patent pending for a method to improve messaging turnaround times over the channel, as well as message compression techniques.
- OEM's included Jaguar/Land Rover. A special unit was designed for them which included a MEMS accelerometer for static vehicle movement detection and less than 1 milliamp current draw in idle mode.
- On-Board Communications, Inc. acquired the company.

1986-2000
JRL Systems Inc. - CTO
- Designed all of the graphics hardware platforms, and wrote much of the time critical firmware while at JRL, and setup the engineering and manufacturing sectors of the company. Led a team of firmware/software engineers. The company designed and manufactured state of the art systems for high end large format laser plotters, with OEM's such as 3M, OCE, Mutoh, IBM, and Xerox. The company also designed and manufactured communications bridges and routers for ISDN and various networking systems.
- The laser imaging system controller was the fastest in the world at the time, utilizing multiple processors, hardware semaphore ports, dual ported dynamic memory systems, and custom silicon.
- Network Technologies, LTD/PLC acquired the company.