

Jim Hughen

Firmware/Software Developer - Sr. Electrical Engineer

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Accomplishments and Professional Objectives:

Design control systems. Develop products and software for embedded systems. Design high-performance, reusable, extensible, and easily maintainable firmware and human interface products using object oriented programming. Work closely with production, be aware of and responsive to production requirements, and work in a rich team environment.

Languages:

C, C++, other high level languages, and extensive assembly including x86, AVR, and SH4. C# .NET coursework. JavaScript, HTML, XML, DOM, and CSS.

Tools and Operating Systems:

Visual Studio C++, WinXP Embedded Studio, SDCC Compiler, SiLabs IDE, Borland Builder C++, IAR Embedded Workbench for AVR and MSP430, Word, Visio, Paint Shop Pro, Acrobat, Multi-Edit, iRMX86 Multitasking Kernel, Windows, Linux, Unix, DOS. Wrote system specific Multi-threaded context switchers. Scripting languages including Autoit.

Career Background:

JFH Soft Systems – Sprinkler System Independent product development *09/10–present*

Design and Engineer yard sprinkler control system with special features. Includes packaging design, KiCAD PCB Schematic and Layout, USB AVR chip development, Atmel Studio 4 with AVR GNU C compiler and JTAG ICE mkII debugger. For details see <http://www.judiandjim.com/SprinklerSystem.html>

Dell – Austin, Tx *10/09–06/10*

BIOS SW Engineer (*contract*) – Develop and support UEFI and legacy BIOS interface applications for manufacturing. Worked in depth with MSVS C/C++ 2008.

TenX Precision LLC– Austin, Tx *08/09*

Electrical Design Engineer (*contract*) – Hardware Design and PCB layout work.

Great Stuff Inc – Austin, Tx *4/08–12/08*

Firmware Engineer (*contract*) - design consumer product using MSP430 micro controller (*IAR Embedded Workbench development tools*), Integration IA4421 FSK Transceiver chip, and DC motor control circuits:

- User control and operational sequences
- Special RF Block protocol
- User and manufacturing data storage in flash
- Custom Real Time Kernel
- System Partitioning for software development and maintenance
- Current and Voltage A/D to monitor and control DC motor

SensorTran – Austin, Tx *6/07-10/07*

Software Engineer (*contract*) - design Software and Firmware including VSC++ Windows application and SiLabs micro controller embedded firmware. Created control and data link layers using USB as an HID device.

Sabbatical for medical reasons *7/06–5/07*

DAC International – Austin, Tx

2/06–6/06

Software Engineer (*contract*) - deploy Windows XP Embedded OS for weather related aircraft application. Windows XP Embedded Studio experience, Visual C++ Windows support application development, and documentation for WinXP Embedded system build and production firmware programming procedures.

JFH Soft Systems - Independent product development.

6/05–1/06

Starlink/Raven Industries – Austin, Tx

10/99–4/05

Principle engineer for Light Bar (*DGPS guided navigation for tractor driver*) and SmarTrax (*assisted steering controller*).

Designed other products that use DGPS position information to control agricultural applications. Used navigational math and algorithms to solve difficult designs.

Wrote comprehensive Borland Builder C++ desktop applications for data logging, field firmware update, and general product support.

PhotoTelesis – San Antonio, Tx

2/94-10/99

Designed Remote Image Transmission (RIT) systems hardware and firmware. Included video signal processing and other controls necessary to capture, compress, and transmit images for military instruments. Lead designer of a custom PC motherboard with PCMCIA cards, video and sound controller, and other PC peripherals into a rugged portable enclosure. Worked with vendors to make a custom BIOS.

Lead designer for the Micro RIT (*small handheld portable product*) front panel hardware and firmware. Used Atmel AVR chip to control the front panel. Designed Altera FPGA download by the AVR from a compressed image at boot time.

Wayne Dresser – Austin, Tx

4/76–4/92

Designed firmware, software, and hardware for the following products:

- Electronic Pump Computers (self-service gasoline stations)
- Electronic Central (Dispenser and Point-Of-Sale control)
- Decade 2400 Dispenser Control POS console
- Wayne Plus Dispenser/Electronic Cash Register/Card Processing POS console

Led medium size software group by providing the software debug system, iRMX 86 (*multitasking kernel*) boot and application support, PLM/86, C, and X86 assembly language interfaces. This group pioneered an EFT (*Electronic Funds Transfer*) system for credit card processing at fuel dispensers and the POS console.

Decade 2400 and Wayne Plus systems were produced in large numbers for several years, and captured more than 40% of the petroleum equipment market share. They are in use today in many convenience stores and gasoline stations.

Ross Manufacturing Company – Brownwood, Tx

6/70–4/76

Lead engineer/designer - concrete batch plant automatic weighing and material handling control systems.

Texas Instruments, Inc. – Dallas, Tx

1/69–5/70

Hardware engineer - airborne Infrared Mapping System ground support test set: Recorder-Film Magazine, Cryogenics Refrigerator Test Cart

Patent:

Operability Verification for Segmental Electromagnetic Display (*Wayne Dresser*)

Education:

BSEE, Texas A&M University