

NAME: **Hugh Robertson**, leng. MIED.

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Member of the Institution of Engineering Designers (MIED)

Overview:

- Software Engineer for 20 years .
- Hardware design engineer for 10 years.
- Real Time Embedded system & multi tasking software design using Nucleus, OS9 and Linux.
- A very good knowledge of TCP/IP protocol, CAN protocol as well as an excellent knowledge of serial communications (RS485, 422, 232) and writing packet handling procedures and low level interfacing to a variety of hardware.
- Managed various projects and teams with a hands on approach. I have worked in the field with customers as field service engineer/manager and site manager on a \$multimillion projects.
- Software control of large and small electric motors and hydraulic systems to (relative) high precision and real time control of large machines.
- Programming in C (15+ years), C++, Visual Basic, Coral, PLM, Delphi, VBA, VB6, Java, PHP, JavaScript C# and VBscript.
- C coding to MISRA C standards
- Design of PIC, ATMEL. TMS320F2812, PPC and other micro processor systems

Current Employment

Battery control (Kelvinweb). Glasgow June 2008 – Sept 2008
POSITION – Software Hardware design.

Designing a data acquisition module to collect high voltage data and transfer it over a CAN bus to a central control. I was responsible for the hardware and software design. Microprocessors were in the Atmel AVR range. The following serial links were used: I2C, SPI, RS232, CAN. Telelogic Rhapsody (UML) was used in the system design. C# was used to interface to test modules (via DLLs) for monitoring I2C and CAN links.

Kelvinweb sub contracted to Axeon Power. Dundee Jan 2006 – June 2008
POSITION – Real Time Hardware Software Design Engineer.

Designing a Lithium Ion battery monitor system (BMS). hardware and software for an electric vehicle. The battery consists of 70 lithium cells (200 A/h 300 volts). The BMS comprises of master controller DSP(TMS320F2812) communicating with 5 slaves (PICs) over a RS485 network with backup communications and hardware safety control over a current loop link. The slaves monitor cell balancing, voltage and temperature and give hw cell protection,

The master monitors the slaves, current, gives over current protection, controls charging, vehicle communications, error control, data logging, box temperature and ventilation control, current leak protection.

Vehicle communications is over a CAN bus with additional RS485, RS232, I2C, 1-wire and SPI local links. Software was written using MISRA C and Lint was used to ensure MISRA compliance.

My responsibilities included the design of the Master DSP hardware (TMS320F2812, PSU current and voltage monitors, communications drivers, Op amp and comparator circuits) , debugging, MISRA software design, communications protocols. I needed to pay special attention to the safety critical aspects of the system design with a hardware over voltage/current temperature over-ride facility.

Lockheed Martin Simulation Division. Hertford. July 2004 – June 2005
POSITION – Project Manager/lead Engineer. (Nucleus) C/C++

Designing a system to simulate a weapons platform within a working fighting vehicle.

My Responsibility: Initial requirement specifications, software & test specifications, Software Design & Development from system down to Kernel & Device Drivers level and hardware integration.

The system consists of 8 Power PC running embedded Nucleus real time operating system with distributed tasks. CAN bus and Blue tooth communications are used to communicate between the various tasks on the system and PICs used for hardware interfacing.

Development was done using GNU C cross compiling under Linux / cygwin. Code was written to MISRA standards. Source control was by MKS. LAUTERBACH - TRACE32 development tools were used.

Due to the use of high power lasers and their use there were safety factors involved with this design.

Directional Data Systems April 2001 – July 2004
POSITION – Hardware/Software Principal Design Engineer.

Leading of a team of 4 engineers designing queue control, ticketing and accounting solutions. Ticketing systems include ticket and POS machines, data collection systems, accounts processing & crowd management.

My responsibilities were system, software design coding and integration . Coding was down to kernel device driver levels for the Linux systems and down to assembler level for embedded 8051 systems and PIC systems. I also wrote code using VB6, Access VBA, PHP, Javascript, XHTML.

Intelligent Finance (Halifax PLC) Sept 2000 - April 2001
POSITION- Team Leader Software Integration Engineer.

I was responsible for setting up a young team to maintain & further develop an interactive intranet/internet-banking site. My job consisted of customer and user interface, development, information transfer, documentation, advising on project management and control, instructing team members on the use of the various technologies and day to day running of the project. Technologies used were Windows NT, ASP, Visual Basic (Active X) VB Script, Java, Java Script, HTML, XML, MS SQL Server, Oracle and Action Works Metro (a work flow tool) C++.

UCB Films (Plastic Film Manufacturer) 1997 – Sept 2000

POSITION.- Software Engineer. Real time embedded control and monitoring)

My rolls were.-

- Software support for Real Time monitoring and control system for a large plastic film and cellophane manufacturing plant
- Software Design and coding using 'C' embedded with OS9 (Unix type OS) Real time control, Code for data collection and monitoring of industrial plant & machinery.
- Support for Serial communication links to remote monitoring and control equipment.
- RS485 and other networking. (proprietary and tcp/ip)
- Machine communications using MODBUS

Atlantech (Network Management software)

1996 - 1997

POSITION.- Network Development Engineer (C++ embedded MC68360)

Designing a network management software package using TCP/IP protocol Software development was done on a Sun workstation under Unix. OOD (Booch) methods were used for design and documentation.

BARR & STROUD Periscopes and Fighting Vehicles.

1993 - 1996

POSITION.- Software Design engineer. (Pascal, Assembler & Coral)

Real Time Embedded software control systems. Gun aiming, communications and control systems.

ANDERSON STRATHCLYDE

1990 - 1993

POSITION.- Hardware & Software Design engineer (C under OS9 (Unix), 6800asm)

Real time Embedded systems

Design development and integration of an automated coal face cutting machine using embedded C running under OS9 RTOS on multiple 68000 processors on a VME Bus controlling large coal cutting machines. This included Robotic control of face cutters, surface communications (serial) and system monitoring. (software monitoring & control of Large electric motors and hydraulic systems.)