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Rob Ingleby – Electronics / Software Engineer

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Contact Information

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Personal statement

I am an accomplished Electronics Engineer with 30 years of varied electronic experience; I enthusiastically work with modern day platforms to provide innovative technological solutions. With good attention to detail and a practical hands-on approach. I can identify the root causes of everyday problems and quickly develop effective technical solutions. By demonstrating knowledge and understanding of current analogue and digital circuit design techniques and software/firmware design, I always handle projects to a high standard to meet a variety of custom design requirements and specifications. My range of skills working in a variety of business sectors to include consumer electronics, military and aviation, means I have conformed to strict set of specifications set by the customer. I like to receive feedback for my work and continue learning through study to acquire new skills and be a valuable member of the team.

Education & professional development

Open University – BSc (Honours) Computing

- Feb 2011 – Oct 2011 MT264 Application Design
- Oct 2008 – June 2009 M263(L2) Building Blocks of Software
- Nov 2007 – July 2008 T224(L2) Computers and Processors (G3)

HNC Electronics – Highbury Technical College, Portsmouth June 90 – June 94
ONC C&G 224 Electronics – South Downs College June 88 – June 90
COMPTIA A+ Certification – PC Hardware and Software

Current Employer

W.A.S.P. (Wessex Advanced Switching Products) March 2015 – Present
Electronics Hardware and Software Engineer

Job Description:

I design software controlled electronic systems and line replaceable units from cradle to grave that can be found in First and Business Class passenger suites of commercial airliners. This forms a selection of mostly LED controlled lights that may be dimmable, special effect, RGB (colour) and discrete. All include an MCU. To accompany these, there are digital and analogue switching handsets that may have Touchscreen, Capacitive Touch, membrane and discrete I/O front ends. PCU (passenger control units) are digital 'black-boxes' that connect these seat, light and suite nodes together and these are often harnessed via RS485, CAN-Bus (High or Low Speed) or USB. Altium is my preferred package for PCB/Schematic design but I have also used CADSTAR. Internally these units incorporate a variety of communication protocols and microcontroller choices, typically I2C, SCI and MCU proprietary connectivity for displays and matrix components. Microchip PIC – ATMEL, Freescale and TI are generally used here. TI and ARM are used for high speed processing, particularly for LCD Touchscreens.

W.A.S.P. Achievements to date:

- Finalise electronic switching controller unit for release. The unit is controlled by iPhone technology of which an App is provided as part of the passenger ticket.
- Designed a controlled feature light and analogue reading light for Swiss 777 first class.
- Wholly responsible for all electronics and software for an undisclosed airline in First Class to be released in 2017. The system comprises a selection of capacitive switch control units and CAN controlled feature and strip lights. All nodes incorporate an MCU and are connected to a third party passenger control unit and specially designed seat.

Other responsibilities:

- Provide full documentation for Hardware and Software to a high standard.
- ESD, EMI and Environmental testing.

Previous Employment

DRS Technologies (UK) March 2014 – March 2015 Electronics Design Engineer

Job Description:

My role is that of a design engineer within a small team, developing both hardware and firmware for rugged computers and displays. My day to day tasks are to design and commission schematics to component level and write the firmware that lives inside on-board processors and micro-controllers to produce good quality LED display products for military consumers. The displays are mostly used in harsh vehicular environments.

Achievements:

- Design a 15” LCD Transition PCB in ALTIUM for a 15” Rugged Touchscreen Computer
- Design efficient code using MPLAB on PIC32MX512 Series Controller + Debug
- Write new firmware for 10” Rugged Displays using Atmel ATXMEGA128A3U & ATTINY88
- Ensure compliance with MIL-CAN bus through rigorous environmental testing
- Prototype design and build of Display Product to Rugged System Product to support ground trial

Other responsibilities:

- Creation of documentation for internal and external customers
- Technical liaison with customers
- Creation estimates of cost/time for bids and proposals
- Currently researching HD systems and other new display technologies
- Designs to be referenced built to MIL-STD-461 and Power Conformance to 61-5(6)

Cobham Surveillance July 2007 – August 2013 Electronics Engineer

Job Description:

My role is primarily technically based in a technical environment where I have access to a range of electronic test equipment, in house built test jigs and software, some of which I designed myself. I have previously designed systems which have been implemented into law enforcement agencies such as the Police and the Armed Forces. Most recently, I have been tasked with an opportunity to research and improve reliability of the vast range of technical offerings to customers such as COFDM Video Links, Cellular Base Station Simulators and Vehicle Tracking Equipment and quality through the use of software and hardware development and design. I aspire to an involvement with new technologies and would enjoy working on new ground breaking equipment such as the COFDM Video Links invented in 2007 by my current employer.

Achievements:

- Developed GUI based .net test software for covert IMSI/IMEI Mobile Phone Tracking Vehicle.
- Developed PTZ Control Software to link Cobham Product to VISCA based systems.
- Implemented CCTV Systems into proprietary based Software Decoders.
- Developed software to communicate with Xilinx based systems over RS232/485 and IP.
- Adapted older 'C' code to 'C++' to improve GUI for specific customer requirements.
- Developed encrypted login script for automated remote equipment updates over 3G.

Other responsibilities:

- Analysing and de-bugging system code to work with third party products.
- Visiting national and international customer sites to assist project delivery of systems.
- Fault finding of analogue and digital systems to component level using test equipment and schematics.
- Development of code to assist in test procedures, GUI implementations and graphics display units.
- Understanding requirements and adapting procedures through programming to automate previously slow moving procedures & able to show coded examples of such accomplishments.
- System designed mobile IPCCTV systems for various police forces nationally and internationally.
- International and National field service experience and skills.
- Established and ran a data recovery and repair business (Professional Electronic Services)

Sony / Samsung Jan 2005 – July 2007 Consumer Electronics Engineer

Job Description:

Sony Authorised service centres look after customers that require a qualified engineer in the event of a planned / unplanned maintenance on consumer Television and Audio equipment. It was my responsibility to train engineers working in the service centres so they are able to repair and service equipment in a short period of time on a first time fix basis. It is therefore important that my own research and training plan bring me up to date with the latest equipment trends so that I have the edge over a repair engineer and am able to answer to them correctly and accurately without referral to a colleague. At Samsung's EU HQ, I was responsible for providing fault finding solutions and training on new products within a given time frame. The role was very technical with a 50/50 balance between technical theory and practical fault finding. Most of the problems I encountered were passed from EU Engineers for me to provide answers to problems within a given time frame. This involved field service trips to the customer location and onward advanced product strip down, fault-finding, technical authoring and often a mixture of all three. A typical week would be to resolve a fault that is known about across the EU, visiting that country of getting a product sample flown in. I repaired to component level where required and found suitable cures to be implemented by the manufacturing plant in Korea in future releases and provide upgrade packs to existing equipment.

• Dixon's Stores Group	1999 – 2005	Field Service Engineer
• Professional Electronic Services	1994 – 1999	Electronics Engineer
• IBM (Havant Plant)	1991 – 1994	Computer Engineer
• Thorn (Ferguson Television)	1988 – 1991	Line Test Technician

Skills matrix & experience

- Electronic Systems Development.
- Design Analogue and Digital PCB Circuits to component level using ALTIUM Designer.
- Design, write and test firmware for a variety of micro controllers in C within a corresponding IDE environment to include debuggers.
- A working knowledge of XILINX FPGA devices (Spartan and Virtex) using XILINX IDE.
- Proven application and GUI programming for stand-alone and interactive systems in C++, Visual Basic, JAVA and SQL.
- Design and verification of test and/or manufacturing assembly fixtures for production.
- Realises the value of good ESD, EMC and LVD Compliance pre and post design.
- Ability to specify for all types of electronic components and parts using Quality v Cost.
- Forms good relationships with other relevant departments like purchasing, marketing and sales.
- Understanding of PC Structures and Operating Systems and Computer Communication Technology
- Understanding of Digital TV Broadcasting.
- Use of Test and Measurement Equipment (Spectrum Analysers, Oscilloscopes and Signal Generators)

- Schematic diagram, technical specification and technical service information authoring and release control.
- Awareness of competitor's designs and pricing.
- Technical Training and technical authoring for colleagues and customers.
- Pre and post sales service support.
- Computer Networking Configuration Firewalls, Anti-virus, Internet (HTML/PHP/Java).
- Network Installation Experience (Backbone and Local Cabling Token Ring, Coax 10MB, Ethernet, Wi-Fi & 3G/4G).
- Firmware Debugging (PIC, Z80, Motorola 80x, Altera, Xilinx & ARM).
- Fault Finding & Repair to component level on SMT and standard devices.
- Multilayer PCB experience using PADS CAD Software.
- Organiser of national and international travel for field trips to resolve technical issues at short notice.
- Technical training presenter, user and technical book author, technical documentation and report writer/editor to a professional level.
- Acted at supervisory level in the absence of the Engineering Manager/Director.

Digital Electronics Worked on…

8, 16 and 32-bit CPU Circuit Design
CMOS logic gates design → XILINX FPGA (VHDL & Verilog)
LVDS Controllers (Texas Instruments SN75LVDS387DGG & FPGA)
SATA2 and SATA3 Controllers + Board Layout
I2C, SPI, Can-Bus (Automotive & Military), RS232/422/485 protocols
MOSI/MISO, J-TAG Boundary Scan, PDI and ISP Communications
EEPROM, PROM and Flash Technology storage devices

Analogue Electronics…

All passives and Semiconductor devices
Bipolar / FET Transistors
OP-AMP Theory
A/D + DAC decoding
PSU Design

Software (Programs, GUI's, and Games)…

Languages = C, C++, VB.net, Linux, Java, C# and various CPU Assembly Languages.
Uses Atmel Studio Ver 6 to design, write and debug code in 'C' for a range of different micro-controllers.
Uses MPLAB X Ver 2.15 to design, write and debug code in Assembly Language and 'C' for PIC8, PIC16, PIC18 and PIC32 Microcontrollers
I.T. Network Systems Development (Copper, Fibre and Wireless)
Design and verification of IP computer systems
Software and Firmware development of same
Understanding of all PC Structures and operating systems
Conversant with computer communication technology

IEEE802.3 (Computer Networking)…

TCP/IP
UDP (Multicast & Unicast)
Networking
Computer Systems Infrastructure Design and Implementation
IP
DHCP
NAT
Firewalls
Anti-virus
Domains and groups
Installation of network infrastructure (cabling)

RF/Wireless

AM, FM, VHF, UHF, COFDM, 3G & GPS Techniques, Wi-Fi, Bluetooth, Covert applications, systems design, AES Encryption, DVB-T, HD, Broadcast, CCD/Camera, Standards and Systems.

General Achievements across employers

- Current study with the Open University towards a Computing Degree
- System Designed Mobile CCTV systems for various Police Forces nationally and internationally.
- Developed 3G IP video/audio/data communication system for Greater Manchester Police.
- Designed, Installed and commissioned 72 COFDM wireless PTZ CCTV cameras for Garda Police NI + 19 rack mounted receivers for CCTV observation and control at police HQ.
- Technical Lead for vehicle integration of COFDM receiving equipment in covert vehicles used by anti-corruption police (KPK) in Jakarta, Indonesia.
- Technical Lead for installation of 5 covert mast mounted receivers used for GPS Vehicle Tracking and combined video surveillance with field deployable camera systems.
- Developed automatic test software for a range of GSM Tracking Devices.
- Established and ran a data recovery and repair business as a sole trader.
- Identify technical requirements of consumer electronics service centres across EU to improve KPI's and set-up training academy for the ongoing support of consumer electronics engineers within those business units.
- Specialist in restoring electronic equipment deemed unrepairable.

Lab Equipment Trained (Current bench equipment as of December 2014)

- Use of Frequency Generators from DC to X-Band
- Use of Frequency Counters (DC to 20GHz +)
- Use of IF Alignment tools (to include IQ Balance for COFDM)
- Use of Oscilloscopes - Digital storage up to 500Ghz
- Use of Spectrum Analysers up to X-Band
- Use of Logic Analysers to 32/64 Bit for system analysis / fault finding
- Surface Mount Soldering Skills (Including IR) (AS4461B Aviation Standards)

Additional Information

- Full UK Driving License
- MOD Security Cleared
- IET Membership (MIET)
- ISO9000 ambassador. Compliance aware (RoHS and WEEE)
- References available on request