Frederick Ford

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PERSONAL SUMMARY

I am an inquisitive electronic product designer with industrial experience in research, design, testing, and manufacturing of both electronic, and electro-mechanical devices, be it stand-alone or part of a larger system. As a detail-oriented self-starter, I have demonstrated my creative approach to problem-solving through the success of many commercial projects. Making use of new tools and techniques does not scare me, nor am I afraid of extra effort to make my work the best it can be.

TECHNICAL SKILLS

- Design & schematic capture
- PCB layout
- PTH & SMD soldering
- FMEA analysis

- Git version control
- Embedded C/C++
- RTOS & non-RTOS
- OOP

- Exposure to Python, JavaScript & HTML.
- Autodesk 3D modelling
- Troubleshooting

- WordPress
- Product photography
- Video editing in Davinci Resolve & Adobe Premiere Pro.

WORK EXPERIENCE

Full-Time Work:

2017-PRESENT,   ELECTRONIC DESIGN ENGINEER   –   South Midlands Communications Ltd.
Took on responsibility for the design and commercialization of several new products, from fail-safe pneumatic mast compressors, and high-power winch control systems, to ultra-low-power panic buttons with indoor location tracking, expansion modules for legacy equipment, and remote LED signage for covid-19 safety.

Work was completed in accordance with internal QA guidelines and in collaboration with sales, the mechanical design team, production and the shareholders.

Main skills developed:
- Schematic capture and PCB layout in Proteus and KiCAD.
- Design of both injection moulded and sheet metal parts, as well as electro-mechanical assemblies in Autodesk Fusion 360.
- Authoring of technical reports, user manuals and product blurbs for use in marketing.
- Creation of graphics for button overlays in Inkscape.
- Git version control
- Object-oriented programming in C++
- Creation of simple python scripts and use of Linux command line.
- Remote problem solving/collaboration with overseas customers and colleagues
- Taking products through EMC compliance testing.

Work on The Side:

2013-PRESENT,   FREELANCE ELECTRONIC ENGINEER   –   Solid Ground Electronics.
Designed, marketed and successfully crowdfunded a product called "Rave Shades" on Kickstarter during the second year of university. Originally sold as a soldering kit, Rave Shades eventually evolved in to a commercially manufacturable product, using SMT. The project was featured on Beatport news, Tech City news, Hacked Gadgets, the Instructables homepage and a number of other well-known sites. The campaign had 33 backers and raised £3481 which resulted in a net profit of £1912.

Commissioned builds and contracts gained as a result of the publicity were completed under the name Solid Ground Electronics. These engineering services were later employed by Ammtek Ltd, a local company that required:
- The design of an interface between a COTS GPS tracking system and an alarm using a PIC16F1786 microcontroller.
- The design of a PIC 16F17xx family microcontroller breakout board for hobbyists.
- Research into the usability of under-volted WS2812B LED pixels for wearable devices.
- Research and prototyping of automotive transient suppression on the 12V supply line.

Industrial Placement:

2014-2015,   RADAR PLACEMENT STUDENT   –   Defence Science & Technology Laboratory [DSTL]
Designed and conducted trials to identify variables responsible for negatively affecting the radar cross section (RCS) of a target. Care was taken to ensure all data collected was both accurate and reliable.

Discovered a problem with a test setup inherited from the previous custodian, negating their work. Retesting within the anechoic chamber put the data back in line with the team's initial thesis and allowed further testing to be conducted.
Actively developed scripts in MATLAB whenever a repetitive task would take longer to do manually. This left the team with a variety of tools and provided an opportunity to further enhance programmatic and algorithmic skills.

Intrigued by the possible negative effects of organization's use of networked drives, personal testing revealed that making a local copy of the data resulted in an 8-fold increase in performance, without a lapse in security due to the data having no context on its own.

Both Security and Health & safety were a substantial part of everyday life. All protocols were followed and common sense was required at all times. A variety of in-house safety and security briefings were attended.

Voluntary Work:	**2011, SET PAINTER AND STAGE HAND – The Kings Theatre / UPDMS** Worked with all walks of life; both young and old, painting sets and handing the stage within the Kings Theatre, all as part of the University's Drama and Music Society.
Part-Time Work:	**2010-2011, KITCHEN ASSISTANT – Ferndown Golf Club** Team work, hard graft and effective communication saw us meet the midday rush every Saturday. Responsibilities included washing dishes, making tea and basic food preparation.
	2009, CUSTOMER SERVICE ASSISTANT – Haskins Garden Centre Greeted and helped customers in a friendly and professional manner, solving disputes quickly all while maintaining the company's image.
Work Experience:	**2009, COBHAM AVIATION SERVICES (formerly Flight Refuelling Aviation)** Gained 2 weeks work experience in a variety of departments including electronic warfare, flight operations, the tow target hanger and the avionics laboratory. This placement was very enjoyable and the experience of working in different areas within the industry provided valuable insight into the various career paths ahead. Despite being offered an apprenticeship, the college and University route was taken to guarantee a career in electronics engineering.

EDUCATION

University:	**2011 – 2017, THE UNIVERSITY OF PORTSMOUTH** Merit (2:1) MEng Electronic Engineering (IET accredited).
Six-Form College:	**2009 - 2011, BROCKENHURST COLLEGE** A-Levels: Electronics (A), Uses of Mathematics (B), Product Design (C) and Physics (D).
Secondary School:	**2006 – 2009, FERNDOWN UPPER SCHOOL** 9 GCSEs, including Systems and Control Technology (A), Physics (A), Mathematics (C) and English (C).

AWARDS

ELECTRONICS DESIGN PRIZE – Xyratex (subsidiary of Seagate) University Project Contest – 2014
Awarded for pro-activeness and the inventive approach to cost reduction by utilizing the STP16CPC26PTR LED driver to not only sink current from the columns of a multiplexed LED array but to also act as the line driver by 'bit banging' the last 8 outputs, which were intern used to sink base current from PNP transistors.

GRAND PRIZE – The Instructables LED Contest with Elemental LED – 2012
Awarded by community vote due to the extensive photographic documentation and comprehensive assembly guide of the LED Matrix Glasses project. http://bit.ly/Mq14re

RUNNER-UP – The Instructables Remote Control Contest - 2012
Awarded by community vote for the simple IR remote hack to facilitate DSLR time lapses.

THE CHAIRMAN'S AWARD – The Southampton University Robotics Competition – 2010
Awarded by the Chairman for our crowd-pleasing use of a servo driven arm, the goal was to create robot capable of collecting as many red wooden blocks as possible, whilst avoiding the blue ones. After falling short of the winning team; who used a large mechanical scoop, we were awarded the Chairman's innovation award as our arm could accurately pluck up red cubes one at a time. It was definitely a crowd pleaser but this experience really emphasized how effective a simple solution can be and that simplicity often wins.

INTERESTS

Everything LEDs, making YouTube videos, photography, new technology, cars, prototyping ideas and cycling (once upon a time)

REFERENCES AVAILABLE ON REQUEST