

Darryl Robert Smith, B.E. (Electrical), VK2TDS

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Profile

- Consultant Electrical Engineer with practical experience and theoretical knowledge
- Areas of expertise include Wireless Networks, Radio Systems, Energy Conservation and Management, Software, Linux, Hardware, Firmware, Project Management, Systems Engineering, Critical Thinking, Cost Engineering, Engineering Information Management.

Academic Qualifications

Bachelor of Engineering (Electrical). University of Technology, Sydney. 1990-1995.

Trade and General Qualifications

Amateur Operators Limited Certificate of Proficiency 1993

Certificate III in Telecommunications Cabling. Milcom. 2002.

ACMA Master Communications Cabling License. 2002

OH&S General Construction Induction. Workcover NSW. 2012

Private Pilots License (Airplane) Theory. 2012

Safe Work at Heights. Pinnacle Height Safety. 2013

Mobile Elevated Work Platform Operations. Coates Training. 2014

NSW Security Industry License. Class 2C

Aviation Security Identification Card.

High Voltage Safety Rules – Authority to perform and supervise High Voltage Power Station works. Bayswater Power Station. Pacific Power. 2005

Areas of Interest

- Internet of Things & Wireless TCP/IP
- Telecommunications Systems and Policy
- Sustainability
- Energy Efficiency and Energy Policy
- Wireless Systems
- Low Bandwidth Networks
- GPS Technology and Applications
- Radio based GPS tracking systems
- Open Source Software and Hardware
- Distributed Systems
- Home Automation
- Linux Operating System
- Electronics R&D

Employment History

Underdown Productions – Mad Max Furiosa. RF Technician. 2022

Underdown Productions produces large-budget movies in association with Kennedy Miller Mitchell and Warner Brothers. I worked as an RF Technician on the 2024 movie 'Mad Max: Furiosa', filmed in NSW.

The work on 'Mad Max: Furiosa' involved operating long distance microwave video links from mobile camera vehicles back to those involved with logging and recording shots, and sending live and playback video via microwave video links to the director who would commonly be in a camera vehicle mobile and as well as to technicians in operating from another vehicle. It also involved operating redundant satellite links allowing live and playback video to be exchanged between production units permitting approval of shots even when the director was operating at a different site. In addition, it involved the development of multi-site two-way radio system linking production units via satellite.

The work involved a combination of electrical and mechanical construction, microwave engineering, IT system design and deployment, problem solving and fault finding under pressure, as well as rigging and derigging solutions constantly in a high-pressure environment.

Redshift Wireless. Owner. 2013-2020

The idea behind Redshift Wireless is to assist mostly businesses and other organizations manage their electricity consumption, by giving them the tools to manage their distributed Split System Air Conditioners. This involved doing much of the work developing not only the technology, but associated company, along with outsourcing some of the work.

Radioactive Networks. Owner. 2000-

Radioactive Networks was started to provide a structure for consulting services, generally in the area of radio, computer networks, electronics, energy and cabling. Jobs have included work as varied as a GPS Tracking demonstration for Intel in Hollywood in

2001, work on IronMan Hawaii in 2002 doing GPS Tracking, work assisting to implement a glider collision avoidance system, assisting with the implementation of a laptop based technician tracking and management system for Telstra and maintaining AM/FM rebroadcast systems in underground road tunnels.

Since 2017, when not working for other clients, I have been sub-contracting to IP Technologies predominantly performing installation work for CCTV, Alarm Systems, Access Control and Audio Visual. This has included running cables, installing conduit, mounting TVs and cameras, and much more.

Radio Station 2NBC. Chief Engineer. 2014-

The work at Radio Station 2NBC involves being available to assist with the technical aspects of running a community Radio Station. This has involved significant works redesigning the distribution network, post studio, and currently involves planning the move of the studio to new premises with significant equipment upgrades.

GreenBox Group Ltd. Chief Engineer. 2009-2012

GreenBox Group Ltd aimed to be the first Smart Energy electricity retailer, based on the concept that the company could make the most money by helping their customers move and manage their energy consumption. My job was to conceive the high level design of the systems needed to do this, and procure hardware for customer premises to achieve this. It also involved managing R&D activities to determine the mix of technology to be installed.

Pacific Power (Electricity Commission of NSW). Cadet Engineer & Graduate Engineer. 1990-2002

The work at Pacific Power was initially as a University Student, and then as a Graduate Engineer. As a student doing a 'Sandwich Course', I completed a number of industrial placements, including eight months of electrical trades training in an apprentice training school, approx. a year in Power Station Controls and Instrumentation, eight months in the telephony side of the Grid business, three months in substation design and three months in the environmental section of a coal fired power station.

As a graduate I spent nine months as a plant owner at a large coal fired power station working on DC Systems, Switchboards, Battery Rooms and more. During this time, I received authorization from the organization to work on High Voltage and supervise others doing this. I then spent several years working on Drawing and Information Management, transitioning to new technology, and architecting new systems.

Board Positions

Board Member, Tucson Amateur Packet Radio Corp. Richardson, Texas. 2002-present

Publications¹

Smith, R.B., Perry, M., Smith, D.R. (2024). The Potential Role of Artificial Intelligence in the Commercialization of Traditional Medicines in Tropical Regions. In: Walker, T.,

¹ Underlining indicates that Darryl Smith also presented this paper at the relevant conference.

Wendt, S., Goubran, S., Schwartz, T. (eds) Artificial Intelligence for Sustainability. Palgrave Macmillan, Cham. https://doi.org/10.1007/978-3-031-49979-1_10

Smith, DR. GPS Watch Technology. Proceedings of the 38th ARRL/TAPR Digital Communications Conference – Detroit, Michigan. ARRL/TAPR. 2019: pp87-101

Smith DR, Smith RB. 2015 International Conference on Alternative Energy in Developing Countries and Emerging Economies (2015 AEDCEE). Bangkok, Thailand. Innovative Solutions for Energy Conservation through Commercial and Domestic Demand Side Management. 2015. [Awaiting Publication in Energy Procedia | Elsevier]

Smith RB, Nuchkoom N, Smith DR². Feed-In Tariffs and its implication in Thailand: Legal Measures, Implementation, Challenges and Solutions. Legal issues of Renewable Energy in the Asia Region: Recent Development in a Post-Fukushima and Post-Kyoto Era. Anton Ming-Zhi Gao & Chien Te Fan (Editors). Kluwer Law International. 2015: pp127-146

Smith RB, Nuchkoom N, Smith DR. Recent Development of an Emission Trading Scheme in Thailand. Economic Instruments to Combat Climate Change in Asian Countries. Ken'ichi Matsumoto & Anton Ming-Zhi Gao (Editors). Kluwer Law International. 2014: pp153-172

Smith RB, Nuchkoom N, Smith DR. Law, Bureaucracy, and Electric Power from Renewable Energy in Thailand. Southeast Asian Journal of Contemporary Business, Economics and Law. Vol 5, Issue 4. December 2014: pp1-5

Smith DR. Report looking at data collection and modelling deficiencies of the Green Loans Program submitted to the Environment and Communications References Committee's Investigation into the Green Loans Program, and referenced in final report. Australian Senate - Commonwealth of Australia. 2010:25-26 & Submission #49

Smith DR. Google Earth – Applications for Ham Radio. Proceedings of the 24th ARRL/TAPR Digital Communications Conference – Santa Ana, California. ARRL/TAPR. 2005: pp105-108

Smith DR. Spread Spectrum Power Control. Proceedings of the 23rd ARRL/TAPR Digital Communications Conference – Des Moines, Iowa. ARRL/TAPR. 2004: pp139-150

Smith DR. Bazaar Ham Publicity – Applying the Bazaar approach to Ham Radio. Proceedings of the 22nd ARRL/TAPR Digital Communications Conference – Hartford, Connecticut. ARRL/TAPR. 2003: pp228-233

Smith DR. APRS IP Mobile in a non-dynamic Wireless Environment. Proceedings of the 22nd ARRL/TAPR Digital Communications Conference – Hartford, Connecticut. ARRL/TAPR. 2003: pp222-227

² With the exception of the three papers co-authored with RB Smith and N Nuchkoom, I was the primary author and researcher. The three co-authored papers noted included significant input from me, although I was not the primary author.

Smith DR. 802.11 and Ham Radio. Proceedings of the 21st ARRL/TAPR Digital Communications Conference – Denver, Colorado. ARRL/TAPR. 2002: pp71-75

Smith DR, Kovacs B, Brock P. APRS in Hollywood – Integrating Real Time 3D Graphics and Wireless GPS Systems. Proceedings of the 20th ARRL/TAPR Digital Communications Conference – Cincinnati, Ohio. ARRL/TAPR. 2001: pp39-43

Smith DR. Intelligent Filtering of the APRS Internet Gateway Data Streams. Proceedings of the 19th ARRL/TAPR Digital Communications Conference – Orlando, Florida. ARRL/TAPR. 2000: pp126-131

Smith DR. Half Duplex Spread Spectrum Networks. Proceedings of the 17th ARRL/TAPR Digital Communications Conference – Chicago, Illinois. ARRL/TAPR. 1998: pp102-106

Smith DR. Terminal Node Controllers - Towards the Next Generation. Proceedings of the 16th ARRL/TAPR Digital Communications Conference – Baltimore, Maryland. ARRL/TAPR. 1997: pp156-163

Smith DR. A Spread Spectrum Packet Radio Network – Report submitted in Partial Fulfillment of the requirements of the Degree of Bachelor of Engineering (UTS) in Electrical Engineering. University of Technology, Sydney, 1995.

Mass Media Publications

Smith DR. Radio Communications in the Sydney Olympics. Radio and Communications Magazine. 2001.

Smith DR. APRS in the 1998 City to Surf. Amateur Radio. 1999.

Other Conference Presentations

Smith DR. NZART Annual Conference. Christchurch, New Zealand. Radio in the Olympics and Hollywood. 2003.

Smith DR. NZART Annual Conference. Christchurch, New Zealand. Publicity for Digital Communication. 2003.

Smith DR. GPS/GIS In the 1996 Atlanta Olympics. ACT Technical Symposium. Wireless Institute of Australia – ACT Division. 1998.

Projects and Consulting projects of Note³

Designer and co-installer for a Cel-Fi based Cellular Repeater System for a Sydney based Hotel. Flight Design. 2023

Owners Engineer for install of cellular DAS system inside two data centers. Pluscomms. 2019-2020

Design and construction of new Studio facilities for 2NBC – including Dante Digital Audio and remote access technologies. Radioactive Networks. 2017-2019

³ This is only a sample of the projects I have worked on. Projects have not been included for many reasons, including that of confidentiality.

Project Management of Mobile Phone Base Station Distributed Antenna System in a large Data Centre. PlusComms. 2019.

Wireless Temperature Assurance and Position Tracking System for Refrigerated Vehicles, along with support transitioning from 2G. Radioactive Networks. 2015-2019.

Remote Siren and Buoyancy Vest Deployment for Surf Lifesaving from Drones. Prototype Development. Sphere Drones. 2018

Implementation of wireless communications infrastructure for Palerang Council. Radioactive Networks / Palerang Council. 2014.

Upgrade of studio and transmission equipment. Radioactive Networks / 2NBC. 2014

Maintenance of AM/FM Radio Rebroadcasts infrastructure in the Sydney m5east and Eastern Distributor tunnels. PlusComms. 2013

Freezing Yoghurt for marketing campaign using high altitude helium balloons. Radioactive Networks / Cloud 9 Frozen Yoghurt. 2012

Implementation of an Energy Saving Home Automation System. Radioactive Networks / GreenBox Group. 2010.

Review of the Australian Government 'Green Loans' program for the Senate Enquiry. 2010

Bluetooth Based Indoor Tracking System using proximity sensing. Radioactive Networks. Sydney, Australia. 2008.

Member of the review team for the TAPR Open Hardware License, one of the world's first dedicated Open Hardware Licenses. TAPR. Richardson, Texas. 2006-7

Managing programmers developing a Laptop based SatNav system. C1 Communications / Telstra. Sydney, Australia. 2006

Radio Systems Consultant and Installer for Airport Ground to Air and Ground to Ground Communications. Radioactive Networks / Paris Radio Electronics. 2006-

Development and production of a GPRS based GPS Tracking Unit. Radioactive Networks / Mailcall Couriers. 2005.

Implementation of embedded software for a Glider Collision Warning System. RF Developments. Queensland, Australia. 2005.

Implementation of a radio based GPS tracking system, with an interface to a live 3D rendered virtual environment. REZn8 / Intel. Hollywood, California. 2001.

Installation of a Television Studio for the Sydney Medical Simulation Centre. Lateral Linking. Sydney, Australia. 2000.

Development of a GPS locked radio transmitter beacon for use during the production of movies. Lateral Linking. 2004.

Implementation of a radio based GPS tracking system for broadcast TV assets (Helicopters, motorcycles) and wireless weather station for the 2002 IronMan World Championships. Lateral Linking / IronMan. Hawaii, USA. 2002

Implementation of a radio based GPS tracking system for broadcast TV assets (Helicopters, motorcycles, vehicles) for the 2000 Sydney Paralympics. Sydney Paralympic Broadcasting Organization / WE Media / Lateral Linking. Sydney, Australia. 2000

Implementation of a radio based GPS tracking system for broadcast TV assets (Helicopters, motorcycles, vehicles) for the 2000 Sydney Olympics. Sydney Olympic Broadcasting Organization / Winemiller Communications. Sydney, Australia. 2000.

Developing PC software for the Australian made LED signs produced by Textron. This involved working with their firmware engineer to implement control software to get the most out of the signs. Textron, Sydney. 1997-2000.

Links

- LinkedIn - <https://au.linkedin.com/in/vk2tds>
- Papers - <http://www.radio-active.net.au/web3/Resume>

Optional Attachments

- University Transcript
- Certificate III documentation
- Copies of listed publications

Awards

- Best Paper Award (Law) in Kuala Lumpur International Business, Economics and Law Conference 5 for the paper "Law, Bureaucracy, and Electric Power from Renewable Energy in Thailand" - 2014.
- Certificate and Commemorative Silver Medallion in recognition of and appreciation for the contribution to the success of the games of the XXVII Olympiad from the International Olympic Committee and the Sydney Organizing Committee for the Olympic Games. 2000.
- Queen's Scout Award - 1989.
- Reuben F. Scarf Award for Commitment - 1989.

Hobbies and Pastimes

- Amateur Radio - including Digital Communications, Satellite Communications and Software Defined Radios
- Electronics and Computing - including the Maker movement
- Light Aircraft (< 2000 lbs.) construction and maintenance
- Running

Professional Referees

Dr Russell Darroch

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Former IT Director – Palerang Council
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