65 Pheasant Hill Circle
Cotuit, MA 02635
larryr@4innovation.biz

Lawrence Rachman
Innovation Design and Solutions, Inc.

(voice) 508-418-0707
(fax) 570-796-6585
www.4innovation.biz

Summary

Electrical Engineering consultant with extensive embedded processing, digital design, and wireless communication system experience. Proficient in hardware, software, and systems design and implementation, from initial product conception through development, release, and manufacturing ramp-up. Motivated, personable, and able to bring a unique perspective to your project.

Key Projects

- Self-contained wireless merchandise level reporting system utilizing sonar ranging
- GSM WAN-enabled telemetry system for remotely tracking ice cream POS consumption
- GPS/IRIG Time management module, integrated with cPCI, VME, other bus interfaces
- Enhancements to power management processor in handheld computer
- Ethernet low-level driver/packet management software for purchased Ethernet core
- Miniature Power Architecture-based processor card with dual Ethernet and FPGA-based bus interface
- Low-cost configurable remote-control coaxial relay switch with state monitoring
- Wireless lamp signal repeater motorcycle safety device prototype
- Web/SNMP interface/control system for broadcast satellite uplink converter, power amplifier
- Control/communication backbone for data acquisition/control card
- Controller for commercial refrigeration monitoring system, including web interface
- Production-line test fixture for wireless inventory monitoring device.
- Multi-channel FIFO implementing pointer registers in RAM for optimal FPGA utilization

Professional Experience

2002-present Innovation Design and Solutions, Inc, Centerport, NY, East Falmouth/Cotuit, MA
                    Principal Consultant

- Created multifunction interface (ADC, clock, GPIO, serial, keyboard I/F) using a single microcontroller, saving six ICs, reducing component cost by 60%. Firmware revision was verified (and auto-upgraded as necessary) at system power-on.
- Designed a low-cost altitude deviation alert, based on a strain-gauge pressure sensor. A unique architecture permitted use of an on-MCU ADC, reducing cost. (Published in The Atmel Applications Journal, Summer 2003)
- Developed a remote-controlled coaxial relay module including failure detection and reporting. Expanded design to implement unanticipated new feature requirements by recoding from C to assembly language, permitting utilization of existing inventory of modules.
- Created hyper-specialized FPGA serial interface variants to meet unique customer requirements.
- Developed Internet interface (web, SNMP, and Telnet) for a family of satellite uplink products. A table-driven architecture permitted optimal code reuse across the various product family members.
- Resolved ESD susceptibility problems in electromechanical currency sorting system, including development of rework procedures permitting re-use of existing hardware.
- Identified, isolated, and solved an elusive timing problem preventing the shipment of 100 digital audio transport/control boards. An analytical strategy, coupled with focused experiments resolved the issue in a single day, after three weeks had been devoted to the problem by the client.
- Designed FPGA-based interface and control systems for a family of board-level data capture products. Implementations included both 'from scratch' design and integration of purchased intellectual property.

| 1998–2002 | Symbol Technologies, Inc., Holtsville, NY |
| | Senior Program Manager |

- Managed the development of a prototype wearable computer combining wireless networking, VOIP, and mini-web browser, including coordination of industrial design, mechanical, electrical, and software teams. Conducted focus group surveys and presentations to high-level management including board of directors.
- Responsible for feature enhancements of wearable computing system. Provided dual-radio custom version to key account fulfilling $4.5M contract – customer satisfaction resulted in add-on sales of $2.7M.
- Directed development of a vehicular computer system providing parcel delivery verification data via terrestrial and satellite wireless networks. Managed subcontracting design firm during its acquisition simultaneously with delivering 1,500 units to customer, meeting initial rollout requirements.

| 1995–1998 | InterDigital Communications Corp., Melville, NY |
| | Director of Engineering |

- Directed engineering staff during the development and beta deployment of a Wireless Local Loop spread-spectrum telecommunications system. The product included digital, RF, and telecom subsystems.
- Led an internal 'Skunk Works' team to rapidly develop and deploy a miniature portable version of a wireless telephony base station intended for exhibition presentations, propagation studies, and demonstrations for investors and technology partners. Met critical trade show deadline by reusing technology from standard version of product.

Education, Licensing, Professional Organizations

- Bachelor of Electrical Engineering, SUNY at Stony Brook, Stony Brook, NY
- Business Management Certificate, CW Post – Long Island University
- Business Across Borders: Asia Pacific – Berlitz
- Netburner approved developer
- FCC General Radiotelephone Operator License
- IEEE member
- Board Member IEEE Consultant's Network – Boston Chapter

Personal Interests

- Private Pilot (instrument rated)
- Amateur Radio operator (WA2BUX)
- Long-distance cyclist
- Participant – Monument Beach Polar Bear Club