

MAHALINGAM Koushik B



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EXECUTIVE SUMMARY

- Creative, dynamic product manager with widespread knowledge and experience
- Multiple start-up experience with proven ability to learn and adapt to different roles quickly & efficiently
- Excellent contributor with ability to manage teams and to work individually
- Detailed experience in PCI-PTS certification for payment terminals
- Experienced in managing all aspects of embedded product development under tight resource and time constraints
- Expert knowledge in the field of power electronics, analog & digital circuit design, PCB design and layout
- Experience in emerging areas such as solar, LED lighting, GSM communication, Wi-Fi, NFC, HTML5, Web apps
- Highly motivated by any challenge with proven track record of identifying and implementing creative solutions
- Clear and concise analyzer, documenter and communicator
- 7 years of professional experience and 2.5 years of research experience

PROFESSIONAL EXPERIENCE SUMMARY

Kanha Tech Solutions Ltd (<http://www.kanhatech.com>)

Sr. Technical Lead

Bangalore

Apr 2012 – Present

Kanha Tech Solutions Ltd, a subsidiary of Reliance Industries Limited, is pioneering cutting edge customer devices in the payment, retail and related verticals.

- Managing various aspects of product development from hardware platform selection, product design considerations, prototype development and manufacture, PCI certifications and SDK/platform development for 3rd party applications.

Rural Bridges Technology & Solutions Pvt Ltd (www.ruralbridges.com)

Technical Lead

Bangalore

Sep 2011 – Apr 2012

RBTS is a technology start-up focusing on providing technology products for rural and agricultural market.

- Managing Product development and production activities for our flagship product, Kisan Shakti – GSM-based motor controller.

Duron Energy Pvt Ltd (www.duronenergy.com)

Lead Electronics Engineer

Bangalore

Mar 2010 – Sep 2011

DURON Energy, started as Distributed World Power, is a dynamic start-up company in the field of renewable solar energy. DURON is one of the leading solar-powered LED home lighting system manufacturers in India.

- Managed the Product Development (PD) team over a period of six months while handling hardware and software design, product testing and qualification, field trials, government certification (MNRE)

Electronics Engineer

Oct 2009 – Mar 2010

- As a part of the PD team, was responsible for numerous product enhancements and troubleshooting, extensive quality testing, customer support, and operations and manufacturing support.

Maxim Integrated Products (www.maxim-ic.com)

Associate Member of Technical Staff – ESD Engineer

Sunnyvale, CA

July 2007 – Jan 2009

- As a part of ESD team, was responsible for designing and testing ESD structures, verifying ESD protection provided by device design teams, creating manuals and documents for design support.

Broadband Maritime

Electrical Engineer – System Design

New York, NY

June 2006 – June 2007

Broadband Maritime provides cutting edge turnkey VSAT telecommunication services, including voice and data services, for Maritime Applications.

- Was responsible for complete system redesign including hardware design, component identification, prototyping and testing, schematics capture, and layout supervision.

EDUCATION

M.S. in Electrical Engineering

Aug 2003 – Jan 2006

Rensselaer Polytechnic Institute

- Thesis title: Dependence of Interfacial Properties of 4H-SiC MOS Devices on Gate Oxide Deposition and Post-Oxidation Anneal Processes

B.Tech. in Electrical Engineering

Aug 1999 – May 2003

Indian Institute of Technology, Madras

- Research areas: semiconductor devices, microelectronics and device fabrication
- Minor studies on Theoretical Computer Science

SKILLS	Product Management	<ul style="list-style-type: none"> ▪ Requirements specification ▪ Hardware specification ▪ Module wise product design ▪ System architecture 	<ul style="list-style-type: none"> ▪ Server & protocol design ▪ Resource management ▪ Project planning & tracking ▪ Troubleshooting & problem-solving
	App & Platform Development	<ul style="list-style-type: none"> ▪ HTML, JS, CSS, PHP ▪ RESTful API's ▪ API definition ▪ Sockets based communication 	<ul style="list-style-type: none"> ▪ UI Design ▪ PHP-based framework design ▪ Apache, PHP/SQLite setup in embedded environment
	Certification & Standards	<ul style="list-style-type: none"> ▪ PCI-PTS certification ▪ ISO 8583 messaging format ▪ Environmental testing 	<ul style="list-style-type: none"> ▪ EMVCo. certification ▪ CE, UL, IP ratings ▪ Stress testing
	Software & Embedded	<ul style="list-style-type: none"> ▪ Freescale I.MX, Kinetis ▪ ATMEAL AVR & TI MSP ▪ Embedded C Programming ▪ Qt development ▪ Git, SVN setup and usage 	<ul style="list-style-type: none"> ▪ Linux OS & BSP knowledge ▪ Interrupts, timers, watchdog, memory management ▪ Debugwire, JTAG debugging and testing
	Product Manufacturing	<ul style="list-style-type: none"> ▪ Preparing design for NPI ▪ EMS Vendor co-ordination ▪ Manufacturing flow design 	<ul style="list-style-type: none"> ▪ Identification & development of vendors & suppliers ▪ Production planning & supervision
	Electrical & Electronics	<ul style="list-style-type: none"> ▪ Schematics design and capture ▪ Microprocessor based design ▪ Power supply design ▪ Battery testing & charger design ▪ PCB Layout & Verification ▪ Cadence, OrCad, Eagle, PADS ▪ Calibre LVS/DRC Verification ▪ Multimeter, MSO/MDO Oscilloscope, HP 4145A, Keithley, Curve tracer 	<ul style="list-style-type: none"> ▪ Datalogger setup and testing ▪ Solar panel testing ▪ Mentor Graphics Viewlogic, HSPICE, PSPICE ▪ MEDICI & TSUPREM ▪ MATLAB & LabView ▪ TLP, HBM & IEC Testing ▪ Emission Microscopy, Liquid Crystal FA ▪ Clean Room Experience
RESEARCH EXPERIENCE	Rensselaer Polytechnic Institute <i>Research Assistant</i> Troy, NY Aug 2003 – Jan 2006		
	<ul style="list-style-type: none"> ▪ Worked on Silicon Carbide power MOS devices performing design, simulation, fabrication and characterization; design tools used: TSUPREM, MEDICI and Cadence ▪ Characterized devices on-die, using HP Parameter Analyzer, Curve Tracer, Keithley HV Source, and LCR C-V meters. 		
	<i>Teaching Assistant</i> Jan 2005 – May 2005 IC Fabrication Laboratory: Mentored a class of 25 on a hands-on Laboratory course in Class 100 Clean room.		
RESEARCH EXPERIENCE	Indian Institute of Technology, Madras <i>Undergraduate Research Project</i> Chennai, India Aug 2002 – May 2003		
	<ul style="list-style-type: none"> ▪ Analysis of breakdown in Schottky contacts through finite-element simulations on MATLAB ▪ Simulation, fabrication & characterization of Silicon Poly Emitter BJT's (PET's) 		
AWARDS	<ul style="list-style-type: none"> ▪ Among the national 0.1% in IIT Joint Entrance Examination conducted in the year 1999 ▪ Best term paper award for group project on Semiconductor Devices & Models II, May 2004 ▪ Consistently received good reviews and promotions at opportune moments ▪ Received "Dazzler" award during my term at Duron Energy 		

Kanha Tech Solutions Ltd

- Lead the hardware team in developing the next generation payment terminal with key focus on security
- Managed the entire product team to develop features required fulfill PCI-PTS certification
- Performed device debug session at PCI-PTS accredited lab, achieved provisional certification and identified improvements needed to achieve proper certification
- Review & supervise all security features development for payment device security
- Evaluated EMVCo L2 Kernel vendors and certification agencies to identify suitable vendors
- Developed framework and environment for application development using HTML, JS, CSS & PHP
- Created & implemented request-response based RESTful API's for application framework
- Analyzed the Wi-Fi design from hardware, driver, BSP, script and application to suggest improvements that improved handshake speed, signal strength calibration and overall stability
- Managed a team of developers in designing, developing and testing HTML applications; applications developed include:
 - TopUp of mobile phones, DTH, datacards
 - Location based quick-pay services
 - MicroATM financial services standards
 - Aadhaar fingerprint enrollment

Rural Bridges Technology & Solutions Pvt Ltd

- Product design using a modular approach, thus providing options for multiple variants which can cater to different market segments and customer requirements
- Managed & supervised production providing required product documentation, managing production schedule and resolving manufacturability issues with simple solutions
- Managed the engineering team; reviewed and improved software architecture to be more streamlined, reliable and helped resolve some critical bugs
- Supported product marketing by creating user manuals, translating product documents into regional languages

Duron Energy Pvt Ltd

- Promoted Duron BRITE with Ministry of New and Renewable Energy (MNRE) and was instrumental in getting MNRE Model I empanelment
- Redesigned the product electronics achieving 20% less component count, 50% more reliability, and better manufacturability and scalability
- As a part of PD team, went from design to manufacturing 20 DEMO units of a new product (DURON MEGA) within three weeks; improvements include higher power capacity, and ability to power many accessories such as laptop, thermal printer and handheld devices
- Proposed and managed a complete product quality and performance testing activity including temperature, humidity, dust and water protection (IP-65) tests using a third party tester
- Handled customer returns to study and identify causes for repetitive failures; based on these inputs, implemented short-loop fixes to the hardware design which reduced the failure rates by 60%
- Implemented a software Over-current protection using the current sense circuit. Proposed and tested a hardware improvement for reverse battery detection and protection
- Supported operations with component alternate sourcing, manufacturing procedure documentation, creating quality check criteria, training manufacturing team on product testing and qualifying procedures
- Conducted a product training session for the entire UP sales team consisting of 37 members; provided information and guidance on basic product knowledge and hands-on training sessions on system maintenance

Maxim Integrated Products

- Responsible for design, implementation, characterization & documentation of ESD protection methodologies
- Designed & laid out ESD protection cells, I/O cells & test-chips based on available process devices and steps
- Characterized ESD protection strategies on silicon using standard test methodologies such as TLP, HBM etc
- Created & maintained ESD design manuals to provide designers with ESD solutions for various applications
- Provided design & layout support to design engineers per product & specific requests for individual I/O pins
- Reviewed complete chip schematics and layout to identify potentially weak paths and provide ESD solutions.
- Developed, implemented & tested EDA (DRC/LVS/Library) tools to check for ESD protection on a layout
- Performed failure analysis caused by ESD events to identify root-cause and failure mechanism

Broadband Maritime, Inc

- Responsible for completely redesigning the telecommunication system involving system conceptualization, hardware & PCB design, prototyping & testing, mechanical design and software logic design.
- Designed & implemented a two board system, with a microprocessor and a DSP, and peripherals comprising of various serial communication ports, Ethernet ports, gyroscope, GPS and motor driver/controllers
- Performed troubleshooting & creative problem-solving on various aspects including Data Conversion & Transmission, Embedded Systems, Step motion control etc