CV

Amol Gadkari

Title: 15years electronic embedded system design experience

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B1/B2 VISA: Expiration date 17 April 2023

Presentation

15+ years experienced and dependable and Electronics Engineer with a superb customer satisfaction and project completion record. Proficient in designing complex systems using microcontroller, microprocessors, FPGA logic & timing simulation & skills like PCB layout, Firmware coding, debugging, design verification & testing, and documentation for production etc.
The key strengths that I possess for success in this position:

- Rich experience of successfully product design and working with cross functional teams
- Exposure to various the electronic domains
- Strive for continued excellence
- Provide exceptional contributions to customer service
- Creative and methodical approach to a problem solving
- Team player

Competence areas

Hardware Design

- ✓ Excellent depth and breadth of experience in electronic hardware design and development
- ✓ Strong grasp of electronic hardware life cycle - From concept to finished product
- ✓ Outstanding in-depth expertise in designing analog, digital and power supply circuits, circuit analysis & simulation and utilization of CAD tools
- ✓ Solid proficiency in six sigma design processes
- ✓ Exceptional ability to design electronic systems meeting compliance and safety standards
- ✓ Superior familiarity with PCB designing and EMI/EMC testing
- ✓ Sound grasp of electronic engineering problem identification and resolution
- ✓ Knowledge of Signal Integrity and circuit analysis
- ✓ Good skills in ISO 9001 and Six Sigma processes

Firmware development

- ✓ Expertise in C program coding, validation and testing
- ✓ Grasp of embedded application development and firmware engineering
- ✓ Collaborate with FW architects, and test teams to ensure timely delivery of the solutions which meet the quality and schedule goals
- ✓ Previously used Microchip PIC16 & PIC32, TI MSP430, NXP microcontrollers, AVR and 89C51

Hardware/Software knowledge

Skill	Description
Hardware design	Expertise in designing 8/16/32 Bit Micro-controller, Microprocessor, CPLD and FPGA based embedded systems
	Previously used System On Module(SOM) & Single board computer (SBC)
	Expertise in designing system interfaces like RS232, RS485, SPI, I2C, Ethernet etc.
	Strong grasp of wireless protocols RFID, USB, Bluetooth (BLE), Wi-Fi & Wireless HART
	Expertise in precision analog circuit design using OP-AMP, ADC & DAC
	Strong grasp of Power management design (Linear and switching power supply – Buck & Boost, filters design)
	Superior familiarity with memory interfaces like ROM, RAM, SRAM, FRAM, EEPROM, Flash, SDRAM etc.
	Hands on experience in sensor interfaces like Temperature sensor, Pressure sensor, Proximity switches, Encoders etc.
	Knowledge of Signal Integrity analysis
EDA tools and software	**Schematic and PCB layout tools:** Altium, Allegro, Or-CAD Capture

	Circuit Simultion: Or-CAD PSpice, MultiSIM, LTSpice (Linear technology), TINA, TI Webench (Texas Instrument)
	PCB Layout: Apart from Altium and Or-Cad, Mentor Graphics PADs
	Gerber viewer: GC Preview
	Firmware Development: MPLAB, MPLABx – (x32 and x8) Harmony suit, Keil uVision, AVR Studio and Xilinx ISE
Programming Languages	C program coading
	Familier with VHDL programming (preliminary knowledge)
	Assembly language for 89C51
	Aware of SCADA programming (*not an expert)
EMI and EMC certification testing	Experience in EMI/EMC testing and product certification (8 project certification experience)

Assignments

- ✓ *RFID reader system for* Avery dennison **US, EU and China** (2019)*:* Responsible for hardware and firmware development
  - Design and develop scalable firmware to support RFID Readers based on PIC32 microcontroller
  - Hardware development and System integration of Off-The-Shelf UHF readers like ThingMagic and ThinkiFy etc.
- ✓ Juniper Networks, India *(2017-18)* **(Facebook and Amazon customer):** *Design of EX2300* Multigigabit network switch: There are two EX2300 Multigigabit switch models, offering either 24 or 48 10/100 Mbps/1GbE/2.5GbE-T ports in a single platform. Both models design to offer IEEE 802.3af Power over Ethernet (PoE)/802.3at PoE+ for powering attached network devices. Each switch has 10GbE small form-factor pluggable plus transceiver (SPF+ transceiver) uplink ports that support connections to other access or distribution layer switches.
- ✓ Westcontrol AS, **Norway** *(2015-16): Chemical injection valve consist of Wireless HART* interface with analog output module used for monitoring of Oil-well process parameters. I was responsible for
  - Hardware design of precision analog front-end for temperature measurement
  - 4-20mA current loop design with wired and wireless HART capability
  - Electrical wiring harness and wiring diagram
- ✓ Hardware design and developemnt of House hold *HVAC system* to control and monitor internal temperature of the house. Product has WiFi interface to control the parameters from remote location. The system uses low cost Kinetis K12 (ARM Cortex M4) and Atmel WiFi module. **There are 3 PCBs in the system – Main Board, Key pad and WiFi Module. Pre-compliance testing.**
- ✓ Hardware development **(schematic and PCB layout)** Sensor test and calibration module – The board can test and calibrate 8 precision temperature and humidity sensor module used in Oil and Gas domain.
- ✓ *Texas Instrument (2013–15)* **top 30 customers like Siemens, ABB, GE, Honeywell etc.**
  - *Analog Input/Output Module*: Using 16-Bit SAR ADC & 16-Bit DAC
  - *Analog Input Module*: Using 16-Bit SAR ADC
  - *Analog Input Module*: Using 12-Bit SAR ADC
  - *Analog output module with adaptive power supply*: Using 16-Bit DAC

Honeywell (2008-13) Honeywell US and it's customers*:*

- ✓ *Dose Control System* for **Solar Light Company Inc., USA**: **UV light dose control system** with 8" Touch Screen control user interface LCD. Design comply to *IEC61010*
- ✓ A4-Development for **Apollo Inc., USA**: **Access control system** with multiple options of communication interface with Central Monitoring System. Considering time to market requirement we selected a *System On Module (SOM) approach*
- ✓ *HVAC air duct pressure measurement system* for **TSI, USA**: A full range HVAC testing instrument using microcontroller LPC2378 ARM7 MCU. Design comply to EN61000
- ✓ *Analog output interface card for Optical Particle* Counter (Remote OPC) for **TSI, USA**: System gets I/P from PLC over MODBUS & gives analog output to other external systems. LPC1754 (ARM cortex M3) MCU used in the design. Design comply to EN61000
- ✓ *Hospital inventory control management*: System uses SBC (Single Board Computer) & RFID. This product developed by Honeywell for **Stanley Security Systems, USA**. System utilises LPC1754 (ARM cortex M3) MCU to read RFID tags. Design comply to EN61000)

- ✓ *Multiple Communication Protocol interface* card for **Schlumberger (Canada)**. The board having interfaces like USB, Ethernet, RS-422, RS-232, QSPI (to access serial FLASH), DMA (to access parallel SRAM and communicate with FPGA) etc. The Main Board uses MCF52259 (Coldfire)
- ✓ *Dissolved oxygen analyzer*: Designed Microcontroller Card as a dissolved oxygen analyzer for the **Waltron LLC, USA** used in petrochemical industries. ATmega 128 (AVR) microcontroller is used in the design

PowerconKraft and KESPL (2001-05) India and it's customers

- ✓ *Three Phase Rectifier Control Board:* Involved in designing of the three phase rectifier control card used for multiple applications such as three phase control rectifier, AC motor control, heater controller, DC motor control, electroplating power source, Battery Charging etc. The board utilizes PIC16F72, 8 Bit Microcontroller with PIC architecture
- ✓ DC power sources: Involved in designing of the different topologies of power sources like *flyback, Buck, Boost and Buck-Boost*
- ✓ *Fault Annunciation Card*: Designed the Fault Annunciation card using microcontroller PIC16F72 (PIC) as a fault indication and protection
- ✓ *Auto Mains Fail (AMF) Control Unit*: Involved in designing of the AMF control unit using Microcontroller *PIC16F877A (PIC)* for the generator engine control application. Designed analog interface of current transformer and voltage transformer
- ✓ Design and development of electronic systems for clients such as,
  - Exide Batteries Ltd – Battery chargers
  - Gas Authority India Ltd – High current battery chargers
  - Indian Navy – 180VDC / 200Amp DC motor control system using IGBT chopper
- ✓ Digital panel meter: Involved in designing of Digital Panel Meter using *89C51RD2* (8051 basic architecture) microcontroller for a panel parameter display
- ✓ *Hardware and firmware* development of *Sequential timer* using ATmega8- 8bit – AVR MCU

Responsibilities handled:

- ✓ Concept and feasibility study
- ✓ Coordinate with PLM and marketing project acquisition. Prepare competitor product study document, Concept note, Technical proposal, Requirement Capturing, work and time estimation etc.
- ✓ Responsible for Proof Of Concept (PoC) and define hardware architecture
- ✓ Responsible for planning and executing electronic design & development, liaising with other departments (S/W, F/W, PCB Layout, Purchase, Mechanical, Certification, Thermal, SI, DVT and Manufacturing etc.)
- ✓ **Design:**

Analog and Digital circuit design	Precision sensor interfaces	Memory interfaces
Communication interface	System power estimation	Component selection (using Pugh Selection matrix)
Schematic Entry	PCB design / layout review	Coordinate with cross functional teams
Prepare Design Documents	Board Bring-up	Integration testing and prepare Test Reports

- ✓ **Documentation:**

Review certification reports	Thermal report	Hardware Design document
DVT reports	Wiring diagram	User manual

Broad Bring up test plan and Acceptance Test Plan (for system verification)

- ✓ Functional, integration and unit testing
- ✓ EMI/EMC testing
- ✓ Root cause analysis using '5 why' method
- ✓ Vendor development and vendor interaction, communicate with client, contract manufacturers and channelize the mass production
- ✓ Provide training to Field Application Engineers
- ✓ Resource handling and provide necessary technical training for quality enhancement
- ✓ Support customer support department including site visits as and when needed

Employments

- Avery Dennison, India (April 2019 to Present) – RFID system engineer
- Juniper Networks, India (Jan 2018 to March 2019) – Hardware Engineer 4 (Lead)
- HP Inc. India (Mar 17 to Sept. 17) - Technology Specialist
- Westcontrol AS, Norway (Jul 15 to Jan 17) – Electronic Design and development engineer
- Texas Instruments, India (Jul 13 to Jun 15) – System Engineer
- Honeywell India Ltd (Aug 08 to Jun 13) – Lead Engineer
- KESPL, Polarsys, Powercon (Under single mentor Mr. Abhay Patwardhan): Jul 01 to Jun 05 – Design Engineer

Work Appreciation

- Awarded by Juniper Network management for successfully delivering 24 and 48 port multi-rate network switch
- Awarded by Texas Instruments with Award for excellent skills commitments shown in design and developments
- Recognized by Honeywell with 'Bravo Star' for designing hardware architecture scheme and getting it approved
- Recognized by Honeywell with 'Bravo Bronze' for designing hardware helping firmware team in bug fixing and testing for EBT Refresh project from the client for Remote OPC project
- Recognized by Stanley team for dedication and excellent work done at contract manufacturing site and streamlining the mass product process.
- Recognized by Honeywell with 'Bravo Bronze' for outstanding work in the RF antenna Tuning which resulted in on time delivery of the product for the Hospital Inventory Control Management
- Recognized by Honeywell with 'Bravo Bronze' for excellent work performed in the hardware development of the 'WellNET Interface'

Education

Sr. No	Examination	University/ Board	Year of Passing	Marks Obtained	Class Obtained
1.	Bachelor in Electronics Engineering	PDEA's College of Engineering, Pune University	2008	63.27%	First Class
2.	Diploma in Electronics and Radio Engineering	Cusrow Wadia Institute Of Engineering, Pune	2000	71.12%	First Class Distinction

Courses

- Microcontroller firmware development – 2011
- **Honeywell *Six Sigma Green Belt*** certification – 2010

Other

Skill type	Sub type	Description
Soft Skills	Communication and other skills	Documentation skills
		Planning skills
		Fault finding and Troubleshooting skills
		Customer and vendor interaction
		Reverse engineering
	Documentation and presentation tools	Microsoft word
		Microsoft excel
		Microsoft power point
		Microsoft VISO drawing
		Learning Python & LabView (Useful for automated test setup)
	Six Sigma tool implementation	Product and design FMEA
		Quality management using 'Defect Management tool'
		Component selection using 'Pugh Selection' matrix

Language skills

English, Hindi, Marathi and Dutch (Beginner)

Driving license – Yes