## Areas of Interest

* Evolutionary Systems Design and Technical Architecture.
* Technology Commercialization and Leadership.
* Experimentation on Software Design, Tools and Methods.
* Collaborative Innovation.
* Cognitive & Expert Safety Systems / System Safety

## Areas of Practical Exposure and Hands-On Experience

* Safety Critical Embedded Software Design & Development
* Application Software Design & Development
* System Architecture and Design
* VLSI & ASIC Design using Structural & Behavioral Modeling
* Handling product engineering from Conception to Production

## Technical Expertise

* Software Design & Programming in C, C++, C# , Javascript & VHDL.
* Project Management

## Projects Summary

**Aug 2013 – Present – Product Line Engineering & Advanced Technologies Practice Leader.**

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| Project | Period | Summary |
| H1000 – Fire Fighter’s Personal Alert Safety System   * Principal Engineer | 2012-Aug 2013 | Technical Architecture and Time Critical Annunciation Software Design and Development.  This is a business critical project as there is huge impact on the business revenues owing to standardization of Alarms and procedures and Honeywell could lose out business in this segment, if product is not released on time to market.  I am involved in design and development of the annunciation software and the Annunciation system is designed out of an Event driven, functional block architecture. |
| IAQPoint2 – Sensor and Product Test Enablement System.   * Designer, Architect and Engineer | 2011-2012 | A quick project to help the Product Team’s to Test & Validate the different Sensor Configurations, and Communication Options on second generation of Indoor Air Quality Product. This was designed by the reuse of sensor communications and options framework developed for Photo-acoustic Sensors. |
| Photo-acoustic Sensor – Technology Development and Evaluation.   * Technology Developer | 2010 – 2011 | An optical photo acoustic sensor designed on measurement of pressure variations on the surrounding air. In this project, I was involved in Software Architecture and Systems Design for this Technology. This was designed to work with the IAQPoint Series. With respect to stringent Californina requirements for Calibration free operations for 5 years, the technology could not be commercialized at that point due to Competitor’s Patented Methodology. Currently the core packaging techniques are being matured. |
| Torch   * Principal engineer Systems and Communications Design | 2010-2010 | Post FAAST and XNX success, we began to make the Industrial Fire- Flame detection portfolio. Competitor and methodology Analysis was performed to better our position and the product design. Later this project was dropped, due to the buy-out of FireSentry. Before this, Honeywell was OEMing Third Party Offerrings as part of Industrial Fire & Gas Solution. |
| FAAST   * Team Leader and Technical Architect | 2008 – 2010 | FAAST was a ground breaking product for Honeywell to get into Aspirated Smoke Detection which was completely dominated by xTralis Corporation. Involvement in this program in the complete System Design (Software , Hardware and Fluid Dynamics) paved way for sustained relationships with System Sensor. |
| Optima Next Gen   * Mentor | 2010 – 2010 | Upgraded the XNX HART 6 Stack to HART 7 and reused it in the development of Optima Next Gen product and helped the new team to easily transition into Gas Detection business. During this period,when I was working from home for an extended period, developed a framework for Virtual Emulation of the Instrument Software to build the interfaces and test them with Emerson HART Simulators. |
| Impact Extreme Wireless and Location Manager   * Technical Architect | 2008 – 2009 | A first time entrant into wireless insertion for portable gas detection.  I was involved in the complete System Architecture with collaboration from Wireless Labs in the insertion of technology and Architecture for Location Manager. Was completely involved as an Architect until Phase 3 exit of this program and also designed and developed a scalable Device Interface Manager Communication Software. |
| XNX   * Team Leader & Development Engineer – Communications Stack | 2007 – 2009 | HTS premium involvement with Honeywell Analytics business on an important product for this business and fructification of Honeywell’s Zellweger Acquisition. HTS was involved in the design of Communication Systems for Fixed Industrial Gas detectors on HART, Foundation Fieldbus and Modbus and I lead the team efforts and individually developed the communication stacks and FF Application. |
| Matrix Onyxworks – Winpak Gateway   * Technical Lead | 2006-2006 | Software Architecture for Fire and Access integration for Door Management in times of Emergency Evacuation. This architecture and code base has been extensively reused for different gateways created with Louisville Design Center. |
| Matrix Onyxworks - .Net Migration   * Technical Lead | 2006-2006 | An evaluation project to migrate the Visual Basic Code Base to .Net and see its production quality. This gave an opportunity for me to understand and evaluate .Net platform and its services. Speed and Memory optimization techniques with Lazy Loading and garbage collection and hash tables were studied, experimented and put to use. |
| Sim 500 Smoke sensor simulation   * Dev. Engineer | 2005 – 2006 | This is the first project that I started in Life safety and designed the Embedded and Application Software for the Sim500 Smoke Sensor Simulation Platform. This project was started as a re-design of an existing simulation platform and this took evolution from a Serial Networked Simulator to Ethernet Networked Simulator to integrated Test frameworks. I was involved in the complete design and development of both Serial and Ethernet variants and prototyped Fire Alarm Control panel Test Automation which became a Full time Project Called CLT and extensively used in FACP testing. |

## Initiatives

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| Initiatives | Period | Outcomes and Status | Learning’s & Takeaways. |
| Bacnet gateway using JACE Framework | 2006 | Evaluated the suitability of JACE framework for gateway projects after acquisition of Tridium by Honeywell. |  |
| Tear down analysis of Ravell Fire Panel | 2007 | Came out with propositions for Low Cost Fire Panel for Indian market. This project was not initiated subsequently. | Understandings of the Ravell Panel and Analog Panels and their cost structure. |
| Location Tracking using Personal wireless devices | 2007 | A Location Tracking system was conceived using Bluetooth phones Bluetooth Anchor nodes.  Gave opportunity to get into wireless Location management system for our team. | Mentored a Master’s intern on developing a Bluetooth J2ME application with A-STAR search Algorithm for estimating best route to evacuate. |
| eFFD Foundation Feildbus Simulator for HPS Testing | 2008 | Mentored and Nurtured the reuse of Foundation Feildbus design of XNX to use in HPS Systems Testing. |  |
| Analysis Plume Modeling of PlumeRAE and Safer systems | 2008 | As part of Location Manager feature set development, this was done and concluded that we could do it after the initial version’s are released.  This also led to some local initiatives with HA India marketing and solutions were discussed with MRPL . | Exposure to Principles of Safety Management and Occupational Safety. |
| Colloborative Innovation Wiki | 2010 | Utilized the acswiki to set up pages for HLS Innovations and a JIRA project for Collaboration on Innovation. The framework had a good initial response with Innovation Month in HLS utilizing it.  Portal’s are live with really limited usage. | Learnt that without persistent push and pulling levers initiatives would fail. |
| Common Instrument Framework | 2011 | A common design platform for design of Gas detectors with a generalization to control instruments based on IEC Function Block Application model.  This framework was appreciated by Patrick Hogan, then marketing leader for HA. | Enhancement in the understanding of the Instrument design and generalization  Currently taken up by Honeywell Analytics Portable Line of Business for Standardization of Instruments. |
| Gas Detection Cloud | 2012 | Developed the project vision and strategy for developing cloud systems for Gas Detection bettering Industrial Scientific Offerings.  The project is currently on hold due to lack of strategic marketing team and also due to the recent RAE Systems Acquisition. | Was able to apply my learnings in Safety management Systems as part of my PhD learnings. |
| Feasibility Analysis of Ion Mobility Spectrometry for HLS Business | 2012 | Involved with our Business Strategy team to analyze start-up company on FAIMS Technology and see its applicability to HLS needs and strategic adjacencies.  The technology is best suited for Process Application needs and Enrof is working with this start up company. | Technical know-how of FAIMS technology and its application markets. |
| Industrial Personal Safety and productivity Agent with android application | 2013 | Developed a POC for Bluetooth enabled Gas Detectors connecting to Android Application which utilized existing Honeywell Portable Detectors. | Utilization of Ethermind Bluetooth stack.  Demonstrated to Cleo Cabuz, CTO, Honeywell Life Safety. |

**Academic Profile**

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| Ph.D – Communication System Design for Public Safety Systems in Broadband LTE Networks. | Expected 2014 | University of Petroleum & Energy Studies, Dehradun. |
| Functional Safety Engineering in HW and SW Design per IEC 61508 | 2009 | TUV Rhineland |
| B.E. – Electronics & Communication Engineering | 2005 | Thiagarajar College of Engineering, Madurai. |

Academic Projects

#### Communication System Design for Public Safety Communication Systems using Broadband LTE networks, (2012 – 2014 (expected))

Project work part of PhD in the area of Safety Management Systems from University of Petroleum and Energy Studies, under the guidance of Dr. Chinmaya Kar, Engineer Fellow, Honeywell and Dr. Nihal Siddiqui , Dean, School of HSE and Disaster Management , UPES.

#### FPGA Based Harmonic Control of 400-Hz 3-Phase Induction Motor Drives in Aerospace Applications, (2004 – 2005)

Under the guidance of Mr.Hiranya Bhatta and Dr. VSV Mani, Honeywell and Dr. S. Rajaram, TCE, to design a signal processing system for Harmonic noise reduction in IGBT motor drives.

Test automation and Digitization of Yarn Quality Testing instruments (2003) which used to provide paper-tape print outs to Computer Controlled Data Acquisition System and Software, under the guidance of Dr. K. Hariharan, for M/s Thiagarajar Mills, Madurai.

## Hobbies & Personal Interests

* Listening to Music especially Carnatic Classical Music.
* Reading Books on varied subjects in technology, business and mythology.