



Shyam Premkumar Shrivastava

A versatile professional with 18 years of experience in R&D, Conceptualization & Development of Microprocessor Products/Solutions, offering excellence in embedded systems, control systems, robotics, and mobile software development

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LOCATION PREFERENCE: Pune



CORE COMPETENCIES

Technical Project & Program Execution
Embedded Systems Architecture
Cross-Functional Engineering Leadership
Risk-Based Planning & DFMEA
Technology Roadmap & Platform Strategy
New Product Development (NPD Lifecycle)
Work Breakdown Structure (WBS) &
Milestone Governance
Client & Stakeholder Engagement
Requirements Engineering & System
Decomposition
Agile & Structured Development Models
Escalation Management & Technical
Decision Making



WEALTH OF EXPERTISE

Embedded & System Architecture

- SoC / MCU Firmware Development
- Bare-Metal & RTOS-Based Systems
- Embedded Linux (Yocto, Buildroot)
- Bootloaders & Secure Boot Architecture
- Device Driver Development
- Hardware Schematic Review & PCB Design Awareness

Connectivity & Communication

- RFID / NFC
- GPRS, BLE, GPS, Wi-Fi
- TCP/IP, HTTP, MQTT, UDP,
- UART, I2C, SPI, RS485, Ethernet
- Modbus, Zigbee, DigiMesh

UI & HMI Systems

- Custom LCDs (Segment, Graphical, OLED)
- EMWIN & GUI Builder

Memory & Hardware Interfaces

- SD Card, NOR Flash, NAND Flash, SDRAM, DDRAM
- Stepper & Servo Motor Control

Sensors

- Image Sensors: On Semi, Galaxy Core, Smart Sense
- ECG, SPO2, Skin Temperature
- Load Cells, Strain-Gauge, MEMS, Accelerometer, Thermocouples



EDUCATION

2005: Bachelor of Engineering (Electronics & Telecommunication) from RITEE, Raipur CG



PROFILE SUMMARY

Technical Project Lead with 18+ years of experience delivering embedded Linux, safety-critical, and security-focused systems across surveillance, fire protection, and medical domains. Currently leading a 12-member cross-functional engineering team at Honeywell, driving architecture, development, certification, and delivery of IP camera platforms, cost-optimized fire panels, and WiFi-enabled wearable health devices.

Expertise includes Embedded Linux (Yocto, Buildroot), secure boot architecture, TPM integration, H.264/H.265 video pipelines, ONVIF compliance, DFMEA-driven risk mitigation, and cybersecurity governance. Recognized as a decisive technical authority for architecture trade-offs and system-level decisions, with strong focus on delivery predictability, process maturity, and scalable platform design.

Actively seeking to transition into a formal Technical Engineering Manager role where I can scale engineering capability while continuing to contribute at the system architecture level.



TECHNICAL SKILLS

- Jira
- Confluence
- Accolade
- Microsoft Project
- Threat Modeling
- UML Diagrams
- MPLABX
- STM32CUBEMX
- Arduino
- AVR Studio
- Github Enterprise
- Gitlab
- Sonarqube
- Black Duck Scan
- Keil
- IAR Embedded Workbench
- VS- Code
- Platform IO
- Kleopatra
- ESP-IDE



CAREER TIMELINE



WORK EXPERIENCE

Since Feb'24: Honeywell, Pune as Project Lead – Fire, Security and Access

- Lead 12-member cross-functional engineering team delivering safety-critical and surveillance platforms.
- Define scalable system architecture (Hardware + Firmware + Linux BSP) using Yocto and Buildroot enabling platform reuse.
- Drive H.264/H.265 video integration and ONVIF interoperability compliance for enterprise IP camera platforms.
- Architect and implement secure boot chain (ROM → Bootloader → Kernel → RootFS) with TPM-based device hardening.
- Lead STQC and BIS certification lifecycle with zero critical audit rejections.
- Conduct DFMEA and structured risk mitigation improving early-stage defect detection by ~25%.
- Contributed to cost-optimized fire panel architecture achieving ~10–15% BOM reduction.
- Designed WiFi-enabled rechargeable wearable monitoring device with ~20% improved power efficiency.
- Reduced vulnerability remediation cycle time by ~35% through structured cybersecurity workflows.
- Drive milestone governance achieving >95% schedule adherence across programs.
- Own performance evaluations for 6 engineers and mentor subsystem leads.

Apr'16 – JAN'24 : SAI Agrotel, Pune as Manager Technical

Key Result Areas:

- Gathering & understanding client requirements of customer and devising project plans with proper timeline and deliverables
- Training and mentoring multiple teams to acquire new skills required for successful and timely completion of projects
- Working with a team of Firmware Developers and Hardware Designers to complete development of devices to be used for Plant Automation in Rock Quarry and Mining Industry.
- Worked very closely with customers from various regions in the world and established strong customer relationships
- Collaborated with internal Field Application Engineers (FAE) and Sales Teams to resolve product sales issues and address urgent technical issues reported by customers
- Steered the complete application development cycle from creation of Statement of Work (SOW) to post-delivery support of the product/project
- Anticipated and developed a number of product ideas which became market relevant 12 months down the line
- Delivered many Product Services Projects where new features based on customer requirements were added to base layer products
- Put strong emphasis on quality and stability improvements to the product; led a dedicated team of engineers whose main focus was on improving product stability
- Ensured systematic tracking of issues through a Bug Tracking System
- Developed system specifications based on customer interview data, competitor datasheet benchmarking, competitor benchmark testing, and inputs from internal experts
- Formulated a project schedule based on time estimates of Work Breakdown Structure (WBS) tasks; maintained & revised the Gantt chart as required over the course of the project
- Participated in monthly technical reviews on project status and technical issues with Engineering Directors and the VP of Technology
- Presented quarterly program progress reviews to executive leadership; reports included status on budget and schedule variance as well as compliance to requirements
- Allocated merit increases within the annual merit budget of the group based on individual performance
- Directed the development of the technology roadmap for the division by identifying desired future products, technology and Internet Protocol (IP) required to develop those products
- Administered business planning & analysis for assessment of revenue potential, identified target prospectus, audiences in the prospective markets and implemented marketing strategies to achieve targeted business volumes
- Led a global team of 7 software, electrical, and mechanical engineers through the corporate stage-gate new product development process from conceptualization to product release, utilizing methods prescribed by Design for Six Sigma (DFSS)
- Developed global accounts and engagements in the Industrial Engineering, Consumer Goods and High Tech sectors

PREVIOUS EXPERIENCE

Aug'12-Apr'16: Precise Technology, Pune as Senior Design Engineer

May'08- Jul'12: NESD Labs/ Nexus Embedded, Pune as R&D Engineer

Mar'07-Apr'08: Transworld- Compressor Technologies, Pune as R&D Engineer



PERSONAL DETAILS

Date of Birth: 10th August 1983

Languages Known: English, Hindi

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Kindly refer Annexure for Project Details

ANNEXURE

Project : Indigenous IP Camera Platform – Enterprise Surveillance

Feb 2025 – March 26

- Led development of in-house Linux-based IP Camera platform for regulated deployments
- Architected secure boot and TPM-based device hardening
- Integrated H.264/H.265 encoding and ONVIF interoperability
- Customized Linux BSP (Yocto/Buildroot) and driver stack
- Implemented Edge AI analytics and secure firmware upgrade mechanism
- Drove STQC & BIS certification with zero critical rejections
- Conducted DFMEA-based risk mitigation improving early defect detection
- Reduced escalation dependency via structured subsystem ownership
- Novatek SoC , On-Semi Image Sensor, Macronix Nand Flash

Project : VECE Activity – Fire Panel (Cost Optimization Initiative)

Feb 2024 - Sep 2024

- Analyzed hardware and firmware architecture to identify cost-reduction opportunities without compromising safety compliance
- Conducted component-level BOM optimization achieving ~10–15% cost improvement
- Performed DFMEA-driven risk analysis to ensure safety-critical integrity was preserved
- Reviewed schematic and firmware interactions to remove redundant design blocks
- Balanced cost optimization with certification constraints and reliability requirements
- Supported validation planning to ensure compliance with regulatory fire safety standards
- STM32 MCU , Xpedition Suite by Mentor Graphics

Project: Wearable Smart Patch – WiFi-Enabled Vitals Monitoring Device

Sep 2024 - till date

- Architected MCU-based firmware integrating ECG, SpO2, heart rate, and temperature sensors
- Designed secure WiFi data synchronization framework for cloud-based monitoring
- Implemented power-optimized firmware improving battery life and recharge cycles
- Integrated wireless communication stack (TCP/IP, MQTT) for reliable remote monitoring
- Ensured secure data transmission for sensitive health information
- Conducted system-level risk analysis and structured validation planning
- Led cross-functional coordination across hardware, firmware, and validation teams
- Nordic Semiconductor, Espressif ESP32-S3 , ESP-IDF , Analog Devices Bio Sensor Hub

STQC & BIS Certification – Security Camera Portfolio

July 2025 – Till Date

- Coordinated end-to-end STQC and BIS certification process for IP camera platforms
- Ensured cybersecurity compliance including secure boot validation and vulnerability remediation
- Prepared structured documentation for regulatory audits and lab evaluations
- Collaborated with QA and lab partners to resolve compliance observations
- Implemented internal certification-readiness framework reducing audit preparation effort
- Aligned firmware security posture with government cybersecurity guidelines
- SoC : Novatek . Innofusion , Ambrella ,
- Image Sensor: Galaxy core , Smartsense , On-Semi

Some other Notable Projects:

Project: Baby Scale

Cardinal Detecto (USA)

May 2023 to Dec 2023

Temperature compensated Weighing Machine.

Low weight range high precision machine.

Welch Allyn USB Interface for Medical Devices.

Project: 825 Programmable Scale

Cardinal Detecto (USA)

Mar 2023 to Dec 2023

iMx.8 Fedora Yocto 10 Inch LCD Multiple Scale configuration PHP 8 , Apache

Embedded C++, Wayland Architecture.

Project: Med Vue

Cardinal Detecto (USA)

DETECTO's MedVue® medical weight analyzer is utilized on select clinical scales, including DETECTO's wheelchair, bariatric, and stretcher scales. The MedVue® features a vivid 3.5-in-wide by 3-in-high backlit LCD display screen with nearly 1-in-high weight digit readouts for easy visibility. The MedVue's 350-degree swivel mounting bracket allows the display to be tilted and rotated into position wherever it is the most convenient for the medical professional and/or patient to view. A host of other benefits include units locking into kilograms or pounds, 14-digit patient ID which may be entered via the alphanumeric keypad, 99 stored tare weights, 200 stored transactions, 1LOOK display, four different languages available in set-up (English, Spanish, French, and German), and Wi-Fi/Bluetooth models are available with up to 150 ft. wireless range. The MedVue® offers a host of both wired and optional wireless connectivity for sending measurement data to multiple devices all at once.

Project: 195/225 -Navigator

Cardinal Detecto (USA)

Jul 2022 to Jan 2024

STM32 MCU , ESP32 Bootloader , FOTA, Graphical LCD With an optional dual scale input board, up to 3 scales with total weights can be viewed simultaneously. Standard features include IP66 washdown stainless steel enclosure, 4 bi-directional RS232 serial ports, USB-B port, QWERTY keypad, 4 soft keys, 13 function keys, navigation keys, 16 Preset Weight Comparators (PWCs), 8 input control lines, 16 output control lines, piece count, batching, electronic tally roll, and 200 ID database for truck storage. NTEP legal-for-trade and OIML certified. Supports up to 14 350-ohm load cells. C++ , FreeRTOS

Project: Medical Cart

Cardinal Detecto scales USA

May 2021 to Jan 2024

ATSAM7 main processor , ESP32 Co processor. Journaling File System. Touch Screen, LCD , Microchip Harmony V3. Synchronizing Data and Audit Trails/records over a remote server. Alarms for unauthorized Access. Battery Critical Operations. Deep Sleep and multiple Wakeup sources. FOTA Bootloader

Project: Mosaic Controller

Haven Lightings USA

Feb 2020 to Apr 2021

STM32 ESP32 based Light(Led based)Controller. Offline +Online mode. Event Driven , Secure communication , Azure IOT Hub

Embedded Web Server

Project: Haven Light Controls (2020)

Haven Lightings USA

Built around STM32 and ESP32 MCU's , this device is designed to control ambience and Scenes using high quality LED's over a Secure Azure Network

Project: Plant Connect Module (2018)

The device is used to provide a superior controller Interface to the earlier developed Integrator module; The device connects to a server and uploads necessary data required by polling from the Integrator devices

Involved: USB2.0 USB MSD, ETHERNET, 4G modem, SNTP, MQTT Secure, SEGGER EMWIN GUI TOOLS KEIL 5, CMSIS RTOS, Controller: LPC1788

Project : Beltscale Integrator (2017)

The device used to monitor weight /rate control of materials transferred over Conveyor belts in Mining Areas. It also provides the facility of blending control when devices are connected in Master-Slave configuration

Involved: Modbus, Ethernet, SNTP, and HTTP. TCP, SPI UART, NOR FLASH, USB2.0 MSD, EMWIN GUI BUILDER , RTX RTOS, ADC Data acquisition, PID control system , PLC Interface