PAVITH VISHNU S

Embedded IoT Specialist

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Summary

Dynamic and results-driven **Embedded IoT Developer** with a Master's degree in Electronics and Communication Systems. Proven expertise in **embedded systems, IoT product development, protocol stack integration, DevOps pipelines, and edge-to-cloud architecture**. Experienced in **Linux kernel-based service isolation, container-less runtimes, and board bring-up activities** for custom hardware. Skilled in **system design, performance optimization, and cost reduction** for large-scale IoT deployments. Passionate about building secure, scalable, and efficient IoT/Edge solutions to accelerate organizational growth and innovation.

Experience

TinkerBlox Technology Pvt. Ltd
Principal Engineer

Coimbatore
10/2023 - Present

A technology company focusing on embedded and edge solutions

- Increased efficiency by {30%} by leading and designing development of a runtime alternative Docker/podman for embedded and edge devices.
- Increased security by implementing service isolation using Linux namespaces, cgroups, and netlink.
- Designed tooling for service lifecycle management and automation.
- Built custom Linux distributions with Yocto for ARM-based architectures.
- Contributed to solution engineering and system architecture design for edge deployments.
- Integrated Azure DevOps with Event Grid and CI/CD pipelines for streamlined delivery.

HCLTech
Member Technical Staff

Coimbatore
09/2021 - 09/2023

A leading global technology company

- Served as an IoT Edge Network Specialist focusing on IIoT sensor-based product development
- Integrated protocol stacks: MQTT, LoRaWAN, Kafka, BLE on ESP32 devices (ESP-IDF)
- Developed bootloaders for custom hardware leveraging Zephyr RTOS
- Led board bring-up and hardware validation for NXP i.MX-based automotive platforms using the Yocto Project
- Built end-to-end IoT pipelines from edge devices to cloud using the Eclipse IoT stack (Mosquitto, Hono, Ditto, Kanto)
- Delivered 90% performance optimization and 90% cost reduction in smart energy meter cloud integration workflows
- Hands-on with embedded systems, RTOS (Zephyr, FreeRTOS), Yocto builds, cloud integration, and edge computing

Duplex Healthcare (Australia)
Freelancer – Embedded & IoT Developer

Remote
12/2020 - 03/2021

A healthcare technology company focused on IoT solutions

- Integrated sensors with Heltec LoRa boards and implemented data calibration and AWS IoT Core integration.
- Expanded LoRaWAN coverage and enabled TTN integration for healthcare IoT solutions.
- Trained interns on embedded build systems and IoT workflows.

TBI @ KEC
Incubate Entrepreneur

Coimbatore
03/2019 - 02/2021

An innovation and incubation center

- Enhanced wildlife preservation efforts, reducing animal distress incidents by {90%} by developing real-time monitoring systems.
- Conducted customer validation and prototype deployments across multiple field sites.
- Applied LoRaWAN and TensorFlow transfer learning for classification-based monitoring.

Forge
Fellow (Launchpad Program)

Coimbatore
08/2018 - 02/2019

A program supporting startups and innovation

- Explored emerging technologies to build rapid PoC prototypes
- Conducted field surveys and user research for product validation
- Deployed prototypes for data collection and IoT experimentation

Key Achievements

Container-less Runtime
Developed lightweight container-less runtime improving performance by 30% using Linux kernel features.

Performance Optimization
Achieved 90% performance boost and cost cut in smart energy meter cloud workflows

Skills

Programming & Development: Embedded C, Python, Rust, Multithreaded Programming, System-Level Development

IoT Protocols & Messaging: MQTT, BLE, Wi-Fi, LoRaWAN, Kafka, Message Queues, Device-to-Cloud Communication

Embedded Systems & RTOS: Yocto Project, Zephyr RTOS, FreeRTOS, ESP-IDF, Bootloader Development, Board Bring-Up

Networking & Virtualization: Namespaces, Cgroups, Netlink, Secure Service Isolation, Edge Networking

Architecture & System Design: Solution Architecture, Edge-to-Cloud Integration, Data Flow, Scalable IoT Stack

Cloud & DevOps: Azure IoT Hub, AWS IoT Core, Eclipse IoT Stack, Docker, Podman, Azure Pipelines

Education

Sri Ramakrishna College of Arts and Science
Master of Science │ Electronics and Communication Systems │ 85.91%

Coimbatore
06/2018 - 05/2020

KG College of Arts and Science
Bachelor of Science │ Electronics and Communication Systems │ 69.66%

Coimbatore
06/2015 - 05/2018