

HYRIB ANISTUS GNANARETNAM

Personal info

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- Chundikuli, Jaffna,
Sri Lanka.

Links

- /Anistus-H
- /anistus-h

Skills

- Python, JavaScript, C, C++, Java, Bash, Dart, VHDL
- Node.js, Express, Next.js, React, PostgreSQL, MySQL, MongoDB, Redis
- AWS, Docker, Jenkins, Terraform
- STM32, ESP32, MSP430, Onsemi, Arduino
- MQTT, GSM, LoRa, BLE, RTOS
- Linux, Windows, Mac
- Git, CMake, EagleCAD

Languages

- Tamil (Native)
- English (Fluent)

WORK EXPERIENCE

Freelance Software Engineer

Full-time, Independent Contractor

JAN 2023 – PRESENT

- Developed and deployed responsive web applications using Next.js, React, and Node.js, focusing on performance optimization and SEO best practices.
- Built a multi-platform inventory management system using the PERN stack, integrating with platforms like WordPress, Daraz, and Shopify, improving inventory tracking efficiency by 40%.
- Deployed and maintained a full-stack food delivery application with real-time order tracking and payment integration.
- Implemented CI/CD pipelines using Jenkins and Docker, reducing deployment time by 60%.
- Managed AWS infrastructure including EC2, S3, RDS, and Lambda, ensuring 99.9% uptime for client applications.
- Automated infrastructure provisioning using Terraform and AWS CloudFormation, streamlining deployments.

SenzMate IoT Intelligence Solutions

Full-time, Embedded System Engineer

JAN 2023 – Nov 2023

- Architected and developed an STM32-based FOTA bootloader over HTTP, reducing deployment and update time by half.
- Developed and deployed an MQTT library for 100+ STM32-based devices, with support for 2G and 3G GSM modules.
- Implemented critical features in a LoRa remote control device to resolve continuous transmission and power reset related issues.
- Developed and deployed an MQTT, LoRa based gateway and peripherals system for monitoring cold storage in a supermarket.
- Designed a prototype master-slave system to monitor and control hydroponics environment via MQTT and LoRa.
- Developed a sleep bud prototype to play audio from external flash memory, with BLE and UART for audio data transfer.

SenzMate IoT Intelligence Solutions

Full-time, Embedded System Engineer Intern

SEP 2021 – MAR 2022

- Developed a prototype driving behavior detection system for cars using IMU, BLE and decision tree algorithm to identify harsh driving.
- Added persistent storage capability to an environmental sensor device based on MQTT to manage power failures and signal drops.
- Implemented timestamp functionality in an MQTT-based environmental sensor device using RTC in GSM module for accurate data mapping.

EDUCATION

BSc Engineering (Hons) in Electrical & Electronic Engineering

Sri Lanka Institute of Information Technology

Feb 2019 – Mar 2023

Cumulative GPA: 3.63

TECHNICAL EXPERTISE

- Cloud Computing & AWS Services – EC2, S3, Lambda, IAM, VPC
- CI/CD Pipelines – Jenkins, GitHub Actions, GitLab CI/CD
- Infrastructure as Code (IaC) – Terraform, AWS CloudFormation (CFN)
- Containerization – Docker
- Wireless Communication & IoT – LoRa, BLE, Wi-Fi, MQTT
- Embedded Systems Architecture & Design
- Firmware Development & Optimization

Soft Skills

- Team Leadership
- Communication
- Project Management
- Time Management

Hobbies

- Photography
- Gaming

PROJECTS

Multi-Platform Inventory Management System

FREELANCE PROJECT

[POSTGRESQL, EXPRESS, REACT, NODE.JS, RESTFUL APIs]

- Developed a comprehensive web app using PERN stack to centralize inventory management across multiple e-commerce platforms
- Implemented secure authentication, role-based access control, and automated periodic data synchronization

Real-time GPS Tracking System

FREELANCE PROJECT

[ESP32, GSM, MQTT, FLUTTER]

- Designed and developed an ESP32 and GSM-based device for continuous location tracking with MQTT server integration
- Created a Flutter mobile application for real-time device location monitoring and tracking history

Cloud-Based Smart Hydroponic System Controller

SENZMATE (PVT) LTD | ASSOCIATE EMBEDDED SYSTEM ENGINEER

[STM32, GSM, LoRa, MQTT]

- Developed an STM32-based controller system integrated with GSM and LoRa modules for remote monitoring and control of hydroponic systems
- Implemented automated monitoring and control algorithms to maintain optimal pH, EC, and temperature levels

Smart Irrigation System with Advanced Soil Sensors

SENZMATE (PVT) LTD | INTERNSHIP

[STM32, GSM, MQTT, FLASH MEMORY]

- Designed an STM32-based system integrating multiple soil sensors for monitoring moisture, pH, EC, and temperature
- Implemented data logging to flash memory and periodic cloud synchronization via MQTT over GSM

Driver Behavior Analysis System

SENZMATE (PVT) LTD | INTERNSHIP

[STM32, IMU, PATTERN RECOGNITION]

- Created an STM32 and IMU-based system to detect and analyze driving patterns including hard acceleration, braking, and cornering
- Implemented pattern recognition algorithms to enhance driver safety and reduce vehicle maintenance costs

Ambulatory Blood Pressure Estimation System

SLIIT | FINAL YEAR PROJECT

[ESP32, BLE, FLUTTER, DEEP LEARNING]

- Engineered a device for capturing ECG and PPG measurements with BLE transmission to a mobile application
- Developed a deep learning model for blood pressure estimation using processed ECG and PPG signals

IoT-based Bus Pass System

SLIIT | THIRD YEAR PROJECT

[ESP32, RFID, MQTT, TFT DISPLAY]

- Developed an ESP32-based RFID card reader system with real-time server communication via MQTT
- Implemented a TFT display interface for showing transaction status and user information

Smart Home Control System

PERSONAL PROJECT

[ARDUINO, BLUETOOTH, MOTION SENSORS]

- Developed a Bluetooth-enabled home automation system to control lighting, fans, and door security.