Embedded Software Engineer

Sendupriyan K

Innovative problem-solver with a passion for engineering excellence and precision.

Education

B.Sc in EEE at SEUSL — Jan 2020 – Dec 2024

Google IT Automation with Python Professional Certificate – Coursera
The Bits and Bytes of Computer Networking – Coursera
Machine Learning Specialization (certificate) – Coursera
Fundamentals of Robotics & Industrial Automation – Coursera
Web-based application development – SUSL

Projects

Next Generation Wireless Air Mouse Ring (GitHub)

- A W**earable air mouse ring** has been enhanced for hands-free computer interaction.
- Implemented **motion sensing and gesture recognition** using **TensorFlow Lite** and **Edge Impulse**.
- Programmed in **Embedded C** on the **Seeed nRF52840 BLE Sense** board.
- Utilized **Bluetooth Low Energy (BLE)** for secure and efficient wireless communication.
- Applied **real-time data processing and edge AI** for seamless **human-computer interaction (HCI)**.
- Ensured **low-latency connectivity**, optimizing system performance for **reliable user input**.

Hybrid Course Recommendation System (Journal Publication)

- A real-time recommendation system has been improved by integrating with **Natural Language Processing** (NLP) and **Machine Learning** (ML).
- A well-designed hybrid filtering model that combines **content-based** and **collaborative filtering** for improved accuracy.
- A real-time data processing technique, holding **K-Nearest Neighbor** (KNN) and **TF-IDF vectorization** for personalized recommendations.
- **Streamlit** used to build a **web-based user interface** to ensure seamless user interaction and **real-time course suggestions**.
- This highly effective system achieved **87% relevance score** in user feedback in dynamic decision-making.

Contact

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Hard Skills

Circuit designing: Altium, KiCad, Proteus

Languages: Embedded C, C++, Python

Microcontrollers: ESP32, nRF52840, STM32, PIC

RTOS: FreeRTOS, Zephyr

Protocols: I2C, SPI, UART, CAN, BLE

Embedded Tools: Keil µVision, Visual Studio

Debugging: JTAG, Oscilloscope

AI in Embedded: TensorFlow Lite, Edge Impulse

Binary Type Wrist Watch – Freelancing Project

- A binary wrist watch system was developed for a freelancing project based on customer requirements.
- Designed a customized ESP32 microcontroller board and WS2812b model neopixel to fit in a watch structure.
- ESP32's in-build Wi-Fi feature has been used to host a web server in ESP32 in order to achieve real time customization of watch.
- Neopixel model LED offered the precise control over LED color and other visual effects.

Experience

Instructor — Dec 2024 – Present

Currently I am working as an instructor, at the Department of Computer Science and Engineering, SEUSL teaching **Computer Networks, Embedded Systems** and Programming Languages (**Python, C++, MATLAB, HTML, MySQL and CSS**). The job includes delivering effective lectures, handling practical sessions, mentoring students, and encouraging hands-on learning (**Cisco Catalyst switches, Routers** and **Packet Tracer**) to develop their technical and programming skills.

MEP Engineering Intern — Oct 2023 – Dec 2023

Assisted in fire alarm installation, inspection, and fire protection system design at DIMO, applying electrical codes and standards in the **'Cinnamon Life City of Dreams'** project.

Telecommunication Engineering Intern — Sep 2022 – Nov 2022

Gained hands-on experience with fiber and copper networking components and protocols at **'Havelock Town OPMC'**, working across the connection, fault correction, and planning teams.

Referees

Can be provided upon request.

Soft Skills

Incident Response & Troubleshooting

Network Security Awareness

System Reliability & Maintenance

Time Management

Critical Thinking

Adaptability

Problem-Solving

Strong Analytical Skill

Fast Learning

Detail oriented writing

Team player and lead