ANSHAJ MALHOTRA

EMBEDDED SOFTWARE ENGINEER

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PROFESSIONAL OVERVIEW

Embedded Systems Developer with expertise in C/C++, FreeRTOS, and microcontroller platforms like ESP32 and nRF52. Experienced in firmware design, BLE communication, and backend integration using Golang and AWS. Proven track record of delivering IoT solutions across global client projects.

WORK EXPERIENCE

IOT Firmware and Backend Intern

Heximpact, LLP, India | 2024, July

- Developed and optimized sensor data handlers, achieving a 20% increase in processing efficiency for Senstra's real-time monitoring systems.
- Enhanced system reliability by improving the Heartbeat API, implementing pagination, and integrating AWS traffic mirroring and control mechanisms.
- Collaborated on Eicher's modern ECU project with geothermal positioning; gained hands-on experience with FreeRTOS, ESP32, Espressif framework, Golang, and PostgreSQL.

Firmware Developer Intern

Trackonomy, India | 2024, January

- Optimized firmware for a patented IoT device by refining timer functions and enabling hibernation mode on the nRF52810 microcontroller, improving power efficiency.
- Conducted rigorous grey-box testing, optimized BLE sniffer modules using J-Link and Segger tools, and validated battery consumption with OTII Arc power analyzer.
- gained hands-on experience on BLE , Bash Scripting , Linux and Git .
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International SAT Math's tutor

Remote | 2021-2024

- Taught Mathematics and SAT Math to 25+ students from grades 6–12 across the USA, Singapore, and Australia through personalized 1:1 online sessions.
- Recognized as the youngest tutor on both platforms and promoted based on student performance and feedback.

EDUCATION

Master's degree
Hochschule Wismar, M.E-Electrical and Informational Technology
2025

Bachelor`s Degree
SGSITS, India, B.Tech -Electronics and Instrumentation
2019-2023

TECH SKILLS

Programming Languages:
C, C++, Python, Linux GoLang, Bash, SQL

Embedded Platforms & Tools:
ESP32, nRF52810, STM32, FreeRTOS, ESP-IDF, J-Link, Segger, OTII Arc

Communication Protocols:
BLE, UART, SPI, I2C, CAN

Software & Simulation:
MATLAB, Simulink, SolidWorks, ANSYS

Cloud & DevOps:
AWS (basic), Docker, Git, GitLab CI/CD, Kubernetes (introductory)

Database & Backend:
PostgreSQL, MySQL, REST APIs, JSON

PCB Design:
KiCad , SPICE

Other Tools:
Postman, VS Code, OTII Analyzer, Arduino IDE

PROJECTS

IOT-Based Fuel Cell Monitoring System with Custom PCB

- Designed a 2-layer PCB in KiCad using ESP32-S3, LTC2368 ADC, and ADuM4150 isolator for real-time fuel cell data acquisition.
- Enhanced Implemented wireless data transmission via ESP32-S3, enabling live monitoring of voltage and current parameters over Wi-Fi.

ZHHOOP – Campus Bikepooling App

- Proposed and pitched a student bike pooling app, awarded a startup grant by AICTE.
- Secured **4th place** in the E-Summit for Best Financial Plan and Pitch.
- Led user research, UI/UX planning, and mock app flow presentation to panelists.

Efficycle- Hybrid Electric Motored Vehicle

- Led the transmission subsystem and designed the complete CAD and CAE model of the drivetrain using SolidWorks for a hybrid human-electric vehicle.
- Secured **All-India Rank 5** and won the **Best Project Plan Award** among 100+ national teams in the SAE Efficycle 2019–2020 competition.

Image Recognition with MATLAB-Python Coupling

- Developed an image classification model using the CIFAR-10 dataset in Python (TensorFlow).
- Integrated MATLAB to simulate, visualize, and automate the classification process.
- Focused on cross-environment coupling and automation in embedded imaging applications.

PERSONAL DETAILS

- Full Name: Anshaj Malhotra
- Date of Birth: 19 September 2001
- Nationality: Indian
- Languages: English (C1), German (A2 – B1 in progress), Hindi (Native)
- Current Location: Wismar, Germany
- Work Authorization: Eligible to work in Germany
- Interests: Badminton, Fitness, Embedded Technology, Tech Community Events

CERTIFICATIONS

- Arduino Robotics Workshop – Robotronix India (120+ participants)
- Cisco- Linux Basic Essentials
- Software Engineering Virtual Experience – JP Morgan Chase & Co (Forage)
- Web Application Development using PHP and MySQL
- Web Development with CodeIgniter 4 – Project-based certification
- Graphic Design – Coursera
- Video Editing – Udemy
- UCMAS National Merit Prize – Abacus Mental Math (2010)

PERSONAL ACHIEVEMENTS

- 1st Place – 25th Mesmeroder Smoof Cup 2025 (Men's Doubles)
  Represented Hochschule Wismar in a nationwide badminton tournament in Germany.

- 1st Place – 16th Pasewalker Badminton Tournament 2025 (Men's Doubles)
  Secured top position in regional-level competition with official certification and prize.