

KHADER AFEEZ

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SUMMARY

Results-driven Embedded Systems Engineer with hands-on experience in firmware development, PCB design, and hardware-software integration. Led state-recognized HelioJal desalination system and multiple award-winning projects in automation and robotics. Skilled in developing embedded solutions with microcontrollers and test-driven validation. Eager to contribute expertise in embedded firmware, PCB design, and hardware-software integration to develop innovative robotics and IoT solutions.

WORK EXPERIENCE

Embedded Systems Lead | Drift Pure Innovation Pvt. Ltd | Nov 2024 – Present | Mangalore, India

- Led end-to-end development of HelioJal, a solar-powered desalination system producing 10+ liters/day of potable water, recognized among the **Top 20 innovations in Karnataka's water sector for a sustainable design**.
- Designed and implemented embedded firmware (C/C++) for system automation while **mentoring junior engineers in PCB design** and embedded programming.
- Conducted circuit analysis, hardware interfacing, and debugging using oscilloscopes, logic analyzers, and multimeters, ensuring efficient and reliable performance.

PCB Design Intern | Invihub Technosolutions Pvt. Ltd | Aug 2023 - Sep 2023 | Mangalore, India

- Designed and tested multi-layer PCBs in KiCad, integrating sensors and microcontrollers for IoT applications.
- Conducted circuit simulation workshops for **35+ participants** and collaborated with engineers to improve embedded system architectures and hardware design.

SKILLS

- Electronics & Hardware Design:** Circuit Design, Hardware Design, Circuit Analysis, Interfacing, PCB Layout & Design (KiCad), Electronic Components, Sensors & Actuators.
- Microcontrollers & Processors:** 8-bit, 16-bit, 32-bit Microcontrollers (Arduino, ESP32, ARM Cortex, STM32), Microprocessors, Digital Signal Processors (DSP).
- Embedded Firmware Development:** C, C++, Assembly, Embedded Firmware, RTOS (FreeRTOS, Embedded Linux).
- Programming & Tools:** C, C++, Assembly, MATLAB, Python (Test Automation), Arduino IDE, STM32CubeIDE, VS Code, Git, GitHub (Version Control Systems).
- Debugging & Testing:** Oscilloscope, Logic Analyzer, Multimeter, Debugging Tools, Test Plans & Validation.
- Communication Protocols:** UART, SPI, I2C, CAN, Ethernet, Bluetooth, USB, LoRa.
- Soft Skills:** Technical Leadership, Training & Mentorship, Problem-Solving & Analytical Skills, Communication (Written & Verbal), Independent & Team Collaboration.

EDUCATION

Bachelor of Engineering in Electronics and Communication | Yenepoya Institute of Technology | 2020 – 2024

- Relevant Coursework:** Embedded Systems, Digital Signal Processing, VLSI Design, Wireless Communication, Microwave Engineering, Analog & Digital Circuits.

PROJECTS

YEN-VISION – Assistive Technology for ASD | Research Project | 2024

- Won 1st Place** (Yen Manthan) + **KSTCST sponsorship** for Raspberry Pi system helping children with Autism improve emotional recognition
- Built a **3-level hardware system** integrating RFID and facial analysis with microcontroller-based personalized assessment tools
- Published a research paper in IJRAR (**Paper ID: IJRAR1DSP012**) on smart interactive device development for ASD students

ARECA – Automated Pesticide Sprayer | Technical Lead 2024

- Secured a **₹1.25L grant** and built an ESP32-controlled, image-processing robot that reduces pesticide use by **40%** and labor costs by **60%** through targeted application.

SELF-BALANCING BOT | TECHNICAL LEAD | 2024

- Developed a self-balancing robot using **MPU-6050** sensors and DC motors, implementing **PID control** for real-time stability.