ALI HASSAN

Electrical Engineer

Electrical Engineer with expertise in embedded systems, automation, and control systems, proficient in C/C++, Python, and MATLAB. Skilled in microcontroller programming (STM32, ESP32, nRF, PIC,) and real-time applications using FreeRTOS. Experienced in designing and implementing projects, including a Robotic Arm-Based Skin Tumor Detection System using computer vision. Strong analytical and problem-solving skills with a focus on delivering innovative and efficient engineering solutions.

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SKILLS

Digital & Analog Electronics	Embedded Systems	STM32	Hardware Design
Circuit Design & Analysis	C/C++	ESP32	PCB Design
EEG	Python	nRF	Altium Designer
BLC & BLE	MATLAB/Simulink	IoT	SolidWorks Electrical
Problem Solving	Critical Thinking	Adaptability	Communication

WORK EXPERIENCE

Embedded System Engineer

Niura

03/2025 - Present

- Designed and developed embedded systems leveraging nRF series, ESP32, and STM32, utilizing Zephyr RTOS and FreeRTOS for real-time applications.
- Worked on EEG data acquisition using ADS1299, integrating it into wireless earbuds for real-time bio-signal processing.
- Implemented BLE, BLC, Wi-Fi, and other wireless communication protocols for IoT applications.
- Wrote optimized firmware in C/C++, integrating UART, SPI, I2C, and DMA for efficient hardware interaction.
- Debugged and optimized embedded systems for performance, reliability, and low-power applications.

Embedded System Engineer

Revive Medical Technologies

08/2024 - 03/2025

- Programmed embedded systems for medical devices, focusing on enhancing functionality, safety, and compliance with industry standards.
- Developed firmware for microcontrollers, including PIC, STM32, and NRF controllers, using C/C++ to ensure precise control and reliable operation of medical equipment.
- Implemented communication protocols, including UART, SPI, I2C, and IoT-based connectivity solutions, to facilitate effective data exchange between device components.
- Integrated hardware components such as sensors, actuators, and communication modules into medical devices, ensuring seamless operation, compatibility, and IoT-enabled remote monitoring.

Electrical Engineer Intern

Pakistan Aeronautical Complex

07/2023 - 08/2023

- Collaborated with teams to troubleshoot & resolve complex technical issues, showcasing strong problem solving skills.
- Earned positive feedback from supervisors for outstanding performance and significant contributions to projects.
- Acquired practical knowledge of engineering principles through hands-on experience and real-world projects.

Electrical Engineer Intern

Oil & Gas Development Company

08/2022 - 09/2022

- Assisted in the analysis and optimization of engineering processes, enhancing operational efficiency.
- Conducted detailed technical evaluations and presented findings to senior engineers, contributing to project improvements.
- Utilized industry-standard software tools for data analysis and project management, developing proficiency in relevant technologies.

EDUCATION

Bachelor of Science in Electrical Engineering

COMSATS University Islamabad

08/2020 - 8/2024

F.Sc Pre-Engineering

Punjab Group of Colleges

07/2018 - 07/2020

PROJECTS

Student Management System Using C++

- Developed a data management application to handle student records efficiently.
- Object-Oriented Programming (OOP), File Handling, Data Structures, Algorithm Development.

Catheter Trackability Testing Machine

- Integrated and calibrated a Futek load cell with the system for accurate force measurement.
- Calibrated and controlled a stepper motor to achieve precise speed and distance for testing procedures.
- Microcontroller Programming, Sensor Integration, Motor Control,Futek Load Cell Callibration, Embedded C.

IoT Base Pick & Place Robotic Arm

- Implemented an IoT-enabled robotic arm for remote operation and automated object handling.
- esp32, IoT Integration, Robotics, Automation, Sensor Interfacing.

Disposible Real Time Pressure Monitoring Device

- Engineered a low-cost medical device for real-time pressure monitoring to ensure accurate data collection.
- STM32, Arduino, Embedded Systems Design, Real-Time Data Acquisition, Sensor Calibration, PCB Design.

Flexural Testing Machine

- Developed a mechanical testing system for material strength analysis with automated data recording.
- STM32, Real Time Operating System(RTOS), Control Systems, Embedded Programming, Web App Intigration.

Robotic Arm Based Skin Tumor Detection and Intervention Using Computer Vision

- Designed a robotic system using computer vision for automated skin tumor detection and intervention procedures.
- Raspberry Pi, Python, Computer Vision, Image Processing, Robotics, Machine Learning Algorithms.

LANGUAGES

Urdu

Native or Bilingual Proficiency

English

Full Professional Proficiency

REFERENCES

References will be provided upon request.