Haroon Raza

Electrical Engineer (Computer)

Ph: +923311411160 | **e-mail**: haroonraza63@gmail.com | **Add**: Hostel City Chattah Bakhtawar Islamabad

Skills

- **Technical Skills**: Circuit Design, PCB Design, Python, C, C++, MATLAB, Proteus, OrCAD, Altium, Arduino, IoT, AI, DevOps
- **Analytical Skills**: Data Analysis
- **Communication Skills**: Cross-functional Collaboration, Technical Writing
- **Leadership Skills**: Team Leadership, Strategic Planning
- **Languages**: English (Full Professional), Urdu (Native or Bilingual), Punjabi (Native or Bilingual)

Education

COMSATS University Islamabad

September 2021 – continued (expected July 2025)

Bachelor of Science, Electrical Engineering

- Gained circuit design skills and mastered core electrical engineering concepts, including DLD, Control Systems, Electrical Measuring & Instrumentation, Programming Fundamentals, OOP, and Microprocessor System Interfacing. These courses equipped me with the ability to design and analyze electrical systems, troubleshoot issues, and apply programming skills in engineering contexts.
- Developed teamwork experience and organizational skills by volunteering with IEEE CS CUI and IEEE RAS CUI, and organizing the PSYWSC'23, a prestigious IEEE's event.
- Enhanced coding skills and problem-solving abilities by participating in challenges like the 30 Days of Code – Leetcode challenge organized by GDSC.

Punjab College of Commerce

2018 - 2020

Intermediate, Pre-Engineering

Dar-e-Arqam School

2016 - 2018

Matric, Computer Science

Experience

GOMARKHO

Islamabad, Pakistan

VOIP Engineering Intern February 2025 – April 2025

- VoIP System Development: Worked on VoIP projects, including PBX systems, focusing on implementation and optimization of communication solutions using tools like FreeSWITCH, enabling VoIP functionalities such as call routing, call interception, call spying and session management.
- Cloud & DevOps Practices: Utilized Docker and Docker Compose for containerization, built CI/CD pipelines on AWS, and deployed Linux servers to support scalable PBX infrastructure
- Scripting: Developed Bash scripts to automate server setup, and disk space monitoring, reducing manual effort by streamlining repetitive tasks
- Linux Server Management: Gained hands-on experience deploying and maintaining Linux-based servers for VoIP applications, ensuring system reliability and performance

Emertxe

Bengaluru, Karnataka, India - Remote

Embedded Systems Intern January 2025 – February 2025

- Designed and implemented a microcontroller-based microwave oven system using the PIC16F877A microcontroller, integrating LCD displays, keypad input, and interrupt-driven functionality to simulate real-world appliance control
- Applied core embedded concepts such as debouncing for keypad inputs and interrupt handling to ensure robust real-time operation
- Developed firmware in C using MPLAB IDE and simulated system behavior with PICSim, gaining hands-on experience with embedded development tools
- Strengthened foundational knowledge in microcontroller architecture, I/O interfacing, and timing mechanisms through project-based learning

National Institute of Electronics

Islamabad, Pakistan

Engineering Intern June 2024 – August 2024

- Reverse engineered and developed a library for dot matrix display systems, improving functionality and control.
- Worked on AI-based projects, including object detection with YOLO and text recognition using EasyOCR.
- Contributed to the design and implementation of a smart parking management system, integrating AI for real-time vehicle monitoring and license plate recognition.

IEEE COMSATS University Islamabad

Islamabad, Pakistan

Operations Manager February 2024 – June 2024

- Managed operations for IEEE events, ensuring smooth execution and timely completion of tasks.
- Implemented modern productivity tools, particularly G Suite, to enhance team collaboration and project management efficiency.

Nobel Learning PBC

Gaithersburg, Maryland, United States - Remote

Intern

July 2023 - December 2023

- Completed four courses.
- Facilitated 2 courses with diverse co-facilitators, demonstrating effective communication and collaboration skills.
- Contributed to the development of a course on "Data Clustering & Visualization" by working closely with a diverse team of course designers and instructors.

Certifications

- Introduction to R [**GreatLearning**]
- Programming Essentials in C++ [**CISCO**]
- Python Essentials – I [**CISCO**]
- Python Beyond the Basics [**10 Pearls**]
- 30 days of Leetcode Challenge (Oct 2023) [**GDSC Comsats**]
- Introduction to Programming with MATLAB (Sep 2023) [**Coursera**]
- MATLAB Programming for Engineers and Scientists Specialization (Feb 2024) [**Coursera**]
- AI Agents Course [**Hugging Face**]
- Applied Data Science Lab [**WorldQuant University**]

Projects

Smart Cart ML Module Project

Ongoing - Collaborative

Developing an advanced smart e-cart system utilizing machine learning and IoT technologies:

- **Optimized item detection:** Integrated barcode and QR code scanning as the primary methods for recognizing items placed in or removed from the cart, eliminating reliance on computer vision alone.
- **User-friendly design:** Designing an interactive interface on a touch display powered by Raspberry Pi 5, providing real-time updates on cart contents and recommendations.
- **Enhanced accessibility:** Implemented text-to-speech features and a voice assistant powered by Vosk and GTTS.
- **Performance boost:** Leveraged OpenVINO to optimize AI inference, reducing processing time from 450ms to 140ms.
- **Environmental impact:** Focused on energy-efficient design, reducing overall power consumption.
- **Analytics integration:** Developed a Django-based admin interface for sales insights, top-performing items, and customer analytics.

Smart Home System with ESP32

- Developed a sophisticated smart home system leveraging the ESP32 microcontroller, allowing online control of up to two devices via Firebase integration.
- Engineered a robust data storage solution to monitor and display temperature, humidity, and power utilization from solar, generator, and grid sources.
- Created a dynamic mobile application using MIT App Inventor, offering users seamless control and monitoring capabilities.
- Implemented a load shifting feature to optimize power usage: automatically prioritizing solar power, switching to the grid when solar is unavailable, and activating the generator during grid outages.
- Designed a fault detection system that signals issues with the generator directly in the mobile app, enhancing reliability and user awareness.
- Achieved real-time display of environmental and power data in the app, providing comprehensive insights and control to users.

Line Following Robot

- Successfully developed a line-following robot with precise movement capabilities using a PID control algorithm, enabling it to traverse maze.
- Achieved seamless integration of robotics concepts like PID control and embedded systems to create a functional robot.

Generator Auto On/Off

- Implemented an automated generator activation and deactivation system, ensuring seamless power backup during outages.
- Engineered a self-diagnostic feature indicating engine problem for the generator, enhancing reliability and ease of maintenance.

Home Automation Kit

- Engineered a comprehensive home automation solution enabling remote control of multiple appliances through mobile applications, enhancing convenience.
- Successfully integrated IoT principles with mobile app technology, providing users with seamless control and monitoring capabilities.

Last Updated: April 28, 2025

*Some Names are clickable leading to certificates/profiles