

MUHAMMAD NOUMAN AFZAL

ELECTRICAL ENGINEER | POWER SYSTEM

SPEC: ELECTRONICS



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PROFESSIONAL SUMMARY

Electrical Engineer specializing in power systems, industrial electrical operations, and AI based monitoring systems. Hands-on experience at Pioneer Cement in managing industrial power distribution networks, Electrical panel drawing, supervising MV motors, and resolving faults causing ACB/VCB tripping. Currently working in VFD Maintenance team. Experienced in 132kV grid station operations and high-voltage transmission systems. Skilled in power factor correction, capacitor bank sizing, CT analysis, transformer testing, relay protection, motor control systems, load analysis, and fault troubleshooting. Additionally experienced in developing Python-based computer vision applications using OpenCV, PyTorch, and deep learning models for real-time monitoring systems.

EDUCATION

BSc	Bachelor of Electrical Engineering (Electronics Spec) University of Engineering & Technology Lahore	3.02/4.00 2025
FSc	Pre-Engineering Inspire Group of Colleges & Commerce BISE Sargodha	872/1100 2020
Matric	Science Govt. High School Shah Pur Sadar BISE Sargodha	848/1100 2017

PROFESSIONAL EXPERIENCE

Electrical Engineer – Pioneer Cement Ltd.

September 2025 – Present

- Supervise industrial power distribution systems and motor control panels.
- Diagnose and resolve earth faults causing Air Circuit Breaker (ACB) tripping.
- Perform power factor correction analysis and capacitor bank sizing.
- Improved power factor MV motor load system.
- Conduct CT ratio analysis and industrial load calculations.

- Monitor voltage, current, power, and energy parameters using Multifunction Meters (MFM).
- Support preventive and corrective maintenance of transformers and switchgear.
- Panel Drawing understanding.
- Currently working in VFD department.

Intern – 132kV Grid Station, Faisalabad

June 2024 – August 2024

- Worked on 132kV and substation systems.
- Studied bus bar configurations, isolators, circuit breakers, and power transformers.
- Observed relay protection systems and fault detection mechanisms.
- Assisted in transformer inspection, testing, and maintenance.

PROJECTS

Final Year Project

Real-Time Driver Monitoring and Emotion Detection System Using AI

- Designed and developed a real-time driver monitoring system to detect drowsiness and emotional states.
- Implemented Eye Aspect Ratio (EAR) algorithm for real-time drowsiness detection.
- Trained an emotion detection model using the FER2013 dataset with PyTorch.
- Integrated OpenCV, MediaPipe, and DeepFace for facial feature extraction and analysis.
- Developed a user-friendly GUI using Tkinter for live monitoring.
- Successfully deployed the system on NVIDIA Jetson Nano using CSI camera integration.

Academic Projects

Frequency Shift Keying (FSK) Communication System

- Analyzed frequency deviation for binary data representation.
- Evaluated bandwidth requirements and noise performance in communication systems.

Driver Drowsiness Detection System (Arduino-Based)

- Developed an embedded driver fatigue detection system using Arduino and sensor integration.
- Implemented real-time alert mechanism using buzzer for driver safety.
- Designed logic for continuous monitoring and rapid response activation.

Elevator Control System Using Stepper Motor

- Built a mini elevator prototype using stepper motor control and embedded programming.
- Implemented floor selection algorithm and motion control logic.
- Integrated basic safety interlocks for controlled operation.

Security Parking Stand System

- Designed an automated parking security prototype using sensor-based vehicle detection.
- Implemented access control logic for regulated vehicle entry and exit.
- Developed system workflow for improved parking management efficiency.

60-Watt Bridge Mode Audio Amplifier

- Designed and constructed a 60W bridge-mode power amplifier circuit.
- Performed gain analysis, impedance matching, and thermal performance evaluation.
- Conducted practical testing for output stability and distortion analysis.

Secured Network Monitoring System

- Developed a basic network monitoring tool to detect active devices and monitor traffic flow.
- Implemented foundational security mechanisms for controlled network access.
- Analyzed network activity to identify unauthorized connections.

TECHNICAL SKILLS

- ***Power Systems:***
Power Distribution, Transformer Testing (OC & SC), Relay Protection, Power Factor Correction, Motor Control Systems, Load Analysis, Fault Diagnosis
- ***Programming & AI:***
Python, OpenCV, PyTorch, MediaPipe, DeepFace, Tkinter
- ***Engineering Tools:***
MATLAB, Proteus, Cisco Packet Tracer, VS Code

SOFT SKILLS

- Strong Problem-Solving and Analytical Thinking
- Leadership and Team Coordination
- Effective Verbal and Written Communication
- Technical Troubleshooting and Root Cause Analysis
- Decision-Making Under Pressure
- Adaptability in Industrial and Field Environments
- Time Management and Task Prioritization
- Attention to Detail and Accuracy
- Quick Learning and Continuous Improvement Mindset
- Project Planning and Execution
- Professional Work Ethics and Accountability

CERTIFICATES

- Generative AI Application Developer – Pakistan Engineering Council (2025) | Top Performer
- Introduction to Python Language (Basic)
- Microsoft Word 2019/365 Fundamentals
- MS Excel Essentials – Formulas & Functions

LANGUAGES

- ***English*** – Professional Working Proficiency
- ***Urdu*** – Native Proficiency
- ***Portuguese*** – Basic (Conversational)