Syed Zain Ali

Mechanical Engineering Student
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EDUCATION

B.Sc. Mechanical Engineering — **10/2022 - 06/2026**
NED University of Engineering & Technology — Karachi, Pakistan

Cambridge A-Level — **08/2020 - 06/2022**
Highbrow College — Karachi, Pakistan

Cambridge O-Level — **08/2017 - 06/2020**
Beaconhouse School System, NNC — Karachi, Pakistan

EXPERIENCE

INTERNSHIP IN SSGC METER MANUFACTURING PLANT

03/2025 - 04/2025
Karachi, Pakistan

- Observed and learned the production & assembly line and quality assurance.
- Gained knowledge about the technologies & equipment used in manufacturing process.
- Analyzed Company Standards Operating Procedure & Job Description of every department.
- Understood reporting lines, how effective communication between officers and staff regarding the status of project.
- Understood verification of the SOPs or Roadmap through Audit
- Learned how control mechanism encompasses the systems, processes, and tools employed to oversee, regulate, and enhance production activities.

PROJECTS

AUTOMATED LANE DETECTION SYSTEM FOR SELF-DRIVING CARS USING PYTHON AND OPENCV

- Developed an automated lane detection system using Python and OpenCV for autonomous driving applications.
- Converted input images to grayscale to enhance gradient detection and reduce computational complexity.
- Applied Gaussian Blur to minimize noise and smooth lane edges.
- Implemented Canny Edge Detection to accurately identify lane boundaries.
- Used bitwise operations to define a Region of Interest (ROI), restricting detection to relevant road areas.
- Applied the Hough Transform to detect lane lines and implemented custom functions to overlay detected lanes on the road image.

PROTOTYPE OF A GROUNDWATER RESTORATION SYSTEM USING IOT

- Developed an IoT-based groundwater restoration prototype using ESP32.
- Programmed the system to prevent water tank overflow through automated motor control.
- Integrated flow meter sensors for real-time water monitoring.
- Connected the system to Arduino Cloud to monitor flow data and motor status remotely.

INTERACTIVE TABLEAU DASHBOARD FOR BIG DATA ANALYSIS

- Designed and developed an interactive Tableau dashboard to analyze and visualize large-scale datasets.
- Used charts, filters, and calculated fields to identify key trends, patterns, and insights from complex data.
- Enabled data-driven decision-making by presenting information in a clear and user-friendly visual format.

STRAIN MEASUREMENT AND STRUCTURAL ANALYSIS OF SOLAR PANEL FRAME USING ESP32

- Created the 3D CAD model of the solar panel frame using SolidWorks.
- Performed Finite Element Analysis (FEA) in ANSYS to analyze stress and strain distribution under applied loads.
- Implemented a strain measurement system for a solar panel frame using strain gauges.
- Interfaced strain gauges with ESP32 to acquire and process strain data.
- Analyzed strain data to assess structural behavior and load effects on the solar frame.

CERTIFICATIONS

- Google Certification: Project Management Google
- Certification: Google IT Automation in Python
- Google Certification: AI Essentials
- Google Certification: Soft Skills

SKILLS

Python	MATLAB	Catia V5	Wrike
C++	SolidWorks	Tableau	Jira
Abaqus FEA	Arduino	Microsoft Office	

LANGUAGES

English
Full Professional Proficiency

Urdu/Hindi
Native Proficiency