MAZIN HUSSAIN

Gwalior, Madhya Pradesh

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EDUCATION

Rajiv Gandhi Institute of Petroleum Technology[INI]	**2022-2026**
*B.Tech in Electrical Engineering [Major in **E-Vehicles**]- **CGPA:9.26*/10.0***	*Raebaraily, Uttar Pradesh*

Gwalior Glory High School	**2021-2022**
*CBSE - Senior Secondary - **Percentage - 86.75%***	*Gwalior, Madhya Pradesh*

Gwalior Glory High School	**2019-2020**
*CBSE - Matriculation - **Percentage - 91.57%***	*Gwalior, Madhya Pradesh*

INTERNSHIP

RESEARCH* - Indian Institute of Technology, Hyderabad ↗	**May 2024 - Aug 2024**
Supervisor: Prof Dr.Abhinav Kumar	*Remote*

- Develop **25+** concise test cases for NCCS-mandated ITSAR, addressing India-specific telecom security needs.
- Execute test case frameworks in authentication, vulnerability management, and authorization
- Developed Python scripts (v3.12) for machine testing, including system requirements and DTU configuration.

PROJECTS

Vehicle Routing Problem Optimisation	**May 2024 - July 2024**

- Engineered a solution for the **Vehicle Routing Problem** using genetic algorithms with the **DEAP library**, cutting **inefficiencies by 25%**.
- Refined genetic algorithms through **10+** maze and routing experiments, crafting a robust fitness function.
- Leveraged **Matplotlib** to visualize complex routing solutions, improving decision-making.

BLDC Motor Driven Two-Wheeler Design−*Research Work**	**Mar 2024 - Present**

- Developed **eco-friendly bicycle** with 350W BLDC motor for smooth, intelligent power delivery.
- Integrated advanced suspension for comfort with robust brakes for safety.
- Currently leading **comprehensive testing** to optimize bicycle performance, showcasing dedication to delivering top-quality products with battery range of approx **2** years with portable charger.

Advanced Earthing Integrity Monitoring for Electrical Poles	**Jul 2024 - Present**

- The system uses sensors to monitor earth leakage, continuity, and resistance, with **ACS712 current sensors** and **ADS1015 ADCs**. Data is transmitted in real-time via ESP8266 to a central monitoring station.
- Key hardware includes the **ESP32 microcontroller**, **BC547 transistors**, 5V buzzers for alerts, and electrode-based sensors to measure earth resistance and leakage, with data displayed on **JHD539**.
- Simulated using **Proteus software**, the system provides real-time alerts, automates earthing diagnostics, and reduces manpower while enhancing safety in public electrical installations.

TECHNICAL SKILLS

Languages: Python, C, C++, SQL

Libraries: Simulink, NumPy, Pandas, Matplotlib, Scikit-learn, Tensorflow, Deep Learning, Neural Networks.

Technologies/Frameworks: MATLAB, Power Bi, VS Code, Jupyter N.B, Google Colab.

COURSESWORK INFORMATION

Electrical: Power, Digital and Analog Electronics, Static Power Converters, Network Analysis, Sensor Actuators and Control for EV (NTC Thermistors), Fundamentals of EV, DC-DC/AC-DC Converters.

Electric Vehicles: MATLAB-Simulink, Battery Management System (theoretical IC's selection, CAN, UART, I2C communication), Cell modeling (Cell-parameters), UART protocol, CAN communication (theoretical).

Devices: Inverters, D-Space, Induction Motors, TMS320F28379D(for motor speed control using ePWM signals).

HONOURS & ACHIEVEMENTS

L'Austin Week(USA): Honored with **500$** from L'Austin UG Program to selected Recipient of country.

Merit-Cum-Means Scholarship: Awarded to top **10 %** students of respective department based on CPI.

Academic Excellence: Academically **Rank 2nd** in Electrical and Electronics Eng. Department of RGIPT.

IIT JEE ADV 2022, Qualified: Ranked among the **top 2 percent** among over 1 million candidates in 2022.