S.M. MAAZUL HAQUE MUJADDEDI

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EDUCATION

National University of Sciences and Technology (NUST) **Karachi, Pakistan**
BE Mechanical Engineering September 2023 – Present

EXPERIENCE

Team Envision PNEC - NUST **Karachi, Pakistan**
Research and Development Lead *August 2024 – Present*
• Leading autonomous programming competition for Shell Eco-Marathon with a 4-member team, optimizing competition strategy and secured 8th position globally in this competition among 30+ international teams.
• Calibrating EFI systems to boost fuel efficiency from 57% to a target of 65%.
• Validating bio-composites as alternatives to carbon fiber, aiming to reduce the carbon footprint by 30% and material cost by 80%.

Shell Eco Marathon Asia Qatar 2025 *February 2025*
• Won 1st place Communication Award among 61 teams from 16 countries.
• Developed a data-driven race strategy using regression analysis on BMS and tachometer data, cutting energy consumption by 5%.
• Ensured technical compliance; guided Prototype and Urban vehicles to pass inspections, with Urban finishing in the top 10.

Technical Team Member *September 2023 – August 2024*
• Modeled, designed, and fabricated a single-speed chain transmission for Azaad-E, Pakistan's first urban EV.
• Engineered a wheel assembly reducing weight by 8% & improving performance.
• Deployed a real-time telemetry system (monitoring battery, speed, and GPS) using LoRa and GSM with a 3 km transmission range; successfully cleared Teknofest Turkiye evaluation
• Mentored 20+ students from Nixor College on automotive power transmission.

PROJECTS

- **ECO SCAN – Gas Analyzer:** Co-developed 'ECO SCAN' for emission monitoring and predictive maintenance; showcased at FICS 2024 Grand Finale, ranking among top teams.
- **Repeatable Vehicle - IMechE Abul Kalam Design Challenge**: Designed and fabricated a small vehicle, integrating compound spur gears and a DPDT switch for motor polarity reversal.
- **PEMFC Backup Plan for a Hospital:** Modeled a PEMFC system with solar & waste heat recovery in MATLAB Simulink, improving energy efficiency by 25%.
- **CFD Analysis of Nanofluids for Heat Exchange:** Conducted CFD simulations on 4 types of concentric pipes using 10+ nanofluids to study their impact on heat transfer.

SKILLS

Technical Skills: DS SolidWorks, Ansys Workbench, AutoCAD, Gazebo, ROS 2 Humble, CARLA, Python, C++, Java Script, Node JS, Optimum G Kinematics, MATLAB Simulink.
Interpersonal Skills: Teamwork, Time Management, Problem solving, Tutoring, Critical thinking

AWARDS & CERTIFICATES

Certifications & Courses: Completed self-learning courses in Python, C++, NodeJS, and CS50 (Harvard University)
Awards: Communications Award Shell Eco Marathon Asia 2025