Saraban Salsabila

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About

I am a dedicated and hardworking individual, committed to continuous personal and academic growth. I am passionate about learning and applying knowledge, which drives my success in both academic and personal endeavors. I thrive in challenging environments, where I can apply my skills and grow further.

Education

Islamic University of Technology — Board Bazar,Gazipur, Dhaka
BSc in Mechanical Enineering — *January 2020 – June 2024*

Abdul Kadir Mollah City College — Narshingdi,Dhaka
Higher Secondary Certificate, Science — *April 2017 – April 2019*

Savar Cantonment Public School — Savar, Dhaka
Secondary School Certificate, Science — *June 2015 – April 2017*

Experience

Management Trainee Officer — October 2024 – Present
TS Transformers Ltd.(A sister concern of SQ Group) — *Banani, Dhaka*

- Managing government procurement and tenders for products such as transformers, meters, cables and more.
- Conducting weekly factory visits to ensure production compliance and quality.
- Collaborating with cross-functional teams to analyze tender specifications and prepare competitive bids.
- Actively contributing to the completion of substations by coordinating between production,engineering and procurement teams.

Intern (Mechanical Section) — June 2023 – September 2023
Multibrand Workshop Limited — *Tejgoan, Dhaka*

- Gained hands-on experience in key automotive maintenance tasks such as engine overhauling,tire replacement, brake pad installation, suspension repair and more.
- Diagnosed mechanical and electrical issues in vehicles and implemented appropriate solutions under expert supervision.
- Served as a service advisor, directly interacting with customers to understand vehicle issues, document ccomplaints, identify faulty components and estimate repair costs

Intern (Technical) — September 2024
Heliotech Limited (Sigma Engineers Ltd.) — *Uttara, Dhaka*

- Provided engineered technical support for a new Solar EPC company in Dhaka, contributing to business development efforts for multiple Commercial Industrial (CI) project
- Assisted in securing a 460 KWp Solar Power Project for Interstoff Apparels Ltd. in Gazipur, Dhaka, supporting company growth and portfolio expansion.

Academic Projects

- **Capstone Design Project:** Design and Fabrication of a Sugar Rocket and Its Static Performance Testing
  - Developed a high-performing sugar rocket, including propellant preparation, nozzle design, and trajectory modeling using MATLAB.
  - Conducted extensive static performance tests, achieving key results:
    - Effective Burn time: 7.2 seconds
    - Peak Thrust: 7.1 kg-wt
    - Maximum Altitude (Current Design): 307.8 meters
    - Maximum Altitude (Optimized Design): 1210 meters
  - Improved thrust-to-weight ratio through design optimizations, achieving up to 5.071 (Peak) and 4 (Average) under flight conditions.
  - Earned **1st Prize** in the Capstone Design Project Competition for the academic year 2022-23.Certificate

- **Measurement, Instrumentation, and Control (MIC) Lab Project:** Smoke and Fire Detection System
  - Designed and implemented an automated temperature and ventilation control system using LabVIEW 2021 and Arduino.
  - Developed a circuit that regulated room temperature through integrated hardware:
    - A bulb simulated heat and a fan and stepper motor facilitated heat expulsion.
    - The system automatically adjusted based on temperature thresholds to ensure safety and efficiency.
  - Innovatively incorporated a sloped roof design for optimized airflow and rapid smoke evacuation.
  - Achieved **A+** Grade for the project in the Measurement, Instrumentation, and Control Lab.

Research Experience

- **Undergraduate Thesis**
  July 2023 - May 2024
  A Numerical Investigation on Heat Transfer Characteristics for Different Radiator Designs with Nanofluid Coolants
  - Conducted an in-depth numerical analysis of heat transfer performance across various radiator geometries using nanofluid coolants to enhance thermal efficiency.
  - Simulated radiator designs using Computational Fluid Dynamics (CFD) to assess the impact of parameters such as fin density, geometry, and nanofluid concentration.
  - Proposed innovative design recommendations for automotive and industrial radiator systems, contributing to advancements in energy-efficient cooling solutions.
- **Research Highlights:**
  - Published Paper:
    Effect of Thin Tunnel Layers MnO and VO on the Enhancement of Single-Layer Organic Solar Cell Efficiency
    - Investigated the role of MnO and VO tunnel layers in improving charge transport and photovoltaic efficiency of single-layer organic solar cells.
    - Demonstrated significant efficiency enhancements through optimized layer integration, advancing solar cell design strategies.
  - Under Review:
    Free Piston Linear Engine Generator Driven by Syngas: A Review of Efficient Fuel Opportunities
    - Reviewed the potential of syngas as a sustainable and efficient fuel for free piston linear engine generators.
    - Analyzed thermodynamic performance, emissions reduction potential, and scalability for practical applications.
    - Provided a comprehensive assessment of fuel versatility and engine design innovations.

Technical Skills

- **Designing Tool:** SolidWorks,Fusion 360, Shpr3D
- **Simulation Tool:** ANSYS, COMSOL Multiphysics
- **Documentation Tool:** Microsoft office, Google Workspace
- **Programming:** Latex, Python, LabVIEW

Soft Skills

- Leadership
- Communication
- Teamwork and Collaboration
- Adaptability and Flexibility
- Analytical Thinking
- Creative Problem Solving

Certificates

- Certified SOLIDWORKS Associate (CSWA) in Mechanical Engineerring Certificate
- Senior Young Learners (Intermediate 1), British Council Bangladesh Certificate
- Industrial Training Certificate, Bangladesh Power Development Board (BPDB) Cetificate
- Distribution Power Engineering Fundamentals Certificate
- Clean Technology Fundamentals: Distributed Generation Certificate
- Hybrid and Electric For Beginner Cetificate
- Microsoft Word Course Certificate
- Cogeneration, Combined Heat and Power (CHP)Fundamentals Certificate
- Google Workspace Course Certificate

Extracurriculars

* Member, Einstein Research Academy (ERA) Website
* Senior Secretary of Research, IUT Al-Fazari Interstellar Society.
* Junior Member, IUT Mars Rover Project – Team Avijatrik.
* 2nd Place in Shot Put and 3rd Place in 400m Race at IUT Annual Athletics.
* 3rd prize in Article Writing Competition, organized by TVE department of IUT. Certificate
* Volunteer, Quantum Foundation.
* House Leader, Savar Cantonment School & College (2016 - 2017).

References

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