Ridhachandran PG

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Professional Summary

I am a Mechanical Engineering student currently in my 7th Semester at VIT. My strong mechanical knowledge complements my modern software development skills, enabling me to engineer innovative solutions. I have a keen interest in future propulsion technologies and have proven my abilities through successful assistive technology projects. I strive to leverage my technical expertise to enhance engineering productivity.

Experience

Bharat Heavy Electricals Limited (BHEL) Ranipet, India
Engineering Intern – Maintenance & Services Dept *May 2026 – June 2026*

- **Industrial Manufacturing Overview:** Studied shop floor layouts and assembly regimes at the Boiler Auxiliaries Plant (BAP), specializing in regenerative Ljungström Rotary Air Pre-Heaters (APH), high-voltage Electrostatic Precipitators (ESP), and heavy centrifugal/axial fans.
- **Design of Modular De-coiler Jaw puller:** Replaced fragile single-piece cast bronze jaws on the heavy engineering line decoiler (processing steel coils for roll-forming lines) with a hybrid layout utilizing an ASTM A36 structural steel carrier body and replaceable Phosphor Bronze wear inserts. Verified Von Mises stress limits (≈ 0.023 MPa) in SolidWorks FEA, cutting assembly cost by 40–50% and slashing repair downtime from weeks to hours.
- **Maintenance Record AI Assistant:** Designed and deployed a local natural-language database query chatbot using Python, Llama 3.2 (3B), and Ollama. Constructed a secure text-to-SQL translation pipeline with active syntax verification to query breakdown logs and parts tracking in the Oracle `MSR_SAP` schema, reducing retrieval times from 30 minutes to under 10 seconds.

Projects

Modified 6-Speed Dedicated Hybrid Transmission (DHT) | *Simulink, Kinematics*

- Engineered a dual-path 6-speed Dedicated Hybrid Transmission (DHT) for hybrid SUVs, separating ICE (215 Nm design torque) and EV (256.25 Nm design torque) power paths to eliminate shifting clutch shock.
- Programmed a Python optimization search algorithm to evaluate gear combinations satisfying a uniform center distance of 118.75 mm (module 2.5 mm), and calculated gear tooth bending safety limits (397 MPa) via the Lewis bending stress equation.

TOTBOOK Desktop App | *Tauri, Rust, JS/HTML/CSS*

- Developed and finalized the MVP for a desktop application that bundles engineering project files (CAD, PDFs, Videos) into a single, shareable (.totbook) file.
- Successfully implemented core functionality to solve file fragmentation issues in engineering teams; currently preparing for the first public release.
- Engineered a robust, user-friendly interface designed for seamless navigation and file management. **MVP ready for launch**.

MechLift Staircase Lift System | *SolidWorks, Mechanism Design*

- Engineered a manually operated staircase chair lift (100 kg capacity) utilizing a compound mechanical transmission (Bevel → Worm → Spur → Rack & Pinion) to achieve high mechanical advantage.
- Conducted displacement and Von Mises structural checks to guarantee optimal safety limits. **Award-winning design** (1st Prize, VIT Prodinno).

Education

Vellore Institute of Technology (VIT)
B.Tech in Mechanical Engineering (EV)

CGPA: 8.03 / 10.00
Graduation: Expected 2027
Chennai, India

Technical Skills

CAD & Simulation Tools:
SolidWorks, ANSYS (APDL), CATIA, Simulink

Software Development:
Python, Rust, Tauri, Streamlit, JavaScript, HTML/CSS, Git

Mechanical Competencies:
Dedicated Hybrid Transmissions (DHT), Spaceframe Mechanics, Transmission Kinematics

Domain Knowledge:
Hybrid Electric Vehicles (HEVs), Fuel Cell Electric Vehicles (FCEVs)

General Skills:
Technical Writing (80+WPM), Technical Documentation, Project Management

Extra-Curriculars & Achievements

Karate Black Belt (1st Dan):
Fostered physical discipline, persistence, and focus under pressure through 6+ years of training in Budokan style karate.

Creative Arts & Animation:
Graphite pencil artist, and digital 2D keyframe animator using Krita/Pencil 2D.

Languages:
English (Fluent), Tamil (Native), German (A1 Level).