Rup Utpal Paul

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Professional Summary

Hands-on manufacturing engineer passionate about building the next generation of electric vehicles and off-road mobility systems. Experienced in **battery pack design, automated assembly, and lean manufacturing**, with a proven ability to take ideas from concept to production. Adept at working in startup environments—rapid prototyping, wiring, machining, and debugging systems independently to deliver results fast.

Education

University of Michigan, Ann Arbor, MI | Jan 2024 – Expected May 2025
M.Eng. in Global Automotive and Manufacturing Engineering (GPA 3.65)

- Coursework: Smart Manufacturing, System Engineering, Electric Drives, Battery Life Management, Vehicle Dynamics, Design for Manufacturing

Chandigarh University, Punjab, India | Jul 2018 – Dec 2022
B.E. in Electronics and Communication (GPA 7.37)

- Charpak Exchange Scholar (2020), Institut Supérieur D'Electronique de Paris

Professional Experience

Project Engineer – Manufacturing & Automation
THK America, Inc. | Hebron, OH | September 2025 – Present

- Built and deployed custom **machine dashboards and I/O-connected systems** for 40+ production stations, tracking OEE, downtime, and throughput in real time—foundation for digital factory transformation.
- Designed and assembled **PLC-controlled poka-yoke systems** (Mitsubishi iQ-R, GX Works3) with pneumatic actuators, sensors, and cameras to automate screw feeding and retainer assembly.
- Developed **battery and laser assembly jigs** using Fusion 360 and AutoCAD; machined components and tested fit-ups personally, cutting setup time by 35%.
- Led **robot and AMR integration**, designing payload carts, route logic, and fleet layouts—reducing part transport time by ~25%.
- Independently troubleshot servo, suction, and motion systems on production lines, reducing downtime >20%.
- Authored preventive maintenance manuals and built a plant-wide **digital asset tracking system** for traceability across 200+ SKUs.

Design & Manufacturing Engineer – Battery Vehicle Integration Project
University of Michigan – Stellantis Truck Team | Ann Arbor, MI | May 2024 – Jun 2024

- Designed and fabricated **battery pack enclosures and cold plates** using DFM/DFA, achieving 26% weight reduction.
- Built wiring harness mockups and assisted in fixture design for module installation and high-voltage routing.
- Created detailed process flow and station layout plans for prototype pack builds.
- Applied **Six Sigma** to reduce waste by 12% and improve assembly efficiency by 18%.

Systems Engineer – Arctic ATV Concept
University of Michigan | Ann Arbor, MI | Aug 2024 – Dec 2024

- **Modeled transmission and suspension systems** for an electric ATV using MATLAB/Simulink and mechanical simulation tools.
- Prototyped adjustable suspension controls and tested driver input feedback loops on a hardware-in-the-loop rig.
- Designed BOMs and evaluated suppliers for small-lot production, ensuring manufacturability and cost efficiency.

Technical Consultant / Analyst
Refinitiv & Highradius Technologies | 2021 – 2023

- Managed cross-functional data integration projects across engineering and finance teams.
- Developed real-time visualization tools and automated performance dashboards—experience foundational to data-driven production systems.

Skills

Core Technical: Battery Pack Design | Fixture & Tooling | Prototyping | DFM/DFA | PLC Programming (Mitsubishi iQ-R, GX Works3) | Robotics (Fanuc, UR10e) | MATLAB/Simulink | Fusion 360 | AutoCAD | SolidWorks | CAM | GD&T
Operations: Lean Manufacturing | Six Sigma | 5S | OEE | FMEA | Process Layout Optimization | AMR & Automation Integration
Software: Python | Power BI | SQL | LabVIEW | Minitab | Excel VBA | AWS
Hands-on Skills: Wiring & Soldering | Pneumatics | Machining | Assembly Debug | Root Cause Analysis | Preventive Maintenance

Projects & Leadership

- **Laser Etching & Positioning Automation:** Designed vision-assisted jig for part alignment and validation.
- **Plant Layout Redesign:** Created modular layout models for retainer assembly, improving space utilization by 22%.
- **Digital Factory Dashboard:** Built custom production monitoring app linking PLC I/O, robots, and human interface panels for live data tracking.

Languages & Interests

Languages: English, German, French, Hindi, Bengali
Interests: Motorcycles | Fabrication | Robotics | F1 | Data-Driven Manufacturing