# REAZWAN AHMED

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## SUMMARY

Final-year mechanical engineering student at Kingston University with SOLIDWORKS CWSA certification and CSWP in progress. Hands-on expertise in FEA, CAD, DFMEA, and design-led prototyping. Delivered industry-level projects for Jaguar Land Rover and IMechE, alongside independent engineering builds from concept to tested working prototype. Seeking a graduate engineering role to apply expertise in 3D CAD design, FEA, DFMEA, materials engineering, and design-led analysis.

## EDUCATION

BEng (Hons) Mechanical Engineering | Kingston University, London | Predicted: 1st Class Honours **2022 - 2026**

## ENGINEERING PROJECTS & EXPERIENCE

**Jaguar Land Rover – Suspension Knuckle University Challenge** **2024 - 2025 (4 Months)**

- Designed and optimised a suspension knuckle using topology optimisation, achieving 12% weight reduction and 18% cost improvement through advanced material selection; led FEA validation (static load and harmonic response) in ANSYS and Siemens NX, reducing peak von Mises stress to 13% of yield – well within dynamic automotive safety margins.
- Researched advanced manufacturing routes including DMLS with titanium alloy and high-performance FDM materials (PEEK, PPS-CF, Nylon-CF), evaluating trade-offs against traditional casting and CNC machining; generated CAM toolpaths for 3-axis CNC milling of critical interfaces. Ranked 1st in cohort for CAM execution and 2nd overall for the final engineering report.
- Coordinated a 5-person team through the DFMEA process, systematically identifying and mitigating critical failure modes to deliver all milestones ahead of schedule under JLR engineer Ravi Londhe.

**Topspin & Backspin Tennis Ball Launcher | Final Year Dissertation** **2025 - 2026 (6 Months)**

- Designed and built a dual-wheel launcher from concept to working prototype, exploiting the Magnus effect through differential BLDC motor control to produce topspin, backspin, and flat shots; validated 5 mm wheel-gap compression through hand calculations and physical testing at 30–40 mph.
- Engineered a complete electronics system (Arduino Nano, dual 30 A OPTO ESCs, A4988 stepper driver, 12 V→5 V buck converter) and delivered a full FDM-printed PETG prototype within £300 budget, including a 4:1 planetary gearbox with 1.62 N·m torque output.
- Extended the design with horizontal angle control via a stepper motor and Lazy Susan bearing and architected the foundation for future wireless control via ESP32 Bluetooth.

**IMechE Design Challenge – Lead Designer** **2023 - 2024 (6 Months)**

- Led a 6-person team through full product development of an autonomous mechanical vehicle, achieving 95% positioning accuracy over 1.4–4 m and delivering the working prototype 3 weeks ahead of schedule using only 75% of the allocated budget.
- Optimised design through SolidWorks and FEA analysis, selecting PETG and Nylon-CF printed components to meet all performance requirements within budget and timeline constraints.

**Formula Student Racing Team** **2025 (6 Months)**

- Evaluated radiator packaging options for a ~50-person team; designed a shrouded fan grill in SolidWorks to maintain 85–90°C coolant temperature; recommended side-pod layout based on risk, integration, and manufacturability analysis.

**Kingston Rocket Society** **2023 - 2025**

- FEA optimisation of nose cone and parachute deployment system; manufactured structural assemblies in FDM and resin 3D printing across mechanical and electronics subsystems.

## TECHNICAL SKILLS & CERTIFICATIONS

- **Design & CAD**: SolidWorks (CWSA Certified, CSWP in progress), Siemens NX, ANSYS (Mechanical, FEA), GD&T.
- **Analysis:** Finite Element Analysis (FEA), DFMEA, Hand Calculations, Materials Selection & Testing
- **Manufacturing**: FDM & Resin 3D Printing, CNC Machining, Prototyping – (PETG, PEEK, Nylon-CF)
- **Programming**: MATLAB, Python, C++, Arduino
- **Certifications**: SOLIDWORKS CWSA - 2025, APM PFQ Certificate (Project Management) - 2024

## OTHER PROFESSIONAL EXPERIENCE

**The Good Eating Company – Event Assistant (Part-Time)** **2025 - Present**

- Set up and maintained event venues and equipment to professional standards, following health and safety protocols in a fast-paced catering environment.

**MG Estates – Assistant Manager** **2023 - 2025**

- Managed executive schedules, client communications, and financial records with 100% accuracy, coordinating across agents, buyers, and vendors in a high-priority property environment.

**Languages:** English **–** Native • Bengali **–** Proficient.