
REAZWAN AHMED

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MECHANICAL ENGINEER | DESIGN ENGINEER | PRODUCT DEVELOPMENT | SIMULATION & ANALYSIS

Graduate Mechanical Engineer with hands-on experience delivering engineering solutions through Product Design, Failure Analysis, Reliability Assessment, Simulation & Analysis, and Design Validation. Proven ability to interpret engineering briefs, develop design concepts, evaluate technical trade-offs, and deliver validated prototypes through cross-functional project collaboration. Experienced in detailed CAD design and assembly modelling, FEA simulation, DFMEA, manufacturing route evaluation, and technical problem solving across automotive, motorsport, and consumer product development projects. Demonstrated success working within multidisciplinary teams to achieve performance, reliability, and quality objectives while meeting strict project deadlines.

ENGINEERING PROJECTS & TECHNICAL EXPERIENCE

Topspin & Backspin Tennis Ball Launcher – FINAL YEAR DISSERTATION

Kingston University | 2025 – 2026

- Designed, manufactured, and validated a complete electromechanical system with a **dual-wheel BLDC architecture** exploiting the Magnus effect for topspin, backspin, and flat shots; modelled full assembly in SolidWorks and FDM-printed in PETG within a £300 budget.
 - Conducted engineering calculations, performance analysis, and physical testing to validate launcher performance at 30–40 mph operating speeds.
 - Developed a **4:1 planetary gearbox** delivering 1.62 N·m output torque while maintaining manufacturability and cost targets.
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JAGUAR LAND ROVER – SUSPENSION KNUCKLE UNIVERSITY CHALLENGE

Kingston University | 2024 – 2025

- Redesigned a JLR rear suspension knuckle from cast steel to A356 aluminium, achieving **~66% weight reduction** through topology optimisation and material substitution.
 - Performed static structural and frequency response FEA in ANSYS Workbench — confirmed max von Mises stress at **13% of yield strength**, safety factor exceeding **2.5** across all load cases.
 - Assessed 5 manufacturing routes (sand casting, die casting, CNC machining, FDM additive manufacture, DMLS); generated CAM toolpaths for 3-axis CNC milling of critical interfaces.
 - Led DFMEA across a 5-person team, identifying critical failure modes and mitigations before manufacture.
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IMechE DESIGN CHALLENGE – LEAD DESIGN ENGINEER

Institution of Mechanical Engineers | 2023 – 2024

- Led a multidisciplinary team of 6 engineers in the development of an autonomous vehicle prototype.
 - Delivered 95% positioning accuracy across operating distances of 1.4–4 metres through systematic testing, performance analysis, and design optimisation.
 - Selected PETG and Nylon-CF components through SolidWorks modelling and FEA; delivered working prototype 3 weeks ahead of schedule at 75% of allocated budget.
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FORMULA STUDENT RACING TEAM

Kingston University | 2025

- Designed a complete cooling system subassembly in SolidWorks — including radiator packaging, shrouded fan grill, and ducting — to maintain **85–90°C** coolant temperature under race conditions, evaluated against performance, integration risk, and manufacturability.
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KINGSTON ROCKET SOCIETY

Kingston University | 2023 – 2024

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

- **Engineering & Analysis:** DFMEA & Risk Analysis, Root Cause Investigation, Finite Element Analysis (FEA), Reliability Assessment, Engineering Validation & Testing.
 - **Design & Software:** SOLIDWORKS (CSWP Certified), Siemens NX, ANSYS Mechanical, GD&T, MATLAB, Python, Arduino.
 - **Data & Reporting:** Engineering Calculations, Technical Documentation, Performance Analysis, Microsoft Excel, Engineering Presentations.
 - **Manufacturing:** CNC Machining, Additive Manufacturing, FDM & Resin 3D Printing (CSWA-AM Certified), Prototyping & Testing.
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EDUCATION

BENG (HONS) MECHANICAL ENGINEERING | Kingston University, London | First Class Honours

- **Relevant Modules:** Solid Mechanics & Vibration, Computer-Aided Engineering, Machine Design with FEM, Fluid Dynamics & Thermal Systems, Engineering Design & Manufacture, Electronic & Control Systems, Engineering Mechanics & Materials
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CERTIFICATIONS

- **Certified SolidWorks Professional (CSWP) – 2026**
- **SOLIDWORKS Associate Additive Manufacturing (CSWA-AM) - 2026**
- **APM Project Fundamentals Qualification (PFQ), 2024**

Full Right to Work in the United Kingdom