

Mohammed Aneesuddin

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SUMMARY

Experienced Electronics Engineer specialising in **hardware** and **software**, with expertise in **embedded circuits**, **PCB design**, and **IoT**, complemented by strong coding skills. Experienced in driving innovation and problem-solving through previous engineering roles. Seeking opportunities to develop advanced electronic solutions and drive technological advancements.

WORK EXPERIENCE

Electronics Engineer | Heating Trade Supplies | September 2025 – July 2026 | Newcastle, United Kingdom

- Execute **component-level diagnostics and board-level recovery** on boiler/HVAC PCBs (Vokera, Siemens LMU/LOA, Honeywell, Baxi), analysing power rails, MOSFET/IGBT stages, ignition drivers, sensor interfaces, and grounding networks using oscilloscopes, and thermal imaging to restore full functionality.
- Responsible for **hardware validation and compliance testing** by characterising power-stage behaviour, verifying flame-sensing circuits, calibrating NTC/pressure/flow-sensor feedback loops, stress-testing PCBs under thermal load, EMC performance, and production quality benchmarks.
- Drive **design optimisation and reliability improvements** by performing root-cause failure analysis on production and field returns, implementing protective design enhancements, and documenting engineering changes for future PCB iterations.

IoT Design Engineer | Barola Technologies | August 2020 – December 2020 | India

- Optimised hardware modules using **transceiver boards** like the Digi XBee3 and nRF52840, improving remote connectivity by 30% for household appliances.
- Managed setup, testing, and maintenance with industry regulatory standards IoT modules such as the ESP32-WROOM-32 and Quectel BG96 LTE Cat-M1/NB-IoT, ensuring reliable communication for **20+ home devices**.
- Provided full-lifecycle technical support and bug resolution for 3 key product lines collaborated with suppliers and vendors to ensure reliability, while maintaining detailed test documentation and consistently receiving positive feedback for timely issue resolution.
- Performed **design rule checks (DRC) and electrical rule checks (ERC)** to identify and resolve layout issues early in the design process, ensuring compliance with fabrication constraints.

Embedded System Design Engineer | NSIC | November 2019 - June 2020 | Chennai | India

- Completed over 100 hours of intensive training in embedded system design, demonstrating proficiency in Embedded C on **ARM Cortex microcontrollers** and real-time operating systems (**RTOS**).
- Mapped system performance bottlenecks through rigorous testing with oscilloscopes or logic analysers findings led to fixing the causes of crashes, increasing embedded solution reliability by 20%.
- Developed schematics and PCB layouts collaborated in early-stage prototyping and iterative testing processes.
- Collaborated with senior team engineers in integrating ARM Cortex and other microcontrollers into products, focusing on **hardware & software integration**, **power management**, and signal integrity to achieve seamless product functionality.

SKILLS

- **Programming:** C, C++, Embedded C, Python, VHDL, Prolog
- **Tools:** PCB Design, Altium, KiCAD, Xilinx Vivado, LT-Spice, Proteus, Intel Quartus Prime, Visual Studio
- **Embedded Systems:** ARM Cortex, ESP32, nRF52840, Quectel BG96, RTOS, Digi XBee3, LTE Cat-M1/NB-IoT, IoT Integration.
- **OS:** Linux, Contiki OS
- **Core Tech:** Analog Circuits, Digital Design, Power Management, EMC Awareness, Product life cycle management

EDUCATION

MSc in Electronics Engineering, 2:1 | University of Surrey | United Kingdom | 2023 – 2024

- **Modules:** Digital Design with VHDL, Internet of Things, Nanofabrication and Characterisation, Renewable Energies, Network and Service Management and Control, Computer Vision and Pattern Recognition, AI and AI programming, Advanced 5G wireless technologies.

Bachelors in Electronics and Communication, 1st | Chennai Institute of Technology | India | 2018 – 2022

- **Modules:** Circuit simulation and Analysis, Digital Electronics, Signals and Systems, Digital Communication, Microprocessors and Microcontrollers, VLSI Design, Principles of Management, Real Time Operating Systems.

PROJECTS

FPGA Accelerated Multiple Revolution Lambert Solver | Feb 2023 - Jan 2024

- Developed a novel Lambert solver algorithm by implementing on FPGA which achieved **68 times** faster performance than **GPU-based** solutions in the first iteration. The solver was designed for **real-time satellite** trajectory planning.
- Conducted extensive profiling and resource utilisation analysis to determine the ideal FPGA resources required, assessing **DSPs, LUTs, and FFs** using **Xilinx Vivado**. This allowed for precise timing predictions and ensured the correct FPGA was chosen for optimal performance in the satellite system.
- Designed and implemented FPGA-based hardware acceleration by applying **fixed-point arithmetic, parallelism**, pipelining techniques, and **CORDIC functions** to optimise real-time computational efficiency for satellite trajectory calculations.

Design and Analysis of Low Power Hybrid Adder based on TG-PT logic | June 2021 – May 2022

- Designed a hybrid 1-bit Full Adder using Pass Transistor Logic (PTL) and Transmission Gates (TGs), reducing transistor count to 18 compared to 28 in conventional CMOS designs achieving **36% reduction in area**, demonstrating outstanding performance in power consumption and delay, resulting in a low power delay product.
- Performed simulations using **Microwind on 65nm and 90nm nodes**, achieving measurable gains including lower power draw, improved switching speed, and a significantly reduced **Power-Delay Product**.
- Demonstrated superior performance over conventional full adders, achieving 28% reduction in static power dissipation and 20% improvement in noise margin at 65nm validating the design for power-efficient, high-speed digital systems

Automatic Solar Tracker | Jan 2021 – March 2022

- Developed an **Automatic Solar Tracking System** using **LDR sensors** and **servo motors** to dynamically tilt the solar panel **perpendicular to solar radiation**, enhancing photovoltaic efficiency.
- Executed as an **exhibition project** to demonstrate real-world **engineering principles** and **renewable energy applications** to A-Level students, showcasing **embedded systems** and **sensor-based automation**.

CERTIFICATIONS

- FPGA Softcore Processors and IP Acquisition
- IOT Foundations: Operating System Fundamentals
- McKinsey Forward Program
- Advance Diploma in Python Programming (**ADPP**)
- Entrepreneurship Foundations (**NASBA**)
- Programming in HTML5 with JavaScript and CSS3
- Project Management: Technical (**PMI**)

AWARDS

- **Circuit Debugging (Loyola ICAM)** | Aug 2019
Won first place in a circuit debugging competition, showcasing strong troubleshooting skills and a practical, hands-on approach to solving complex problems.
- **RAM ROM (Loyola ICAM)** | Aug 2019
Secured third place in a computer architecture event, demonstrating a solid understanding of computing systems.
- **SAMHITA '20 (Madras Institute of Technology)** | Feb 2020
Runner up in National Level Technical Hackathon of AI-based algorithm to assess and train the accuracy of the system.

EXTRACURRICULAR ACTIVITIES

- **Restaurant Consultant | United Kingdom**
Helping restaurants grow by improving operations, refining ideas, and supporting business expansion.
- **Events Secretary | Chennai Institute of Technology**
Successfully managed a national symposium with 5+ technical events and over 700 participants, ensuring integrity, innovation, and high participant satisfaction.
- **Technical Volunteer | Myrtle Social Welfare Network**
Led computer literacy and English-learning initiatives for over 960 children.