

# Aman Kumar

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## Education

### Vellore Institute of Technology

B.Tech in Electronics and Communication Engineering (CGPA: 8.55 / 10)

2021 - 2025

Vellore, Tamil Nadu

## Experience

### Seculinx

IoT Intern

Sept 2024 - Jan 2025

Vellore, Tamil Nadu

- Developed Smart Lighting System: Designed and implemented an IoT-based smart lighting system to optimize energy consumption and enhance user control. Utilized ESP32 microcontroller and multiple sensors, programming in Arduino IDE to enable precise real-time monitoring and automated lighting adjustments.
- Collaborated Across Teams: Worked closely with cross-functional teams to ensure seamless integration of hardware and software, aligning technical components with user requirements and achieving 100% functionality testing.
- Documented Technical Processes: Created detailed technical documentation outlining design, implementation, and troubleshooting methods, enhancing knowledge transfer and enabling efficient future maintenance.

### Maven Silicon Softech Pvt Ltd

Jun 2024 - July 2024

Vellore, Tamil Nadu

Embedded Engineer Intern

- Collaborated with senior engineers to design and implement digital system architectures, enhancing team efficiency by contributing Embedded C expertise to complex embedded system projects.
- Engineered a wearable obstacle detection device for visually impaired individuals, utilizing Arduino Nano, ultrasonic sensors, and buzzers, achieving 95% reliability for obstacle detection in real-time environments.
- Documented comprehensive project processes, creating a detailed report that covered initial design, component selection, testing phases, and final outcomes, which was shared with cross-functional teams.

### ASME - Team Veloce

June 2023 - July 2024

Vellore, Tamil Nadu

Technical Core Member

- RCAircraft Propulsion Measurement System is a high-precision thrust measurement stand using Arduino and sensors (HX711, ADC, load cell) to accurately measure thrust, RPM, current, and battery consumption for RC aircraft.
- Integrated a custom-built load cell into the thrust stand, enhancing accuracy for real-time data analysis and improving measurement consistency across various propulsion systems.
- Collected extensive datasets in CSV format for thrust analysis, employing Python for data cleaning, visualization, and analytics to identify optimal performance configurations for different RC models.

## Skills and Competencies

### Line-Following Robot Project | Microcontroller Programming (Arduino), C/C++

- Designed and programmed an autonomous line-following robot using an 8-array QRT sensor and Arduino, achieving smooth path tracking for real-time obstacle navigation.
- Integrated a PID control algorithm, reducing navigation errors by 25% and enabling consistent maneuvering around complex curves and obstacles.

### Hybrid Cryptographic Approach for Strengthening 5G/B5G Security | Research work under review

- Designed and implemented a hybrid AES-DES-RSA encryption model to enhance data security in 5G/B5G networks. Conducted performance benchmarking, throughput analysis, and S-Box optimization to evaluate computational efficiency
- Conducted performance benchmarking, proving hybrid encryption outperforms traditional methods in efficiency and security for ultra-high-speed networks.

## Achievements/Certifications

### Boltz 2024 Hacktron | Python, Intel Xeon Virtual Machine, Jupyter Notebook

- Co-developed an INDO-LLaMA-based language translation tool on Intel Xeon VM, achieving top 10 placement by optimizing translation accuracy and processing efficiency.

### Naukri Campus Young Turks

- Naukri Campus Young Turks Aptitude Exam: Achieved an outstanding score of 96.5% in the national aptitude exam, placing within the top 0.18% of candidates.
- Electronics Ranking: Secured a rank under 900 out of 500,000 participants in the Electronics category, demonstrating strong expertise and competitive skills in the field.

## Technical Skills

Languages: C programming, Embedded C Programming, Verilog, Python, Java, Matlab

Technologies: Cadence, COMSOL Multiphysics, Jupyter notebook, NetSim