

# Tushar Agarwal

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## Education

**Bachelor's in Technology, Computer Science and Engineering**  
Vellore Institute of Technology (VIT)

**Expected May 2026**

## Skills

**Languages/DB:** C, C++, JavaScript, TypeScript, MySQL, PostgreSQL, MongoDB

**Tools/Frameworks:** HTML, CSS, Tailwind, React.js, Next.js, Node.js, Express.js

## Projects

### Flight Booking System [Link]

Sep 2025

- Developed complete microservices architecture with Search, Booking, and Notification services behind an API Gateway, using JWT authentication and clean API versioning.
- Engineered relational schemas with 10+ MySQL tables, enforced foreign key constraints with cascading operations, and managed database migrations using Sequelize CLI; ensured ACID-compliant transactional flows with robust logging for maintaining data integrity.
- Built reliable service-to-service communication using Pub/Sub architecture, implemented business logic for flight search and booking workflows, and integrated secure payment gateway handling.

### Computer Repair Shop [Link]

Aug 2025

- Built a CRM portal with ticket submission and a secure staff-only assignment system, using Next Auth for protected routes and password-less authentication.
- Integrated Kinde Auth for Role-Based Access Control and used Drizzle ORM with PostgreSQL, applying schema validation and migrations for reliable, optimized queries.
- Used TanStack Table for fast data grids, deployed on Vercel with autoscaling, and added Sentry for full performance and error monitoring.

### PeerFlow Server [Link]

July 2025

- Group Video Chat Application using WebRTC (via PeerJS) for low latency and peer-to-peer media transfer and Socket.io for signaling and bidirectional communication.
- Built Server architecture using Node.js and WebSockets with an intent to create a Selective Forwarding Unit (SFU) model to efficiently manage multi-party video.
- Learned concepts like ICE candidates with STUN and TURN servers for robust NAT traversal, ensuring reliable peer connections and fallback routing in dynamic group video chat environments.

## Extra Curricular Activities

### Smart India Hackathon - Internal Finalist

Aug 2024

- Engineered a highly scalable web application as a key full-stack developer and leveraging advanced machine learning algorithms to address the problem's core technical requirements.

### IEEE Student Chapter - Core Member

June 2024

- Coordinated 5 coding events, including Beyond Level 0 hackathon with 200+ participants.
- Led development of chapter websites and event platforms using modern web tools and deployed responsive web platform.

### SAE AeroTHON- Finalist

June 2023

- Analyzed more than 10 comprehensive research papers in the specialized field of aerodynamics. Contributed significantly to advanced UAV simulation modeling and secured a competitive 32nd rank all over India.