

# Frank Mathew Sajan

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## Education

Vellore Institute of Technology, Amaravati

Expected May 2027

- Bachelor of Technology in Computer Science | 8.68 (out of 10.00) CGPA
- **Relevant Coursework:** Data Structures and Algorithms, Operating Systems, Computer Networks, Database Management Systems (DBMS), Object-Oriented Programming Systems (OOPS).

## Technical Skills

**Programming Languages:** Python, Java, JavaScript (ES6+), SQL.

**Networking & Security:** TCP/IP, Routing, Switching, HTTP/S, TLS, VPN fundamentals, Firewall/IDS/IPS concepts, Wireshark.

**Web & App Development:** React + Vite.js, Django, REST APIs, React Native (Expo).

**Databases & Cloud:** MySQL, Supabase (Postgres), AWS, Firebase.

**Testing & Debugging:** Unit/integration testing, debugging, performance profiling.

**Software Engineering Tools:** Git, CI/CD, Linux/Bash.

**Embedded Systems:** Arduino, Raspberry Pi, Real-time Data Processing.

## Experience

Software Engineer Intern, IIEC VIT-AP, Amaravati

Aug 2023 – Present

- Developed a mobile application using Expo Framework for an autonomous agricultural drone; optimized path-planning and reduced resource usage with data-driven heuristics.
- Built a real-time sensor data processing pipeline (thermal/IR/gas) to detect hazard scenarios and operate reliably in low-connectivity networks.
- Designed and validated a LoRa-based communication module, improving link reliability and uptime for safety-critical alerts in industrial-like environments.
- Deployed an ML-based plant anomaly detection service on AWS EC2 behind a REST API; added health checks and logging to support observability and debugging.
- Drove quality with test plans and integration tests; collaborated across a 4-member team using Git-based workflows and CI.

## Projects

School Management System (Supabase, AWS)

Live Demo

- Deployed a system for a rural school in Agra, **reducing administrative overhead and increasing digital adoption.**
- Optimized database access patterns, cutting page load times by 35%.
- **Developed, tested, and deployed** a full-stack application using React (frontend), Supabase/Postgres (backend), and Firebase Hosting; implemented role-based access and followed security best practices.

**Hazard Detection & Communication Module (Smart Helmet)**

- Built a real-time monitoring system with a **modular architecture** on Raspberry Pi/Arduino, enabling scalable deployments in industrial settings.
- Implemented fault-tolerant messaging and backoff strategies for alert delivery in constrained networks; reduced false alerts with sensor dispute-resolution logic.

## Achievements

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- **NASA Space Apps Challenge 2024 Global Nominee** (Top 1% of 93,520+ participants)

Developed an AI-driven educational platform to simplify PACE satellite data analysis, improving ocean literacy for students. - Collaborated in a 4-member team under time constraints, aligning with industrial project workflows. [Results]

- **1st Prize, HackAP Hackathon**

Engineered a hazard detection system with modular software for industrial environments, reducing false alerts using sensor dispute-resolution algorithms.