TEJASHVI RAJ

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EDUCATION

- **Vellore Institute of Technology** — Bhopal,India
  Bachelor of Technology - Electronics and Communication Engineering; CGPA: 8.50 — *2022 – 2026*
- **Mithila Public School** — Forbesganj, India
  CBSE: 84.6% — *2021*
- **Vidya Vihar Residential School** — Purnea,India
  CBSE: 89.4% — *2019*

SKILLS

- **Programming Languages:** C++, Embedded C, Python, MATLAB.
- **Domains:** Embedded Systems, VLSI Design, IoT, Signal Processing, Computer Vision.
- **Tools and Platforms:** ESP32, Arduino, Raspberry Pi, Blynk IoT, SIMULINK, Git, NoSQL, MongoDB.

PROJECTS

- **DHARA – The Ultimate Hydro Manager:** Sep 2024 – Jan 2025
  - Developed an **ESP32-based IoT** system integrating **TDS, turbidity, pH**, and **temperature sensors** to monitor aquaponic and hydroponic environments.
  - Implemented **motor-controlled pH regulation (6.0–8.0)** and **passive temperature management (25–30°C)**, reducing manual intervention by **60%**.
  - Leveraged **Ubidots** for real-time cloud analytics and remote **dashboard visualization**.
  - Designed a low-cost, scalable prototype to enhance accessibility and demonstrate innovative solutions for sustainable agriculture.
- **IoT Based Garbage Level Monitoring System:** July 2023 – Aug 2023
  - Created a **smart bin alert system** using **ESP32** and **ultrasonic sensors**, integrated with **Blynk IoT** for cloud-based notifications.
  - Programmed real-time **bin overflow alerts** with **<10 ms response time** using **threshold logic in C++**.
  - Developed by a **2-member team**; optimized sensor code to improve **distance accuracy by 15%**.
  - Targeted **urban waste collection improvement** in smart city pilot projects.
- **Aquatic Life Monitoring System:** Apr 2023 - June 2023
  - Built a **sensor network** to track **pH, turbidity**, and **TDS** levels, achieving **±0.2 accuracy** on readings.
  - Designed **anomaly detection algorithms** to identify water quality drifts in real time.
  - Enabled a **20% improvement** in early warning responsiveness for aquaculture management.
  - Simulated across **3 aquatic environments** to validate **sensor reliability and stability.**

CERTIFICATIONS

- **VLSI Design Internship** — *Jan 2025 – Mar 2025*
  Externship
  - Worked on **RISC-V ISA & RV321 RTL Design** gaining hands-on experience in **register-transfer level (RTL) modeling, digital design, and hardware description languages (HDLs)**.
  - Applied VLSI principles in a real-world project environment, focusing on **ISA architecture understanding and implementation**.

- **MongoDB Associate Database Administrator** — *Jan 2025 – Apr 2025*
  Externship
  - Completed training on **MongoDB fundamentals**, including **CRUD operations, schema design, indexing, aggregation pipeline, and database administration** concepts.
  - Gained practical experience through labs and project assignments aligned with **NoSQL** database architecture.

CO-CURRICULAR

- **VITroniX Club – Electronics Team Co-Head** — *July 2024 -– Feb 2025*
  - Conducted workshops and mentorship sessions in **embedded systems and circuit design** for **100+** students.
  - Boosted club engagement by **35%** through hands-on activities and student-led projects.