



## Vignesh Thanigaivel

B.tech Electronics and Communications

Phone: +91 8300829502

Email: vigneshta004@gmail.com

Portfolio: vigneshta.com

leetcode.com/u/tavignesh (200+Streak)

github.com/tavignesh

linkedin.com/in/tavignesh

## EDUCATION

### •Vellore Institute of Technology, Vellore

2026

B.tech Electronics and Communication Engineering with specialization in Biomedical Engineering

CGPA: 8.04

### •Atomic Energy Central School, Anupuram

2022

Central Board of Secondary Education (CBSE)

Percentage: 93.6

## TECHNICAL SKILLS

**Languages:** Python, RUST, C, SQL, HTML, CSS, Assembly, Verilog, Matlab, R, Java, C++, Javascript

**Frameworks & Libraries:** AWS, LangChain, ChromaDB, Ollama, RAG, NoSQL - MongoDB, Nginx, RestAPI, Docker, WebRTC, Socket.IO, Git, Django, MultiThreading, OOPs, Discord.py

**Misc.:** Data Structures & Algorithms, Server Designing and Load Management, Object Oriented Programming, Git

**Soft Skills:** Public Speaking, Delegation, Collaboration, Diligence, Result Oriented, Flexible

**Languages:** English, Hindi, Tamil, German

## PERSONAL PROJECTS [LINK]

### • Scalable Linked NGINX RTMP-Based Multi-Endpoint Live Video Restreaming System

[Learn More](#)

- Designed and deployed a scalable live streaming system using NGINX with RTMP for adaptive stream replication, dynamic multi-endpoint delivery, and optimized failover—ensuring high performance under heavy viewer load.
- Tools & technologies used: NGINX, FFmpeg, RTMP, Linux, Shell Scripting

### • Real-Time Proximity Voice Interaction Platform Using WebRTC, Socket.IO, and Phaser

[Learn More](#)

- Developed a browser-based spatial voice chat platform enabling proximity-based audio using WebRTC for P2P communication, Socket.IO for real-time avatar state sync, and Phaser 3 for 2D movement.
- Tools & technologies used: JavaScript, WebRTC, Socket.IO, Phaser, Node.js, HTML5

### • Modular Python Discord Bot with MongoDB Integration and External API Support

[Learn More](#)

- Built a scalable, modular Discord bot in Python featuring dynamic user commands, role management, and real-time interactions via multiple external APIs and MongoDB-based persistence.
- Tools & technologies used: Python, Discord.py, MongoDB, REST APIs, Asynchronous Programming

### • For more Projects - vigneshta.com/projects [LINK]

## WORK EXPERIENCE

### • Indira Gandhi Centre for Atomic Research [IGCAR]

Jun. 2024 - Jul. 2024

Wireless Sensor Networks (Offline Internship)

Kalpakkam, Tamil Nadu

- Designed a wireless packet loss testing system using 25 Zigbee modules and a SAMD20 Cortex M0+ MCU, applying IEEE protocols, ADCs, and embedded system design across 8-bit to DSP microcontrollers.

### • RC Studios

Jul. 2024 - Aug. 2024

Server Design & Administration (Hybrid Internship)

Coimbatore, Tamil Nadu

- Engineered an Nginx-based Linux streaming server with FFmpeg for multi-resolution RTMP output and HLS playback, incorporating load management strategies to ensure stable performance under high concurrent traffic.

### • Freelance

Jun. 2023 - Present

Server Administrator (Hybrid)

- Executed & supervised high-integrity server deployments implementing advanced load balancing while ensuring compliance with strict validation protocols and infrastructure performance benchmarks.

### • Freelance

Mar. 2023

Website Design (Online)

- Architected, deployed, and maintained secure web infrastructures, integrating SSL, HTTP server configurations, DNS management, and backend database systems to ensure robust and scalable online platforms.

## PUBLICATIONS

### •Cloud-Controlled Dynamic Smart Street Lighting System

16 Feb. 2024

2023 International Conference on Next Generation Electronics (NEleX)

DOI: 10.1109/NEleX59773.2023.10420861 [LINK]

### •IoT and Cloud based Automated Irrigation System

02 Jul. 2024

2024 3rd International Conference on Artificial Intelligence For Internet of Things (AIIoT)

DOI: 10.1109/AIIoT58432.2024.10574611 [LINK]