

# GEETANJALI SAINI

Email: sainigeetanjali0504@gmail.com — LinkedIn: linkedin.com/in/geetanjalisaini0504 — GitHub: github.com/geeta0504

## SUMMARY

Electronics and Communication Engineering undergraduate with hands-on experience in embedded systems and applied machine learning. Strong foundation in Python, signal processing, and Arduino-based systems, with practical exposure to end-to-end ML pipelines, model interpretation, and deployment using Streamlit.

## TECHNICAL SKILLS

**Languages:** C, Python, Verilog, MATLAB, HTML

**Machine Learning:** Random Forest, Feature Engineering, Model Evaluation (RMSE,  $R^2$ , MAE), LIME

**Libraries / Frameworks:** scikit-learn, Streamlit, NumPy, Pandas

**Tools / Platforms:** Git/GitHub, Arduino IDE, Jupyter Notebook, Firebase

**Embedded & Hardware:** Arduino, Microcontrollers, IR Sensors, Accelerometers, Soil Moisture Sensors

## PROJECTS

### Smart Traffic Light System

*Arduino, IR Sensors, Embedded C*

NIT Goa

- Designed a dynamic traffic signal controller using real-time vehicle detection.
- Implemented adaptive green-light timing based on traffic density.
- Demonstrated improved traffic flow efficiency compared to fixed-timing systems.

### Earthquake Detection using High-Pass Filtering of Tectonic Vibrations

*Arduino Nano, ADXL345, Python, Signal Processing*

NIT Goa

- Built a real-time seismic vibration detection system using accelerometer data.
- Applied high-pass filtering to isolate high-frequency tectonic signals.
- Enabled live alerts using buzzer and LED indicators with real-time data visualization.

### Autonomous Irrigation Robot

*Arduino, Soil Moisture Sensors, IR Sensors*

NIT Goa

- Developed an autonomous robot for plant detection and need-based irrigation.
- Implemented moisture-threshold logic to reduce water wastage.

### Music Popularity Predictor [GitHub] [Live Demo]

*Python, scikit-learn, Streamlit, LIME*

- Built an end-to-end machine learning system to predict song popularity using audio and metadata features such as acousticness, energy, tempo, and duration.
- Performed data preprocessing, feature engineering, and trained a Random Forest Regressor for numerical popularity prediction.
- Evaluated model performance using RMSE,  $R^2$ , and MAE to ensure robustness and generalization.
- Integrated LIME to interpret individual predictions and analyze feature influence on popularity scores.
- Deployed an interactive Streamlit web application allowing users to input song features and visualize prediction behavior in real time.

### CampusFlow – Smart Campus Engagement Platform (In Progress)

*Vue.js, Nuxt.js, Tailwind CSS, Node.js, Firebase*

- Developing a full-stack platform for campus announcements, events, polls, and community engagement.
- Implementing role-based access control and dynamic, user-configurable forms.

## **EDUCATION**

### **B.Tech in Electronics and Communication Engineering**

National Institute of Technology Goa

2023 – 2027

CGPA: 7.48

### **Class XII (CBSE)**

Kendriya Vidyalaya No. 1, Vasco-da-Gama, Goa

2023

Percentage: 81%

### **Class X (CBSE)**

Kendriya Vidyalaya DGQA, Chennai

2021

Percentage: 93%

## **POSITIONS OF RESPONSIBILITY**

### **Class Representative (CR), B.Tech ECE**

NIT Goa, 2025

- Represented students in academic and administrative matters.
- Coordinated communication between faculty and students.

### **Event Coordinator (Head), Savyaas Techno-Cultural Fest**

NIT Goa, 2025

- Led planning and execution of technical and cultural events.
- Managed logistics, registrations, and cross-team coordination.