



Ecoacoustics Bird Tracker Dashboard

Transforming Acoustic Data into Biodiversity Insights



System Overview

The Ecoacoustics Bird Tracker Dashboard is a cloud-based data analytics platform designed to help researchers and technicians monitor bird activity through acoustic detections.

By integrating geospatial visualization, filter-based analytics, and real-time data management, the system enables efficient exploration of biodiversity patterns and supports informed environmental decisions.

Objectives

- Visualize detection data across multiple locations
- Support biodiversity monitoring and analysis
- Improve collaboration and data transparency

Target Users

- Ecological researchers
- Technicians managing sensor devices
- Administrators overseeing multi-site monitoring projects

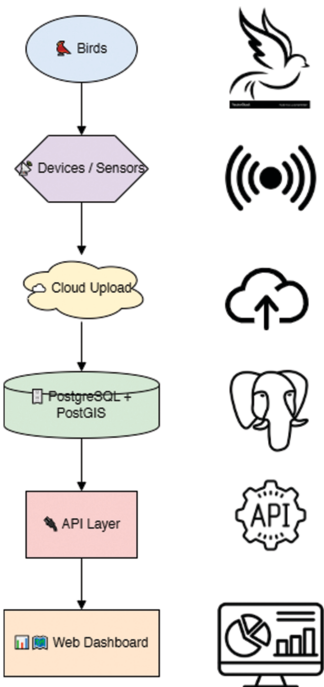


Methodology

Agile-based iterative development (Sprints 1-3) with continuous testing, QA validation, and mentor/client feedback.



System Architecture Diagram



Key Functionalities

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Interactive Map View

- Displays all device locations with pop-ups showing ID, location, detections, and species count
- Filters by date range, species, call type, monitoring goal, or device status

Analysis Dashboard

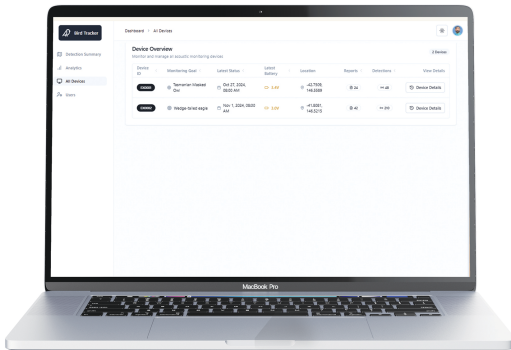
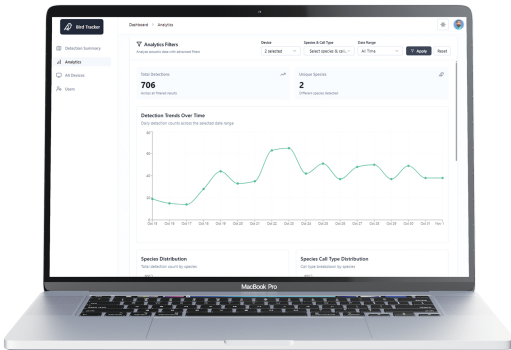
- Time-series line chart: bird call detections over time
- Bar chart: total detections per species
- Stacked bar chart: call-type proportions (mating,distress, social)
- Fully filterable by date, device, or species

Device Management

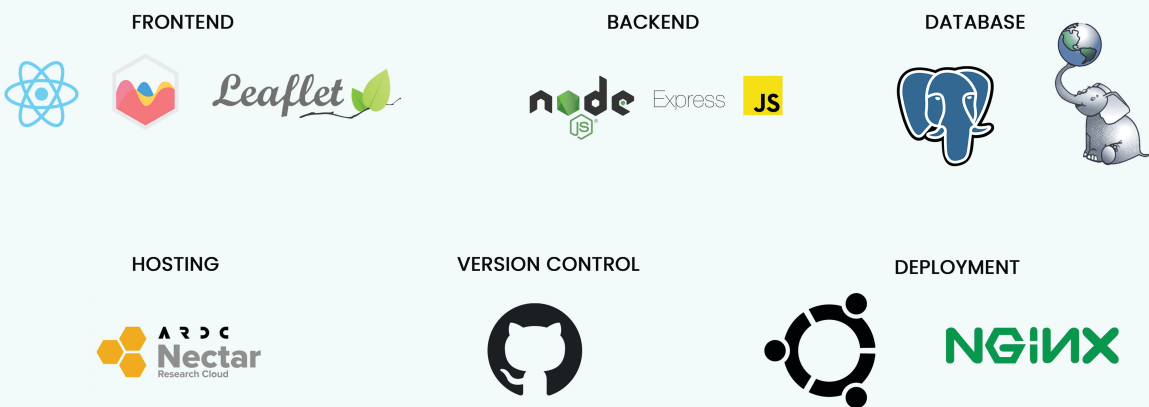
- Tabular view of all devices showing ID, location, monitoring goal, latest status, and battery level
- Device detail page includes expanded monitoring goal, battery health chart, and recent detections



Website Interfaces



Technologies and Tools



Future Enhancements

- Integrate ML models for automatic species detection
- Add automated reporting and notifications
- Offline field data synchronization



Impact & Outcomes

- Enables efficient species detection analysis from large acoustic datasets
- Promotes collaborative ecological research
- Improves data transparency and reproducibility
- Provides a foundation for future AI-based call classification