

Aegis – Predictive Crime Safety Mobile App

Aegis is a **cross-platform mobile safety application** that provides **proactive crime awareness** using machine learning–driven insights. The app focuses on **predictive safety visualization**, helping users assess risk across urban areas through interactive maps and time-based analysis.

Highlights

- **ML-powered safety heatmaps** visualizing crime risk levels (safe → risky)
- **Temporal forecasting controls** to analyze predicted trends by year, month, and hour
- **Community search & navigation** for area-specific safety insights
- **Custom SVG map rendering** using Flutter's `CustomPainter`
- **Optimized performance** via API caching and efficient state management
- **Data-driven insights** combining historical patterns with ML predictions

Designed with scalability in mind, Aegis supports future enhancements such as route-based safety scoring, offline caching, and predictive alerts.

Tech Stack

Flutter (Dart) · FastAPI · PostgreSQL · XGBoost · scikit-learn · Riverpod · CustomPainter · Figma

Aegis – Comparative Safety

Community A — 1 Community B — 71 Compare

Inputs – Month: 12 Hour: 9 Year: 2025

Real-Time Safety Comparison

Safety A (now)	Safety B (now)
7.67	7.44
Severity A (now)	Severity B (now)
8.332	9.090

Using real-time inputs → Month: 12, Hour: 9, Year: 2025

Left – Area 1

Historical Data
Year: 2025 Month: 9

Severity: 8.332
Moderately Safe ⚠

Total Arrests: 16
Primary Crime: THEFT
Hotspot: APARTMENT

Right – Area 71

Historical Data
Year: 2025 Month: 9

Severity: 9.090
Slightly Unsafe ⚠

Total Arrests: 19
Primary Crime: BATTERY
Hotspot: STREET

📍 Heatmap
👤 Stats
🔍 Search

Aegis – Heatzones

Heatzone Mapping: ● Safe → ● Unsafe

Month: 7 Hour: 2022

📍 Heatmap
👤 Stats
🔍 Search