AlertNet: Real-Time Crime Reporting for the MENA Region

Presented at the AI for Good Hackathon (Sponsored by Nokia)

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The Problem: Lack of Real-Time Crime Information

Underreporting Issue

- **Gaps in Public Safety**

Many crimes in the MENA region go unreported, leading to incomplete and unreliable crime statistics.

- **Commonly Underreported Crimes:**

1. Petty crimes targeting tourists (e.g., pickpocketing, scams, minor thefts) and street level crimes (e.g., vandalism, assaults, fraud) are often overlooked in official data.
2. Harassment against women in public spaces frequently goes unreported due to social stigma, victim-blaming, or lack of effective legal recourse.

- **Lack of Research & Data:**

There is no centralized database or comprehensive research on these issues in the region, making it difficult to assess crime trends. Due to limited access to real-world data, we had to simulate data for testing purposes.

Impact

- **Compromised Safety:**

1. When crime data is incomplete, people cannot make informed decisions about their surroundings, leaving them vulnerable.
2. Women, tourists, and expatriates are disproportionately affected by the lack of accessible crime information.

- **Avoidable Risks:**

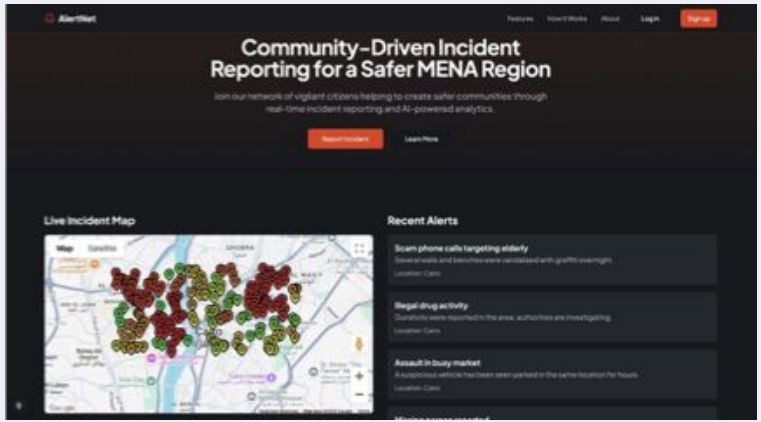
1. Many crimes—especially theft, scams, and harassment—can be prevented if people are aware of high-risk areas.
2. Example: In areas known for frequent pickpocketing, simple precautions like securing personal belongings can significantly reduce incidents.

Welcome to AlertNet

What is AlertNet?

AlertNet is a community-driven crime reporter designed for real-time reporting of crimes or incidents. Developed to serve the MENA region, it focuses on the unique social, cultural, and infrastructural contexts of the area.

AlertNet empowers individuals to share critical information and enhances public safety through crowdsourced surveillance.



Core Concept & User Flow

User-Reported Incidents

Community members can submit incident reports (e.g., theft, suspicious activity) via the mobile or web app. Each report includes essential details like location, time, and a brief description.

Community Validation

Other users can confirm or dispute the accuracy of each report. Reports accumulate a "reliability score" based on the balance of confirmations and disputes. The more user feedback, the higher the credibility of each report.

User Reputation System

Users with multiple confirmed misreports are flagged and may be temporarily blocked or banned. Consistently accurate reporters earn a "trusted reporter" badge visible to the community.

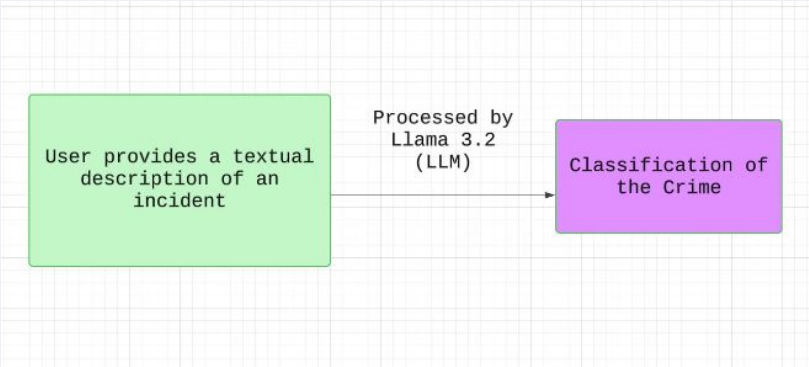
AI-Powered Crime Reporting

Crime Classification

Purpose: Automatically identify and label the type of crime (e.g., theft, assault, vandalism) from user-submitted descriptions and multimedia.

Natural Language Processing (NLP)

An LLM analyzes text input from the report to extract key details (keywords, phrases, sentiment) and categorizes the incident into set categories for more robust time based analytics (code)



Geospatial Analysis

Purpose: Map and analyze the spatial distribution of reported crimes to identify hotspots and patterns over time.

Clustering Algorithms

Applies DBSCAN to group incidents based on geographic coordinates. Detects clusters where reports are concentrated. Generates real-time clusters on the map that allow users to quickly see high-risk areas around them. (code)

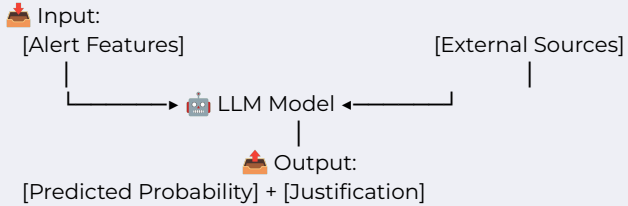
AI-Powered Crime Reporting

Retrospective LLM Evaluation

Purpose: Enhance the reliability and accuracy of reported incidents by cross-validating them through external news sources.

LLM Prediction

The model evaluates each report's credibility by cross validating data points of the alert with external news sources such as news APIs, public databases, and other verified records to enhance report credibility. The a probability of the alert being true and a brief justification for the probability. - (code)

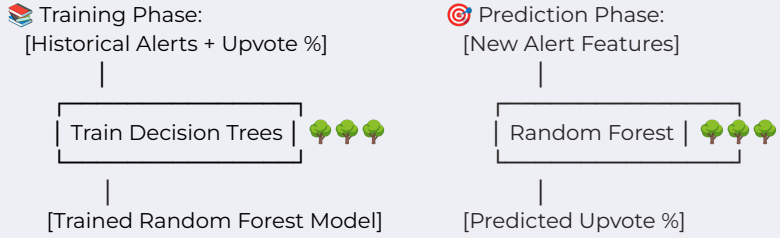


New Report Prediction via Random Forest Regressor

Purpose: When a new alert is submitted, there are no user reviews and the alert cannot be verified. We try to estimate the probability of this alert being accurate.

Random Forest Regressor

The purpose of this prediction is to estimate the percentage of up votes over total votes for a given alert. To do this, we train the random forest model on all past data with the true labels being the aforementioned percentage. We then predict the percentage of up votes for a new uninterested alert - (code)



Scaling AlertNet with Nokia's Cloud Enterprise Solution

As AlertNet expands across the MENA region, its future deployments will require enhanced storage and mission-critical communication capabilities. In high-stakes scenarios like war crimes, bombings, or attacks, real-time, reliable data is essential for first responders and emergency agencies.

1

Cloud-Native Infrastructure

AlertNet's core is built on a 4.9G/5G platform that offers flexibility, scalability, and high availability with three geo-redundant options. This provides a robust, secure, and compact foundation to support massive endpoint and sensor deployments.

2

Optimized for Mission-Critical Communications

The solution ensures secure, wide-area wireless connectivity that is essential for first responders. It also supports hyper-localization and low-latency applications, which are crucial for tracking and coordinating emergency responses.

3

Enhanced Data Quality & Reliability

The platform delivers prioritized QoS to optimize performance for critical voice, video, and data services. It also integrates seamlessly with existing systems, enabling a rapid evolution from legacy systems to modern, cloud-based solutions.

In emergency events AlertNet can leverage Nokia's core solution to provide reliable, real-time alerts and comprehensive situational awareness. This enables first responders to access critical data quickly, improving decision-making and saving lives.

Now for the demo of our app

Thank You for Your Attention!

Contact us if you have any questions:

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