

Project Overview

GridWatch is a civic monitoring platform that updates in real-time. Designed to display reports of active incidents in a city, it provided residents, officials, and service providers with live updates on critical events. Anything from water main breaks, gas leaks, power outages, shootings and even road closures will be shown. By consolidating information into one dashboard, GridWatch makes it easier for residents to be socially aware, accelerate response times, and improve public safety communication.

Problem Statement

Urban residents don't have easy access to timely information about ongoing disruptions in their cities. Currently, this data is scattered across many channels (social media, police reports, individual utility notices). This fragmented nature leads to delays in responses and poses potential safety risks for the community. There is a clear need for a unified platform that surfaces active incident data in real time.

- **For Residents:** One app that shows all active incidents (gas leaks, shootings, outages, road closures) in real time.
- **For Officials:** Accelerated situational awareness and incident tracking, reducing response times.
- **For Utilities:** Consolidated visibility into infrastructure failures and civic impacts, reducing service downtime.
- **For Businesses:** Early warnings about disruptions affecting operations, logistics, or safety.

Technical Overview

- **Specialized AI Agents**
 - **Traffic Agent:** Monitors DOT sensors, road closure reports, and live traffic feeds.
 - **Energy Agent:** Tracks power and gas utilities, outage maps, and emergency bulletins.
 - **Crime Report Agent:** Processes police blotters, crime reporting feeds, and emergency alerts to surface real-time safety incidents.
 - **Emergency Services Agent:** Tracks fire department data, EMS dispatches, and public safety bulletins for rapid-response awareness.
 - **Environmental Agent:** Monitors air quality indices, natural disaster alerts, and extreme weather advisories (heat, flood, storm).
 - **Future Expansion – Social Media Agent:** Scrapes and classifies verified social content (tweets, posts, citizen videos) using NLP, surfacing signals with confidence scores.
- **Backend Workflow**
 - **Agents:** Lightweight software agents monitor 311 reports, traffic feeds, and curated AI summaries, sending structured *Evidence* to the backend.
 - **Backend:** Maintains a short rolling buffer, groups nearby reports about the same event, and applies transparent rules to rate **confidence** and **severity** (e.g., traffic jams boosting credibility).
 - **Incidents:** Each incident is enriched with plain-English context, source attribution, and a short playbook of recommended next steps (notify department, suggest detour, etc.).
 - **Storage:** Incidents persist in **Google Firestore** so they survive app restarts, with a fallback to an in-memory feed if Firestore is unavailable.
 - **Frontend:** Consumes a stable, map-ready format, ensuring the dashboard always shows clear, actionable events.
 - **End Result:** A **fast, reliable, explainable pipeline**—agents collect, backend fuses and scores, Firestore preserves, and the map displays what matters most.

