

Google Cloud

PRESENTS

# Agentic AI Day

Build the next generation of intelligent agents

Powered by 

## Team Details

- a. Team name: **KernelCrew**
- b. Team leader name: **Chidwipak Kuppani**
- c. Problem statement: **Managing City Data Overload**

## Brief about the idea:

We are developing **NeuroCore**, an AI-powered smart-city platform that functions like a **digital brain** to help cities think, decide, and act in real time. At its core are **six specialized AI agents** — Traffic, Safety, Health, Environment, Emergency, and Social — each focused on a specific domain. These agents use **Google's Gemini and Vertex AI tools** to analyze live data and collaborate through a **Consensus Engine**, just like a city council, to suggest and implement the best actions.

NeuroCore collects and fuses data from multiple sources, including **citizen reports (with images or videos)**, **IoT sensors**, and **social media posts**. Instead of treating each event in isolation, the system connects the dots between incidents — for example, how traffic congestion, poor air quality, and citizen frustration are all linked during heavy rainfall. This allows the city to **respond proactively rather than reactively**, predicting issues before they escalate.

Our system is built to be **modular and scalable**, with privacy-first features like **Edge AI processing** and **anonymized pattern analysis**. It can adapt to both large metro cities and smaller towns, offering a **Lite version for Tier-2 cities**. NeuroCore aims to go beyond smart monitoring — it brings **agentic intelligence**, collaboration, and foresight to urban management.

# Opportunities

## How different is it from existing ideas?

Most existing smart city platforms focus on visualizing isolated data streams like traffic maps or sensor dashboards. They often lack coordination across domains and cannot reason or predict beyond surface-level patterns. **NeuroCore** stands out by introducing a **multi-agent AI system** where each domain (traffic, health, safety, etc.) is handled by a dedicated, intelligent agent that collaborates with others through a **Consensus Engine**, making it a truly agentic decision-making platform — not just a data viewer.

## How will it solve the problem?

City data is currently noisy, siloed, and overwhelming. **NeuroCore** solves this by using **Google AI tools** like Gemini and Vertex AI to **synthesize real-time multimodal data**, generate predictions, and automate decisions. It identifies root causes, predicts cascading effects (e.g., waterlogging causing traffic congestion and emergency delays), and coordinates across domains to take timely actions. It enables cities to **act intelligently**, not just monitor passively.

## USP of the proposed solution:

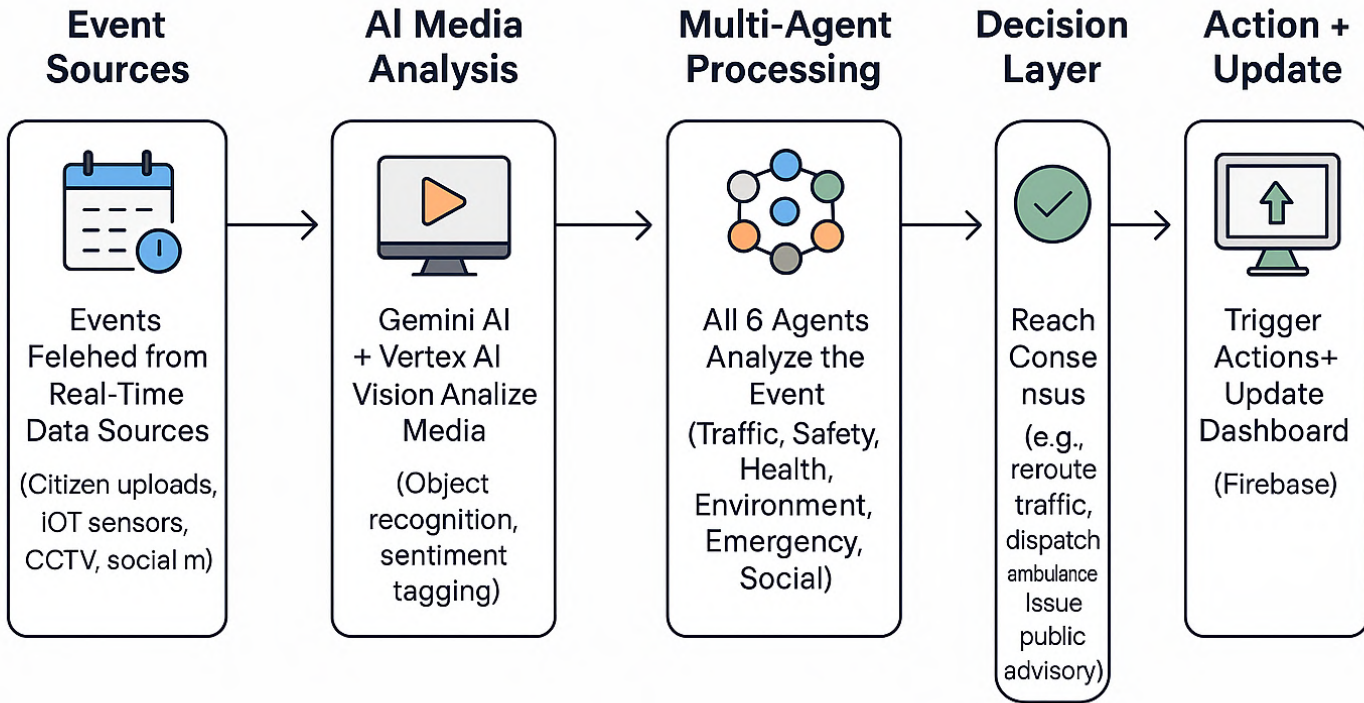
**NeuroCore** introduces a first-of-its-kind **agentic architecture** where six specialized AI agents work together to make intelligent, cross-domain decisions for the city. It features a **Neural Event Mesh** that links related urban incidents like neurons in a brain, enabling deep contextual understanding. One of its standout capabilities is the **City Oracle**, which allows natural language “what-if” scenario simulations powered by multi-agent reasoning. The system is also **modular and scalable**, adaptable for both large metros and smaller towns through a **Lite version**. With a **privacy-first design** using Edge AI and anonymized analysis, and complete integration with **Google’s AI stack and Firebase Studio for deployment**, **NeuroCore** offers a truly intelligent and future-ready urban solution.

## List of features offered by the solution

- **Multi-Agent AI Council:** Six specialized agents (Traffic, Safety, Health, Environment, Emergency, Social) collaborate for collective urban decisions.
- **Consensus Engine:** Coordinates agent reasoning to reach optimal, data-driven outcomes.
- **Neural Event Mesh:** Connects related incidents across domains, like neurons in a brain.
- **Quantum Route Intelligence:** Suggests routes based on predicted traffic conditions, not just current ones.
- **Emotion Geography:** Maps public sentiment and stress levels in real time using social media signals.
- **City Oracle:** Enables natural language “what-if” scenario simulations powered by multi-agent reasoning.
- **Smart Crisis Simulation:** Tests city preparedness for floods, blackouts, protests, etc.
- **Privacy-by-Design:** Uses Edge AI and anonymization to protect citizen data.
- **Firebase-Powered Real-Time Dashboard:** Live visualization of events, agent responses, and recommendations.
- **Modular Deployment Models:** Full version for metros, Lite version for Tier-2 cities.

# NeuroCore: Analyzing Real-Time Urban Events with Multi-Agent AI

## Process Flow Diagram:



## Technologies to be used in the solution

### Google AI Stack

- **Gemini 1.5 Pro** – AI agent reasoning & summarization
- **Vertex AI Vision** – Analyzes images/videos from citizens
- **Vertex AI Agent Builder** – Builds 6 intelligent domain agents
- **Vertex AI Forecasting** – Predicts traffic, pollution, crises

### Cloud & Storage

- **Firebase Firestore** – Real-time event + agent data
- **Firebase Studio + Hosting** – Scalable app deployment
- **Google Cloud Storage** – Stores user-uploaded media

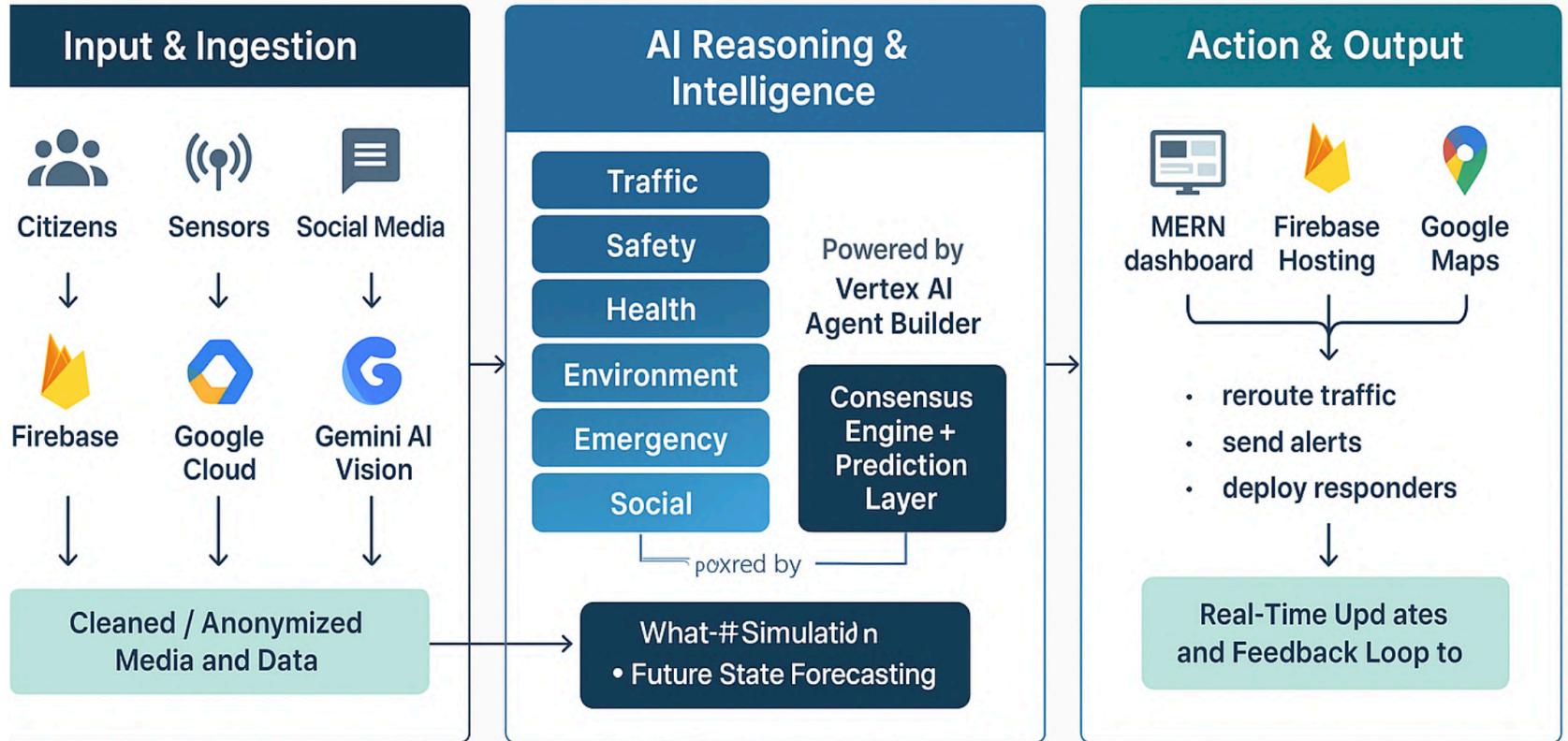
### Mapping & Web Stack

- **Google Maps API** – Smart routing (traffic/emergencies)
- **React + TypeScript** – Dashboard frontend
- **Node.js + Express + MongoDB** – Backend & DB
- **Bootstrap + HTML/CSS** – Responsive UI design

### Privacy-Aware Tech

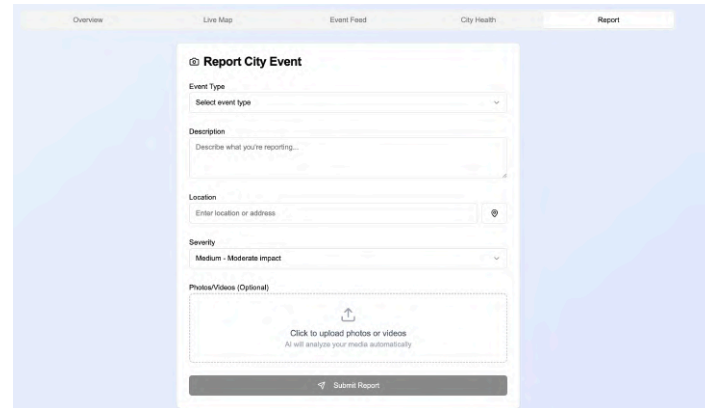
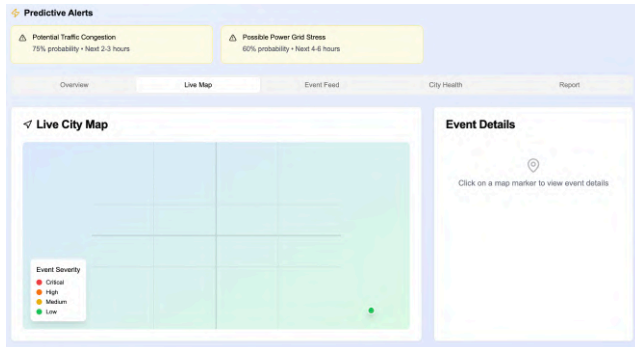
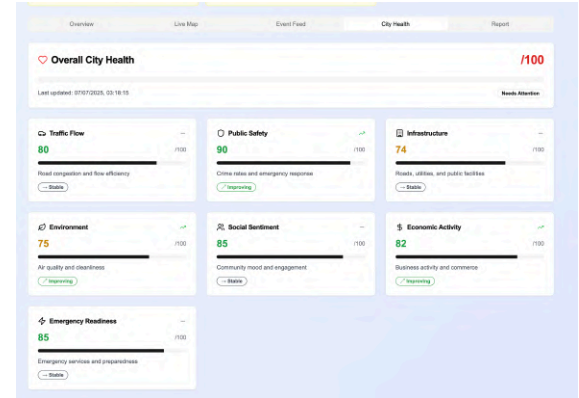
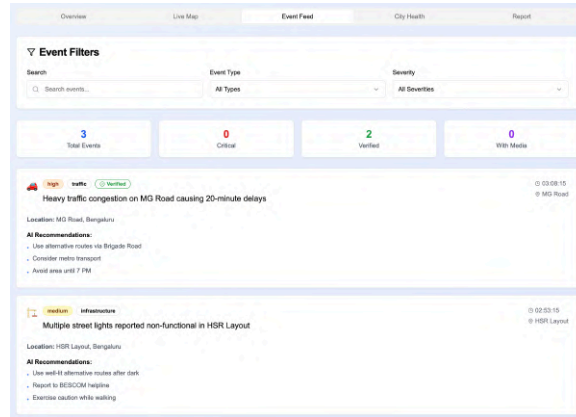
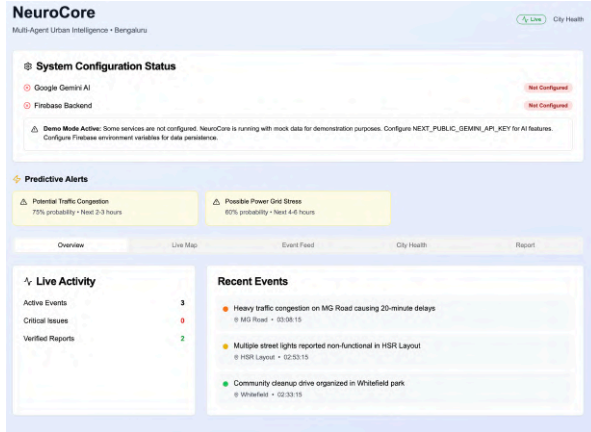
- **Edge AI** – On-device media analysis
- **Anonymization Engine** – Strips personal identifiers
- **Pattern-only AI Models** – Focus on behaviors, not users

## Architecture diagram of the proposed solution





# Wireframes/Mock diagrams of the proposed solution





## ← END Final Pitch & Early Implementation

The screenshots you've seen in the previous slide represent the **early working prototype** of *NeuroCore*. They demonstrate our strong commitment and capability to bring this vision to life using real-world tech stacks and Google AI services.

We didn't just stop at an idea — we **already started building** it.

If shortlisted, we're fully prepared to:

- Expand it into a full-scale system with all 6 smart agents
- Integrate Gemini, Vertex AI, Maps API, and Firebase end-to-end
- Deploy a powerful, real-time AI dashboard for urban intelligence

Our passion for AI, smart cities, and social impact fuels this project.

We truly believe **NeuroCore can be a game-changer**, and we're excited to show what we can accomplish if given the opportunity.

Together with your support, we can bring this innovation to life.  
Let's make our cities smarter, safer, and more human-centric.



Google Cloud

PRESENTS

# Agentic AI Day

Build the next generation of intelligent agents

Powered by  H2S



Thank you!

