



Team Details

- a. Team name: **Data Driven Droids**
- b. Team leader name: **Utkarsh Tripathi**
- c. Problem Statement: **Enhancing City Infrastructure with Data-Driven Decisions**

Brief about the idea

- **System:** Web application
- **Data Sources:** News API, 511 NYC, NYC Open Data, NYC311 Data, Weather API
- **Target City for Prototype:** New York, USA
- **User persona:** It will be primarily used by Civic Planners, City Residents and Public Officials
- **Functionality:** The app/ website will have the following key modules as listed below
 - ✓ Smart Street
 - ✓ Urban SoS
 - ✓ City Guard Service
 - ✓ Bin Sync Service
 - ✓ UtiliGen Service
 - ✓ City 360 Scope dashboard
 - ✓ Resilient Cities
- **Functional usage:** Our platform uses AI to create a safer, more efficient city. For city planners, it offers predictive insights for smarter budgeting and proactive maintenance. For residents, it provides real-time traffic solutions, instant emergency alerts, and easier access to city services, fostering a more responsive and connected community for all.
- **Technology used:** Python, Snowflake Tables, Materialized Views, Snowflake Cortex Analyst, Snowflake Cortex Search, Snowflake Cortex Agents, Snowflake Intelligence, GCP, Fast API, Streamlit





Solution Modules Overview - Screenshots and Overview

Solution Module – Home Page

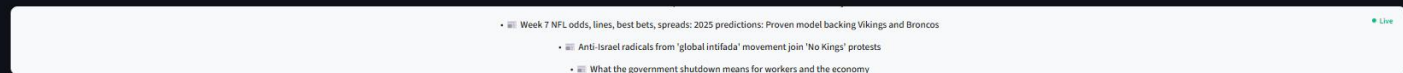
<https://nyc-360-558345184877.europe-west1.run.app/>

Current Status in New York City

Live Weather, Air Quality & Demographics Overview



Latest Headlines in New York City



Map Location: New York City



- **Detailed Weather Forecasting:** The homepage features comprehensive weather analysis, including an hourly graph plotting humidity and temperature, alongside a 7-day future forecast detailing Max/Min temperatures and UV index.
- **Current Status Overview:** The "Current Status" section provides a holistic overview of New York City, displaying live weather conditions, current air quality (AQI), and key demographics like population and birth rate.
- **Location and News Integration:** Users can view the city's location via an embedded map displaying current and maximum daily temperatures, followed by a dynamic section for the "Latest Headlines" news feed.

Solution Module – NYC Assistant Chatbot

https://nyc-360-558345184877.europe-west1.run.app/AI_Assistant

Home

AI Assistant

BinSync

CityGuard & UrbanSOS

ResilientCities

SmartStreets

NYC 360 AI Assistant

What I can help with:

- Weather - Current conditions & forecasts
- Traffic - Real-time congestion updates
- City Info - Neighborhoods & attractions
- Safety - Alerts & emergency info
- Navigation - Routes & directions

Powered by:

- Google Gemini AI
- Snowflake Cortex Agents
- Real-time data streams
- NYC-focused responses only

Reset Chat

This is just a prototype for New York City.

NYC City 360 AI Assistant

Your intelligent companion for navigating the five boroughs. Powered by Google Gemini for instant, real-time insights about New York City.

Weather Traffic City Info Safety Navigation

Hello! I'm your NYC City 360 AI Assistant.

I'm here to help you navigate the five boroughs with real-time information. You can ask me about:

Weather - Current conditions, forecasts, and alerts Traffic - Live congestion, incidents, and route planning City Information - Neighborhoods, attractions, and local insights Safety - Emergency alerts and public safety updates Navigation - Directions and transportation options

What would you like to know about NYC today?

Ask me anything about NYC - traffic, weather, safety, or city info...

- **Comprehensive NYC Companion:** Positioned as an "intelligent companion," the NYC 360 AI Assistant is ready to answer virtually any user query about navigating, living, or finding information within the five boroughs.
- **Modular Functionality:** While offering broad knowledge, the assistant organizes its data into five core modules: Weather, Traffic, City Info, Safety, and Navigation, providing specialized, real-time insights.
- **Advanced AI Backbone:** The system is powered by Google Gemini AI and leverages Snowflake Cortex Agents, ensuring sophisticated processing and delivery of accurate, highly relevant, NYC-specific responses.

Solution Module – Smart Waste Management System

<https://nyc-360-558345184877.europe-west1.run.app/BinSync>

Smart City - Waste Management Dashboard

This dashboard provides a real-time view of waste generation, recycling performance, and bin locations across the city. It helps city administrators monitor sustainability efforts and track diversion rates effectively.

Total Waste Collected

309,178.23

↑ Tons



Total Recycled Waste

60,278.99

↑ Tons



Average Diversion Rate

19.50%

↑ Recycled / Total



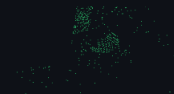
Latest Recycling & Waste Management News

NYC continues to improve waste diversion rates across all boroughs

New recycling initiatives launched to increase sustainability

• Live

Real-Time Bin Locations



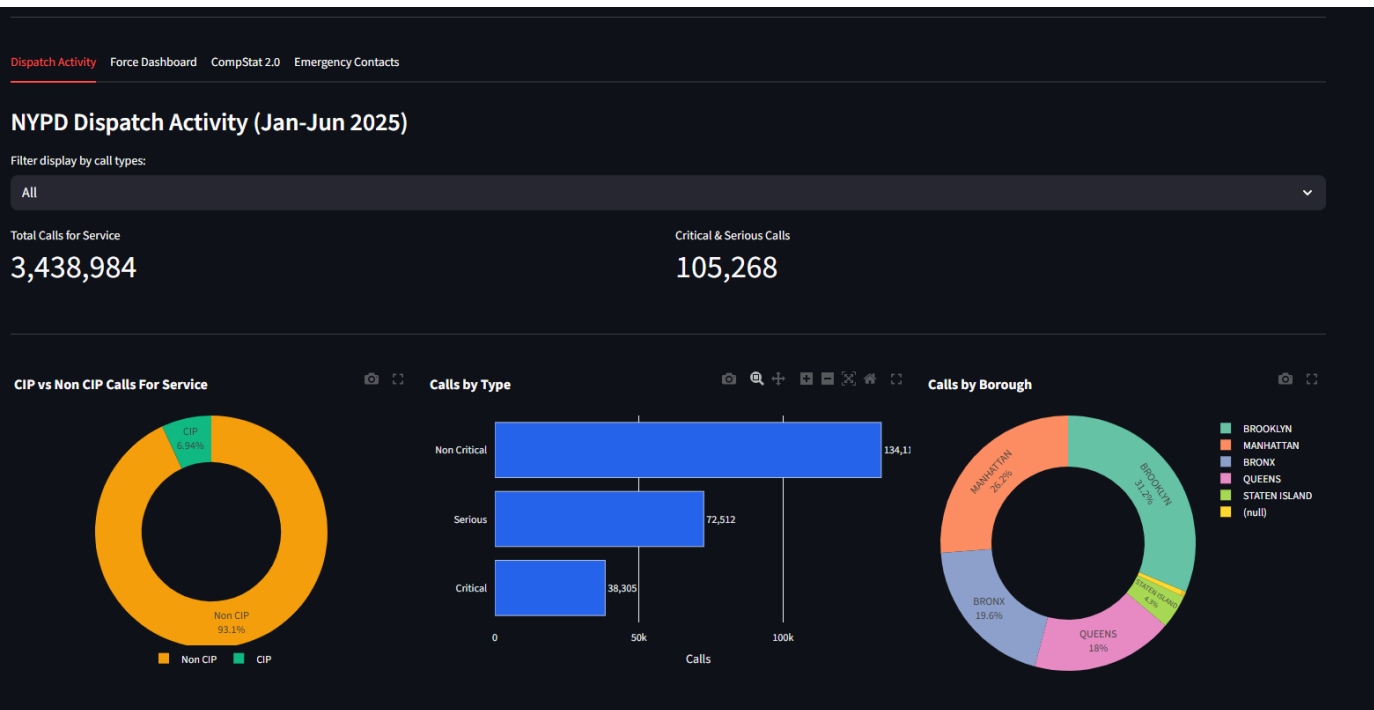
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- Performance Metrics:** The dashboard provides real-time KPIs for waste generation and recycling performance, showing metrics like total waste collected, total recycled waste, and the current 19.50% diversion rate.
- Location Mapping and Data:** A geographical map visualizes the real-time locations of collection bins across the city. Detailed raw data lists specific bin names, boroughs, types (like electronics drop-off), and coordinates.
- Historical Trend Analysis:** The dashboard tracks 12-month trends, visualizing the historical performance of total waste versus recycled waste. Key highlights summarize current and rolling average waste diversion rates.

Solution Module – Urban SoS and City Guard Service

<https://nyc-360-558345184877.europe-west1.run.app/CityGuard & UrbanSOS>



- **NYPD Dispatch Analytics:** This section visualizes over 3.4 million service calls, categorizing them by critical/non-critical status, type (e.g., Serious), and distribution across all boroughs.
- **Force & Incident Dashboard:** Tracks NYPD use of force incidents, showing trends over time, type of force used, and demographics of those involved, along with police member rank distribution.
- **CompStat & Emergency Contacts:** Provides a CompStat Dash Book with crime statistics (like murder, robbery) and period-over-period changes, alongside a critical list of city-wide emergency and non-emergency contacts.

Solution Modules – Resilient Cities Dashboard

<https://nyc-360-558345184877.europe-west1.run.app/ResilientCities>

Performance Metrics: EMS

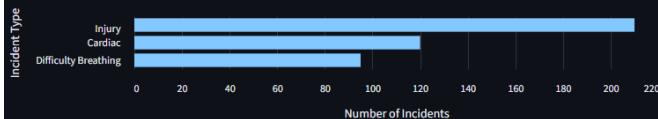
Total Incidents

425

Avg. Agency Arrival Time

8:30

Top 5 Incident Types by Volume



Top 5 Slowest Avg. Arrival Times



> View Raw Data Table for EMS

Performance Metrics: FDNY

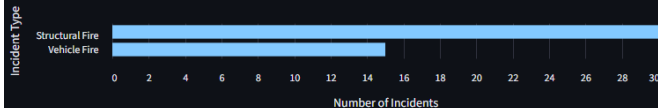
Total Incidents

45

Avg. Agency Arrival Time

5:52

Top 5 Incident Types by Volume



Top 5 Slowest Avg. Arrival Times



- **Emergency Response Metrics:** Tracks weekly emergency response performance for EMS, FDNY, and NYPD, showing incident volumes, average arrival times, and the slowest response types.
- **Capital Projects Overview:** Features an interactive dashboard detailing future development projects, including budget allocations, current phase, and completion forecasts across various city agencies.
- **311 Service Monitoring:** Analyzes 311 service requests, showing the volume and change in top requests (e.g., Noise, Illegal Parking) over time, allowing for neighborhood-specific monitoring.

Solution Modules – Smart Streets Services

<https://nyc-360-558345184877.europe-west1.run.app/SmartStreets>

Performance Metrics: EMS

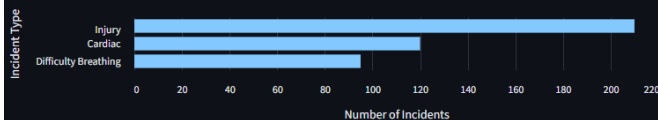
Total Incidents

425

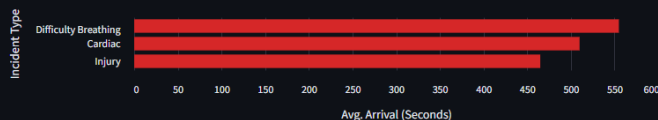
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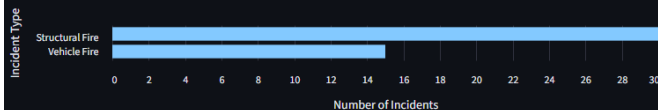
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Top 5 Incident Types by Volume



Top 5 Slowest Avg. Arrival Times



Real-time Traffic Monitoring:

Displays key metrics for live traffic, including total active events, coverage area, and the breakdown of events by severity (Critical, Major, Moderate, Minor).

Visual Analytics and Mapping:

Features a Traffic Analytics Dashboard for severity and event type distribution, a Live Congestion Map, and a Route Planning tool for quick navigation checks.

Detailed Event Reporting:

Provides specific lists and alerts for active Congestion Hotspots and all Traffic Events/Incidents, including location details, start/end times, and severity levels.



Future Enhancements and Monetization for Solution

Future Enhancements

- **MTA Real-Time Transit:** Integrate live subway and bus arrival times, service alerts, and interactive route maps for enhanced public transit navigation.
- **Utility & Government Payments:** Implement secure payment gateway integration for user-friendly payment of utility bills and various government service fees.
- **Energy Management Dashboard:** Add a section for monitoring city-wide energy consumption, renewable energy statistics, and smart grid performance data.
- **Real Estate Market Insights:** Incorporate real estate data, including neighborhood home values, rental trends, property tax information, and zoning details.
- **Predictive Analytics:** Utilize AI to forecast future traffic congestion, crime hotspots, and utility service demands based on historical and real-time data.
- **Personalized Citizen Profile:** Create personalized dashboards for citizens to track their service requests, utility payments, and relevant neighborhood alerts.
- **3D City Visualization:** Develop an interactive 3D model of NYC for advanced visualization of infrastructure, capital projects, and potential flood zones.
- **Community Feedback Loop:** Establish direct channels for citizens to report non-emergency issues, suggest improvements, and participate in urban planning surveys.

Monetizing the Solution

Strategy	Description	Smart City Application Example
1. Data Monetization (Anonymized)	Selling aggregated, anonymized, and valuable data insights to third parties (e.g., retailers, urban planners, insurance companies).	Selling real time anonymized traffic flow data to logistics companies for optimal routing.
2. Tiered Access / Subscription	Offering free basic services but charging a premium for advanced features, detailed historical data, or specific APIs.	Basic transit tracking is free, but developers pay a subscription for high frequency API access or predictive modeling endpoints.
3. B2G/B2B Service Contracts	The application is a platform used by the city/municipality itself, which then charges other businesses for specialized services.	Charging construction companies for permits processed directly through the app or charging utilities for real-time sensor monitoring access.
4. Transaction Fees (Marketplace)	Facilitating transactions within the city ecosystem and taking a small commission.	A parking reservation feature that charges a small fee per booking.
5. Sponsored Content/Local Ads	Implementing non-intrusive, geographically targeted advertising for local businesses (e.g., near a transit stop).	Promoting a local coffee shop's deal when a user checks the nearest public Wi-Fi hotspot.



Architecture and Technologies Users

Technologies used in the solution

Interface

Prototype
Streamlit



Tools/Data Sources Required

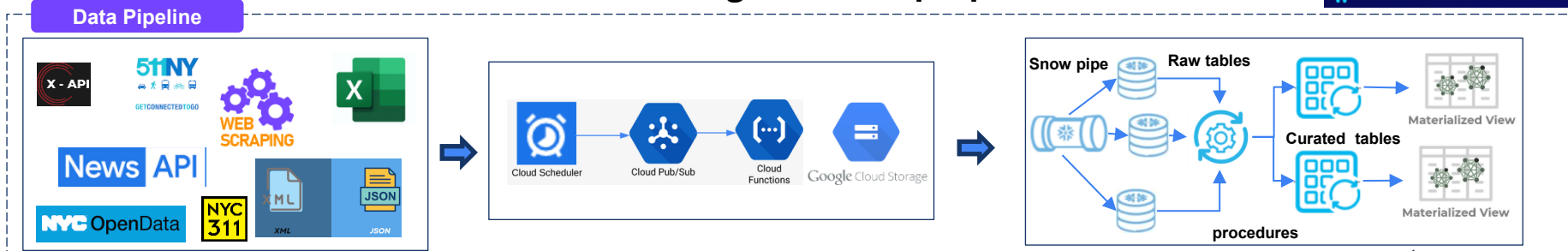


Backend



Production





AI Framework

Multi Agent Architecture

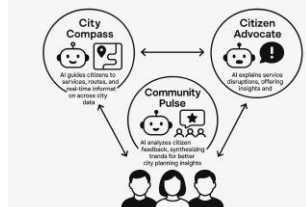
Smart Street

Dynamic Traffic Control Agent
Traffic Signals & Congestion Pricing

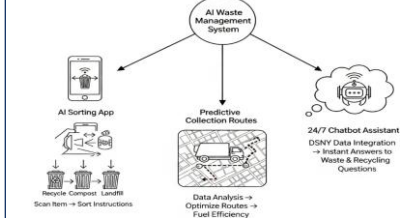
Smart Transit Assistant Agent
Multi-modal Route Optimization

Predictive Incident Response Agent
Accident Prediction & Rerouting

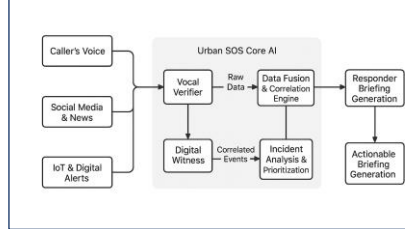
UtiliGen Service



Bin Sync Service



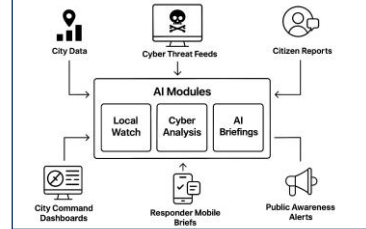
Urban SoS



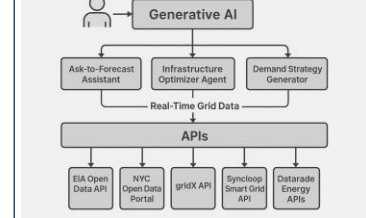
City 360 Dashboard



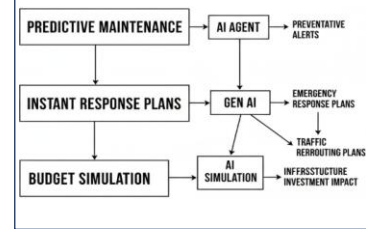
City Guard



Smart Watts



Resilient Cities



Feedback

Deployment



Cloud Build



Container Registry



Kubernetes Engine

Tools Used

SNOWFLAKE
CORTEX AI

 snowflake INTELLIGENCE

 Snowpipe Streaming

SNOWFLAKE
TASKS

 Google Cloud Platform

 FastAPI

YOURSTORY

PRESENTS



HELLO, GCC THE DEV PREMIER (LEAGUE);

CO-PRESENTED BY



INNOVATION PARTNER

H2S

Thank you