

The background features a dark blue gradient with faint, light blue circular patterns. On the left side, there are several concentric circles with degree markings ranging from 140 to 260. Some of these circles have arrows indicating a clockwise direction. The overall aesthetic is technical and futuristic.

# VISUAL INCIDENT INTELLIGENCE

*SKETCH & SEARCH HACKATHON*

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*GITHUB: [HTTPS://GITHUB.COM/GOUTHAMIN25/VISUAL-INCIDENT-  
INTELLIGENCE](https://github.com/GOUTHAMIN25/VISUAL-INCIDENT-INTELLIGENCE)*

# VISUAL INCIDENT INTELLIGENCE

- During real-world incidents, engineers and security teams rely heavily on visual evidence — monitoring dashboards, network sketches, and architecture diagrams. However, these visuals are usually treated as static images and cannot be searched, compared, or reused effectively.
- Visual Incident Intelligence changes that. It uses multimodal AI to understand what an image represents and vector search to find similar past incidents, enabling faster investigation, better decision-making, and reduced resolution time.

# PROBLEM

## The Problem

- During incidents, teams share:
  - Dashboard screenshots
  - Network sketches
  - Architecture diagrams
- These visuals are:
  - Not searchable
  - Not reusable
  - Hard to compare with past incidents

## Result

- Slower triage
- Repeated investigations
- Higher MTTR

# WHY EXISTING TOOLS FALL SHORT

## Current Systems-

- Log-based search
- Keyword-driven tickets
- Text-only AI tools

## Missing Capability-

- No understanding of visual meaning
- No semantic search over images
- No reuse of visual incident knowledge

# SOLUTION OVERVIEW

- Visual Incident Intelligence
- Upload an incident-related image
- Multimodal AI understands what the image represents
- Vector search finds similar past incidents
- System explains:
  - Why it matched
  - What actions to take next

# HOW IT WORKS (ARCHITECTURE)

- End-to-End Flow
- Image upload (sketch / screenshot / diagram)
- Gemini Vision extracts incident signals
- Signals → embeddings
- Stored in Qdrant
- Semantic search retrieves similar incidents
- Explainable results + actions

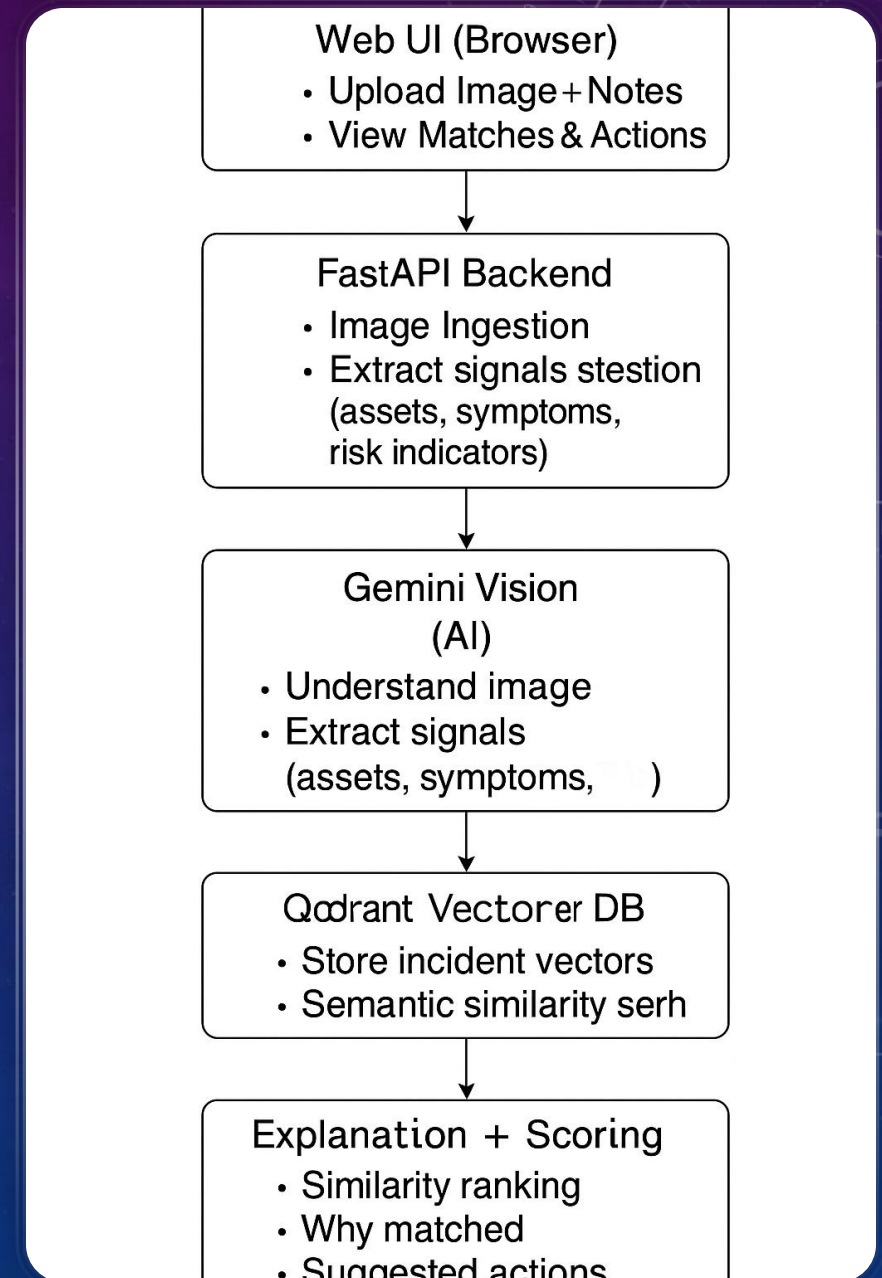
# VISUAL INCIDENT INTELLIGENCE — END-TO-END ARCHITECTURE

A user uploads an incident-related image through the web UI.

The backend sends it to Gemini Vision, which understands what the image represents — dashboards, network paths, or architecture components.

That meaning is converted into vector embeddings and stored in Qdrant.

When a new incident arrives, we perform semantic vector search to retrieve similar past incidents and return explainable matches and suggested actions.



# SKETCH & SEARCH ALIGNMENT

Alignment with Hackathon Theme-

- Sketch
- Visual inputs: screenshots, sketches, diagrams

Search-

- Semantic vector search using Qdrant
- Search by meaning, not keywords

Key Insights-

- We search incidents based on what the image means.

# TECH STACK

## Backend-

- FastAPI
- Python 3.11
- Pydantic

## Multimodal AI-

- Google Gemini Vision (via Google AI Studio)
- Image + text understanding

## Vector Search-

- Qdrant
- Semantic similarity search
- Cosine distance embeddings

## Embeddings-

- Sentence Transformers (all-MiniLM-L6-v2)

## Frontend-

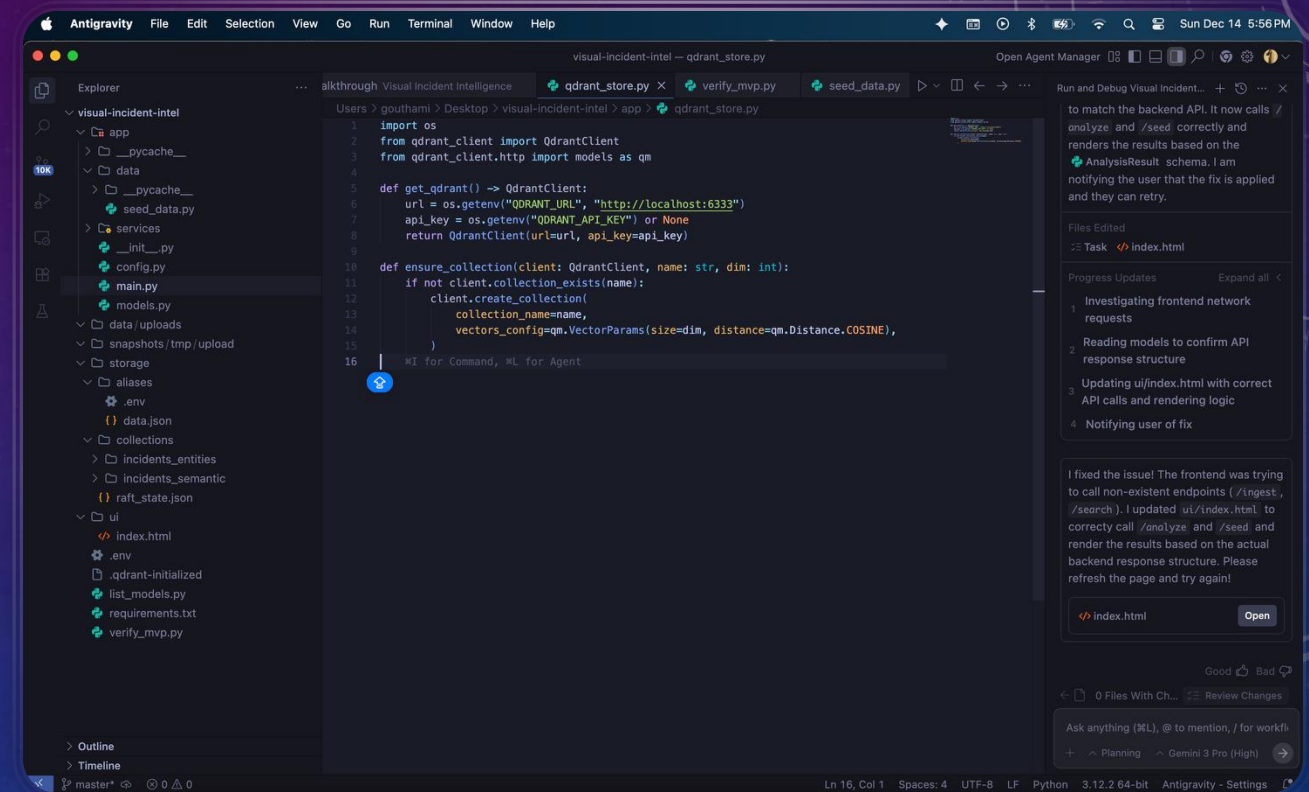
- HTML
- CSS
- JavaScript

## Development & Debugging-

- Antigravity (IDE + agent-assisted workflows)

# ENGINEERING & PLATFORM IMPLEMENTATION

- Developed backend services using FastAPI
- Implemented Qdrant vector collections for semantic incident search
- Integrated Gemini Vision (Google AI) for multimodal understanding
- Built embedding pipeline using Sentence Transformers
- Debugged and validated API flows using Antigravity (IDE + agent tools)
- Developed and validated the system using both local terminal workflows and Google Antigravity IDE

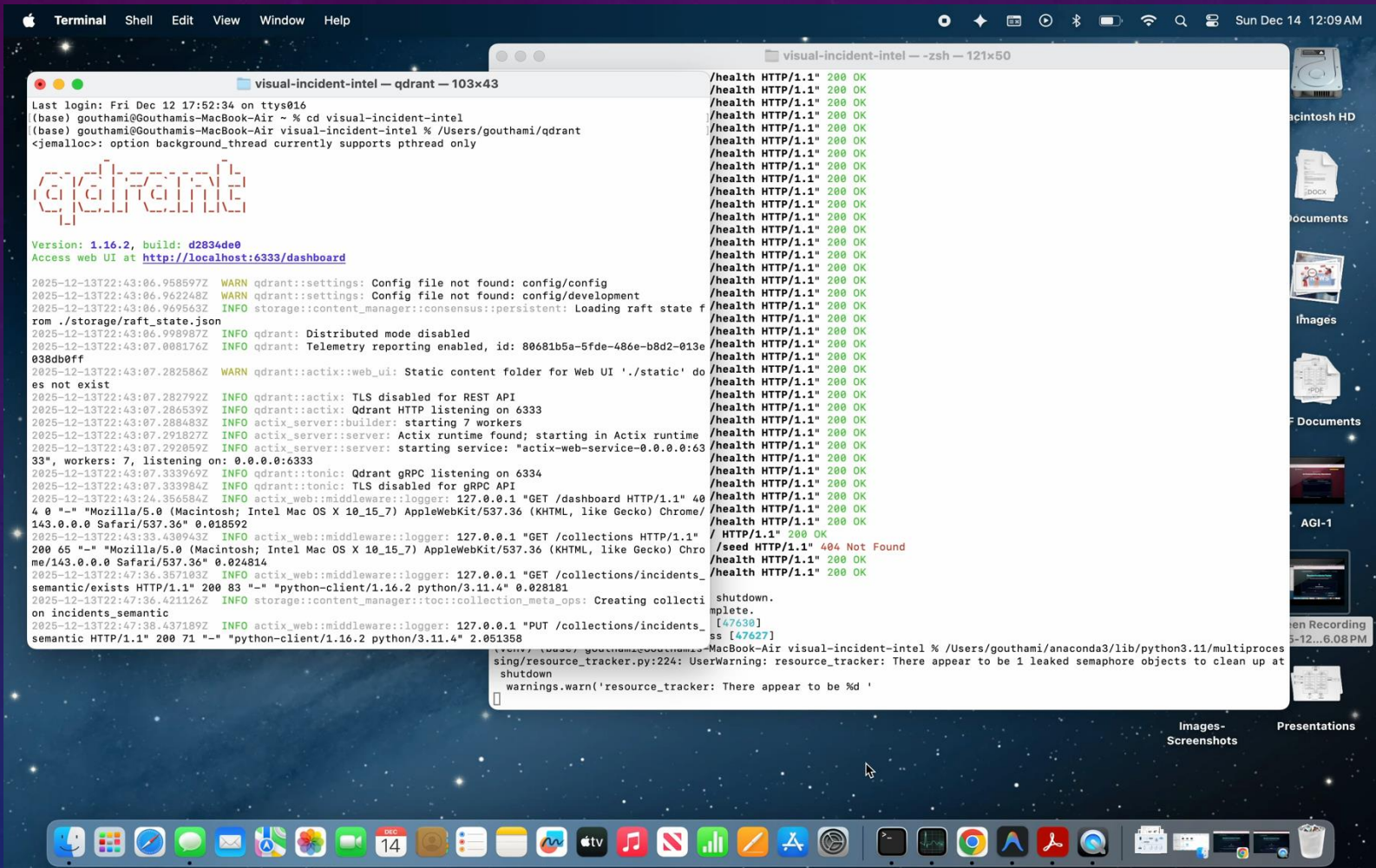


# BUILT & DEBUGGED USING GOOGLE ANTIGRAVITY

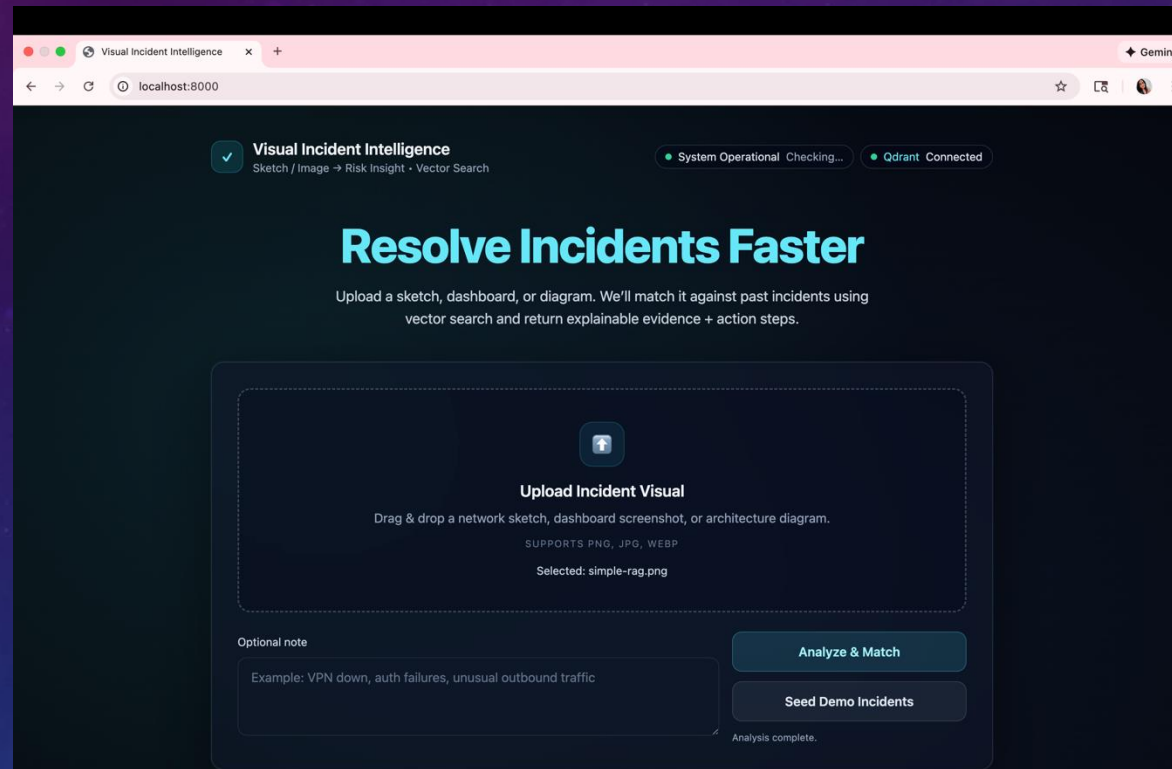
Used Antigravity IDE for:

- Code navigation and debugging
- API integration validation
- Frontend-backend alignment
- Accelerated development with agent-assisted workflows
- Ensured production-ready structure

# LIVE DEMO WALKTHROUGH



# PROJECT IMAGE



# USE CASES & IMPACT

## Who Is This For?

- Security Operations (SOC)
- SRE / DevOps teams
- Cloud infrastructure teams
- Enterprise IT operations

## Impact

- Faster incident triage
- Knowledge reuse
- Reduced MTTR
- Better decisions under pressure

# WHY THIS PROJECT STANDS

- Real-world incident response problem
- Multimodal AI (image + text understanding)
- Vector search as the core retrieval mechanism
- Explainable similarity & confidence scoring
- Strong Sketch & Search alignment
- Transforms static visuals into searchable knowledge
- Reduces mean time to resolution (MTTR)

# FINAL TAKEAWAY

- Visual Incident Intelligence turns screenshots and sketches into reusable, searchable incident knowledge
- Enables faster incident triage through semantic similarity search
- Demonstrates the real power of Sketch & Search beyond text



*THANK YOU*