

# OUTLIV\_AING WARS

Safe internal and external navigation amid destruction

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**PRESENTED TO**  
AAAI

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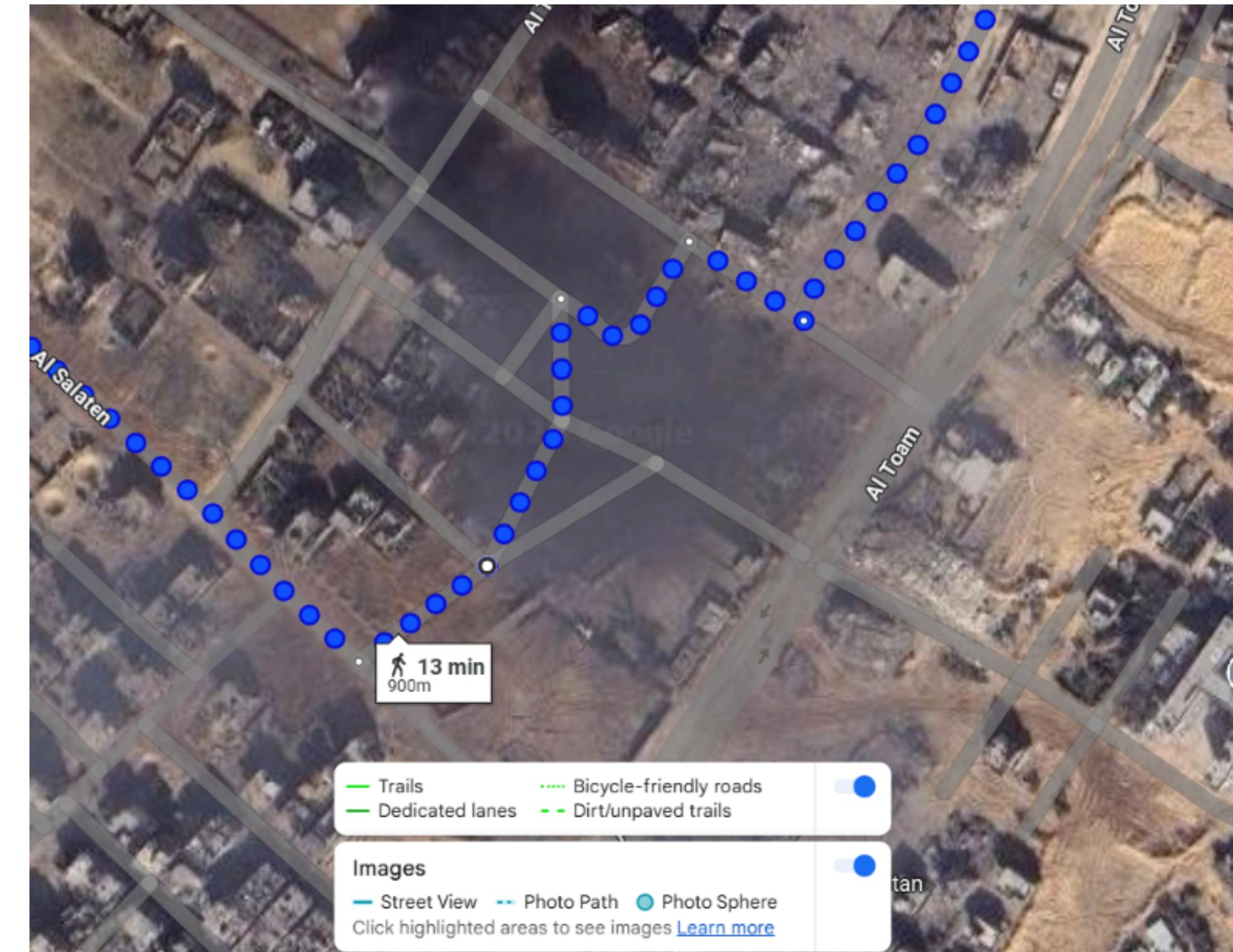
# PROBLEM

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**68% the roads** rendered UNUSABLE due to destruction in wars  
GMaps don't account for this while routing

**Degraded mental** healthcare facilities,  
**Low internet** creates definitive psychological strain

Victims often feel as though they have reached a dead-end both externally—in their physical environment—and internally, as hope and pathways to safety diminish.



**Image from the Gaza region,  
showing a route through a bombed area**

# PROPOSED SOLUTIONS



# 1

**Destruction Detection** from Satellite (pre and post) images

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# 2

Append destructed **node** in the **GMaps**, rerouting function

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# 3

**Quantized Influence Measure** optimised RAG on **trauma-focused Cognitive Behavior Therapy** documents- on a reasoning LLM with quantization for low-net deployment

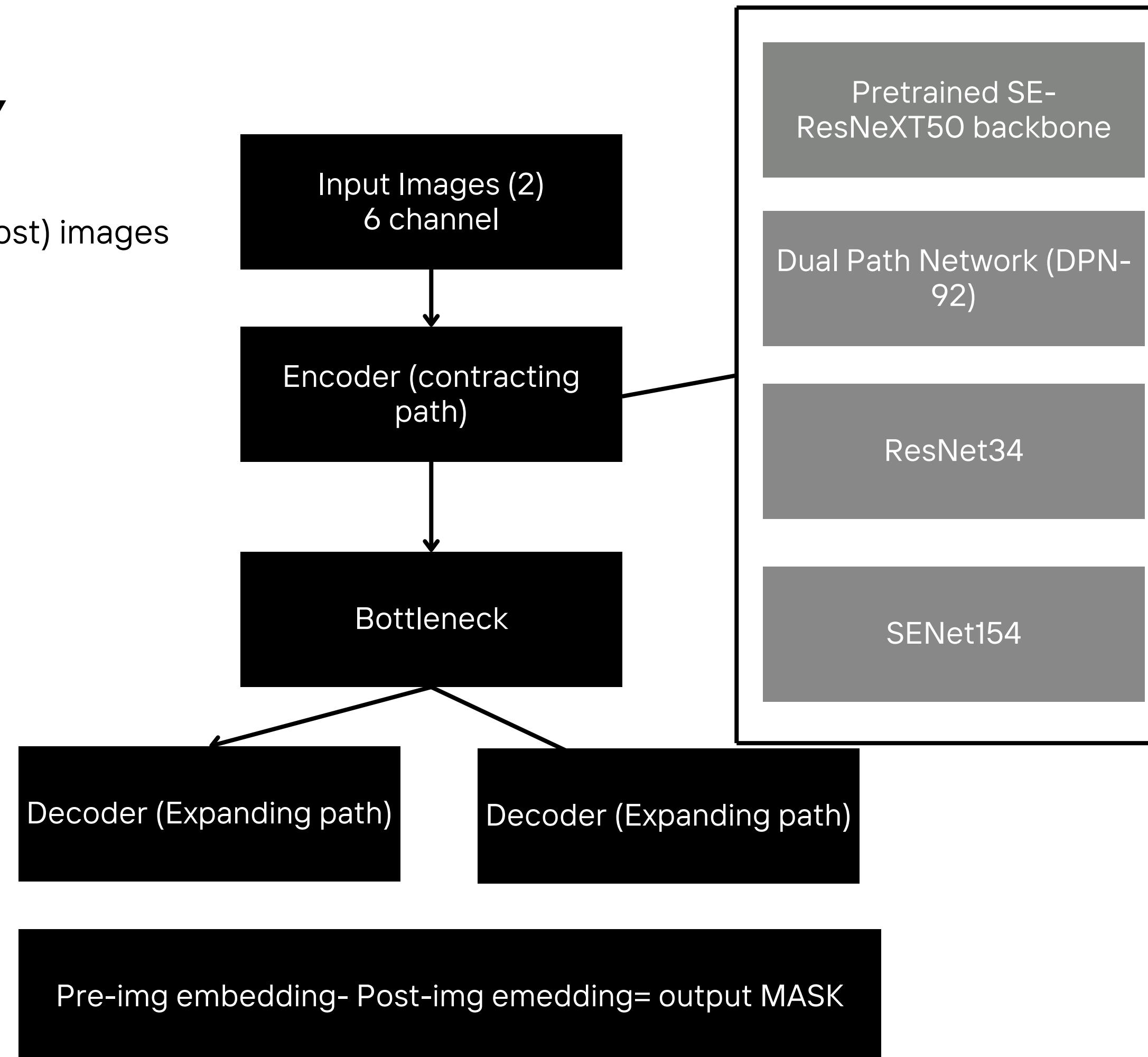
# METHODOLOGY

**Destruction Detection** from Satellite (pre and post) images

Safe Navigation and Infrastructure Integration:

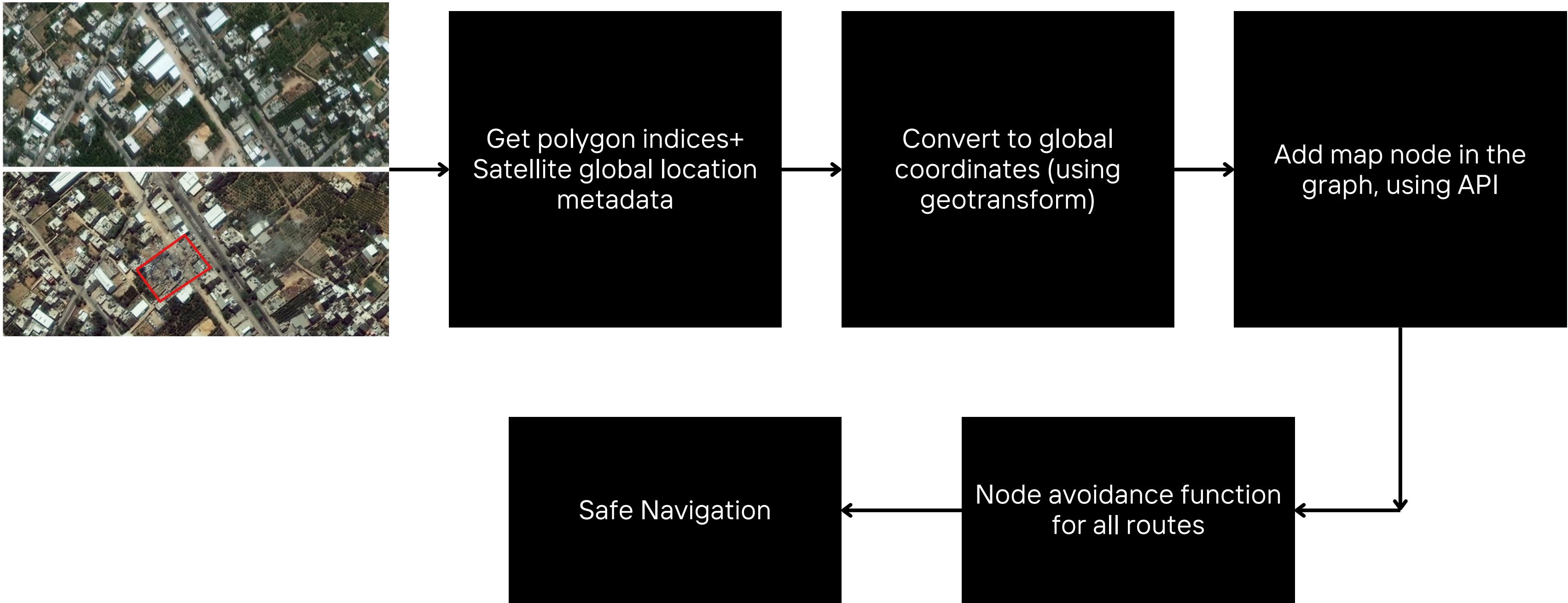
- We advocate for a system that continuously detects and maps destroyed areas.
- By integrating these “no-go” zones into platforms like Google Maps, the system prevents navigation routes from traversing hazardous, destroyed areas.
- This dynamic integration offers war-affected residents safe, up-to-date routing information, empowering them to relocate or access essential services with confidence.

Solution inspired from xView2 competition entries, xBD dataset used



# METHODOLOGY

## Maps integration



# METHODOLOGY

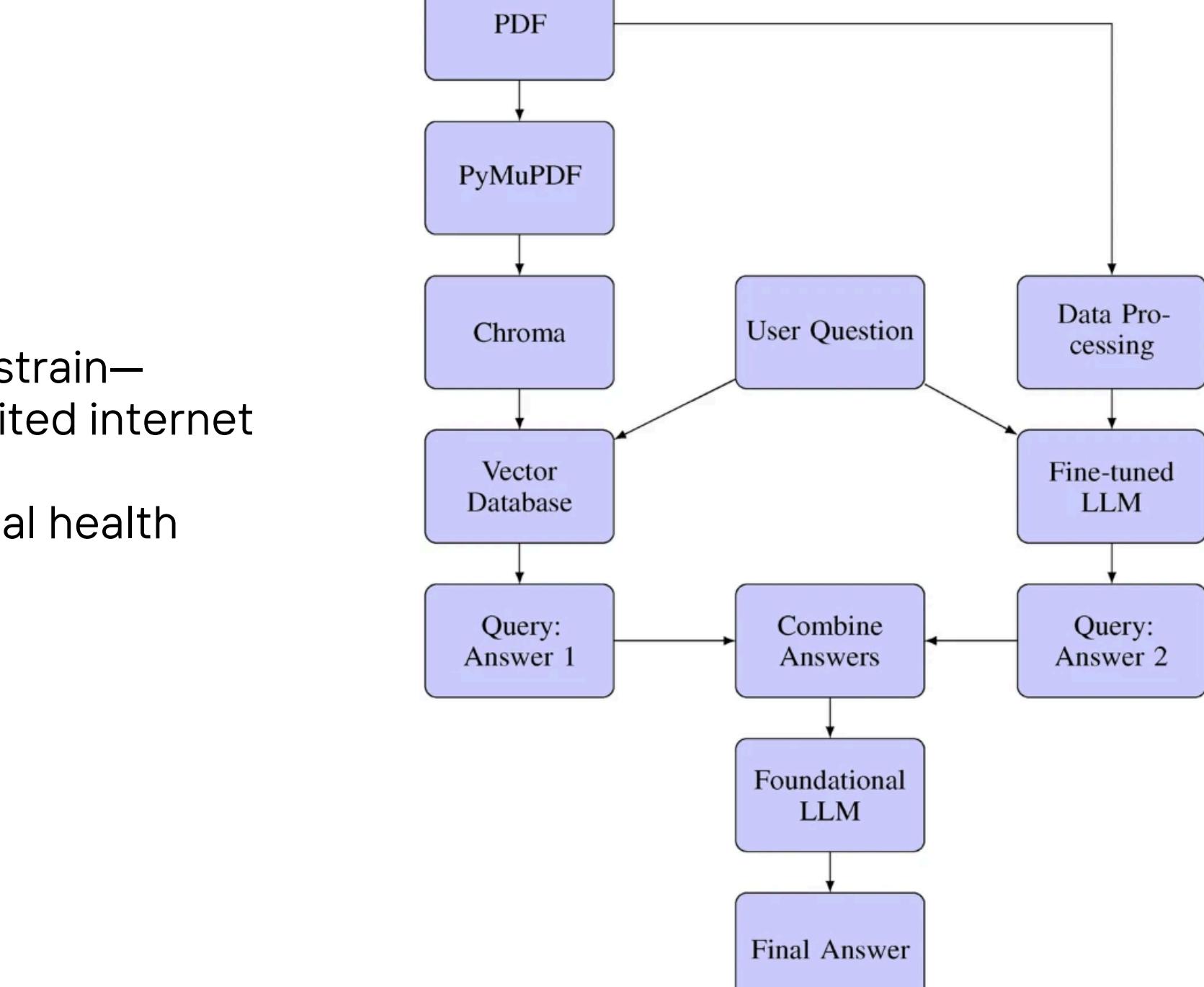
## Trauma Focused Cognitive Behavioral Therapy-

- Recognizing that survivors face severe psychological strain—exacerbated by degraded healthcare facilities and limited internet connectivity (often only 2G).
- There are no fully trained and yet easy to deploy mental health solutions

AI Judge mechanism:

Replaces cosine-similarity with Quantized Influence  
$$QIM = \sum[(y_{local} - y_{global})^2 \times N_i^2] / (q \times \sigma_Y)$$

Dual Retrieval Path-  
Vector DB (Chroma) + Fine-tuned LLM outputs →  
Fused context



- 69% reduction in hallucination rates compared to pure RAG
- 42% faster response times through 4-bit quantization
- 0.95+ similarity scores on therapeutic coherence

The system now prioritizes **clinically-relevant responses** through QIM scoring while **maintaining natural dialogue** flow via the hybrid generation approach.

# CITATIONS

- <https://www.nature.com/articles/s41598-024-79110-x>
- <https://www.xview2.org/>
- <https://www.techrxiv.org/doi/full/10.36227/techrxiv.172954485.56359064>
- <https://ojs.aaai.org/index.php/AAAI/article/view/11168>

# FUTURE DIRECTIONS

- CBT needs better fine-tunings, dataset of QnA, and more emotional-state empathising abilities
- Destruction detection can be made more lightweight