

# terrograph

Team 2Waffles

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# Problem Statement

## Theme 3 Safeguarding Public Security

### Subtheme 2: Strengthening Internal Security

Strengthening internal security is a critical aspect of governance, particularly in the context of combating terrorism. Terrorism poses a significant threat to the safety and stability of nations, necessitating robust measures to prevent and respond to such acts.

#### Problem Statement

Reports and articles on terrorism usually contain a lot of text, which are unstructured and difficult to resolve across reports in an automated fashion e.g. linking articles about a terror incident, all coming in at different times in a day with varying details. Each report contains entities (Person, Object, Location, Events) that could be represented in a knowledge graph, and accessed through a chatbot. Design and implement an LLM that can extract entities from reports into a knowledge graph, and an LLM that can answer questions based on the generated knowledge graph.

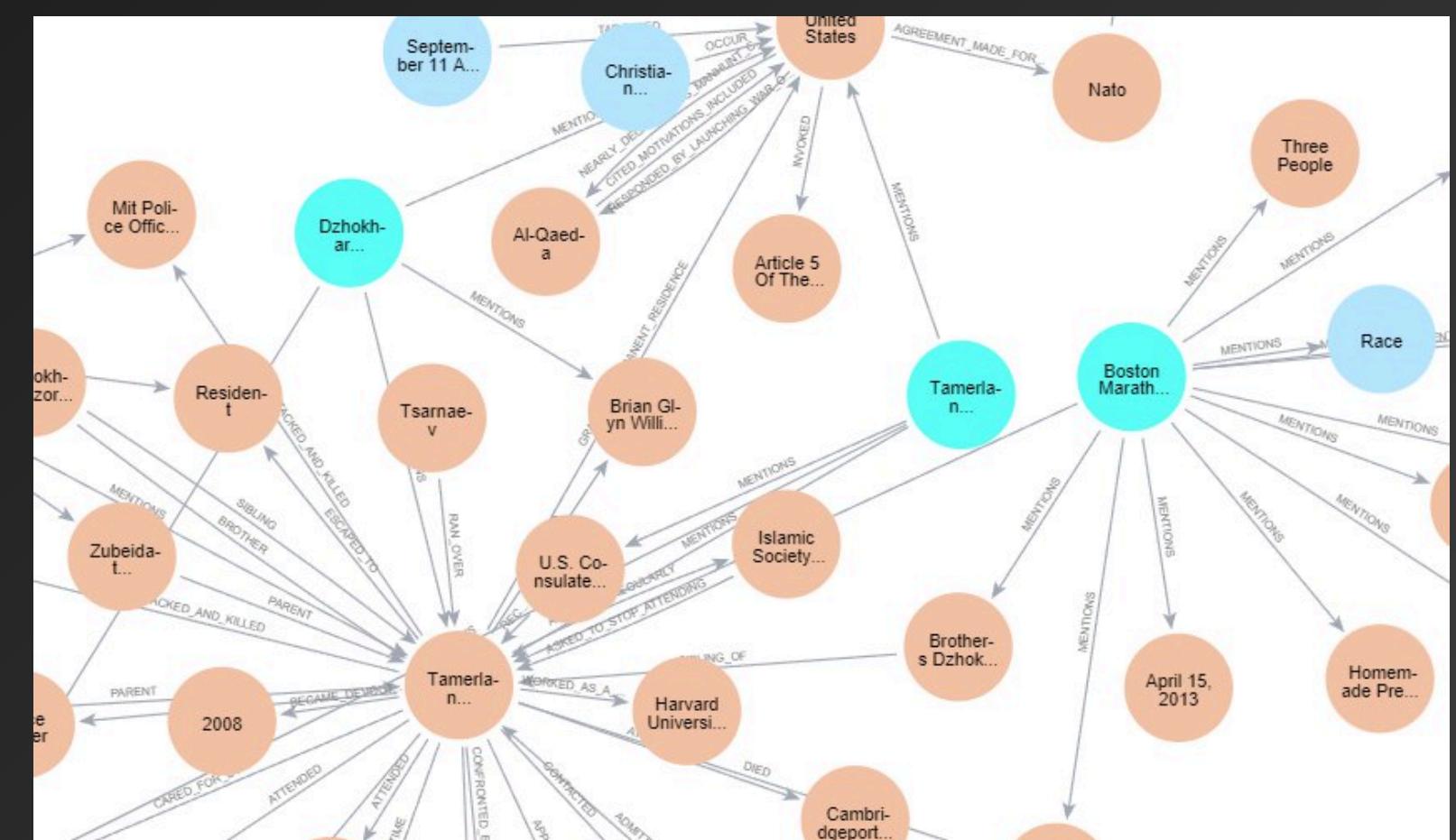
# Problem Statement

- Baseline RAG may not be comprehensive enough and misses out on semantic relationship between chunks
- Influx of articles covering terror event is difficult to resolve and align manually
- Users ultimately desire an **easy-to-use** avenue to retrieve comprehensive and **up-to-date** information

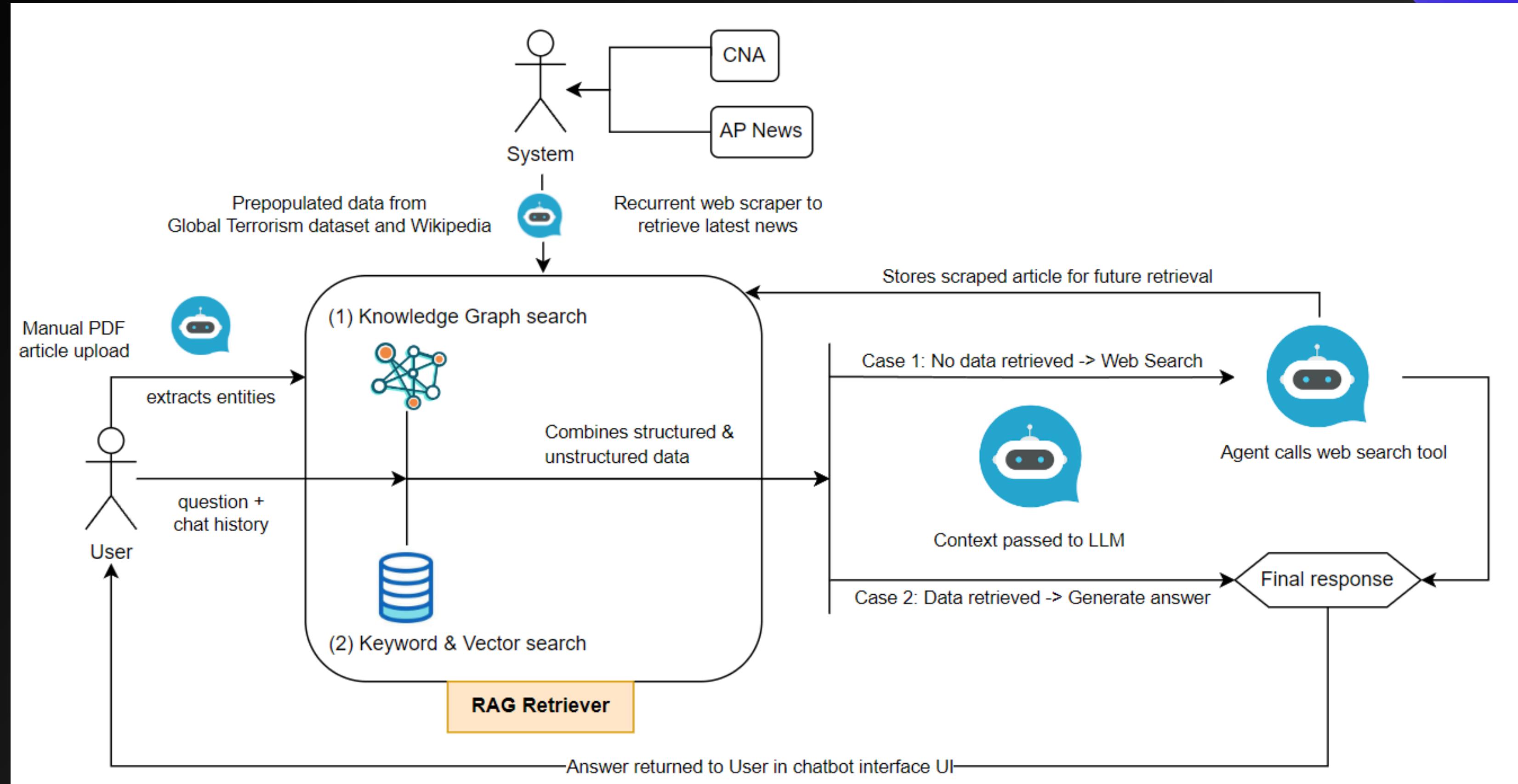


# Knowledge Graph

The only graph database with vector search.



# Solution overview



# 4 Data Sources

1. Prepopulated with Global Terrorism dataset & handpicked Wikipedia articles
  - a. more than 180,000 Terrorist Attacks from 1970-2020
2. Manual PDF article input
3. Recurrent (weekly) Web Scraping for automated updating of knowledge graph
4. LLM Agent Duckduckgo Web search tool (Last resort)

# Why TerroGraph works

**Scalable:** Knowledge graph is kept up-to-date automatically from various sources

**Innovative:** Combines structured graph data with vector search through unstructured text to achieve the best of both worlds

**Transparent:** LLM agent component recognises its own shortfall to utilise web search as last resort

# DEMO



# Moving forward

01

Prepopulate the  
knowledge graph with the  
full dataset

02

Train with the latest  
performing models for  
better entity extraction

03

Store article citations and  
output them alongside results  
for greater credibility



# Thank you