# **Global News Topic Tracker Documentation**

## **📘 Overview**

**Global News Topic Tracker** is an AI-powered web application that collects and summarizes trending global news topics in real-time.  
 It combines a **FastAPI backend** for news scraping and summarization with a **Streamlit frontend** for interactive visualization.

The system automatically fetches data from online news sources, summarizes the top trends using a Language Model, and presents them with intuitive filtering options.

## **⚙️ Project Structure**

News Tracker/

│

├── backend/

│ ├── api.py # FastAPI backend server

│ ├── scraper.py # Google News scraping logic

│ ├── summarizer.py # (Optional) LLM summarization logic

│ ├── requirements.txt # Backend dependencies

│

├── frontend/

│ ├── app.py # Streamlit UI for displaying summaries

│ ├── components/ # Reusable UI parts (optional)

│

├── requirements.txt # Common project dependencies

├── README.md / Documentation.docx

└── venv/ # Python virtual environment

## **🧠 Features**

✅ **Real-time Topic Scraping** — Fetches trending news topics dynamically.  
 ✅ **Summarization** — Uses AI to generate concise summaries of news topics.  
 ✅ **Interactive UI** — Streamlit-based interface with dropdown filters.  
 ✅ **RESTful API** — FastAPI endpoints for easy integration.  
 ✅ **Modular Design** — Separate backend and frontend components.  
 ✅ **Extensible** — Can connect to Hugging Face, OpenAI, or other LLM APIs.

## **Installation and Setup**

### **1️⃣ Clone the Repository**

git clone https://github.com/your-username/news-tracker.git

cd "News Tracker"

### **2️⃣ Create a Virtual Environment**

python -m venv venv

venv\Scripts\activate

### **3️⃣ Install Dependencies**

pip install -r requirements.txt

### **4️⃣ Start the Backend**

uvicorn backend.api:app --reload

✅ Backend will start at http://127.0.0.1:8000

### **5️⃣ Start the Frontend**

cd frontend

streamlit run app.py

✅ Streamlit UI will open at http://localhost:8501

## **🧩 API Endpoints**

| **Endpoint** | **Method** | **Description** |
| --- | --- | --- |
| /topics | GET | Returns list of trending topics with summaries |
| /summary/{topic} | GET | Returns detailed summary for a given topic (if implemented) |

### **Example Response**

{

"summary": "AI dominates global news with advances in robotics and ethics discussions.",

"articles": [

{"title": "AI in 2025: The Next Leap", "link": "https://example.com/ai"},

{"title": "Ethical Concerns in AI", "link": "https://example.com/ethics"}

]

}

## **Frontend Usage (Streamlit)**

Once the app runs:

1. Select a topic from the dropdown.
2. View the summarized news and top articles.
3. Click article links to read full stories.

## **Technologies Used**

| **Component** | **Technology** |
| --- | --- |
| Frontend | Streamlit |
| Backend | FastAPI |
| Language | Python 3.11+ |
| News Source | Google News RSS / Web Scraping |
| AI Summarization | Hugging Face Transformers / OpenAI API (optional) |

## **⚠️ Common Issues**

| **Issue** | **Cause** | **Fix** |
| --- | --- | --- |
| ModuleNotFoundError: No module named 'backend' | Wrong working directory | Run from root or fix import path |
| httpx.ConnectError | Backend not running | Start FastAPI before Streamlit |
| Address already in use | Port conflict | Use: uvicorn backend.api:app --port 8001 --reload |
| ModuleNotFoundError: streamlit | Not installed in venv | Activate venv and reinstall |