

## Problem Statement

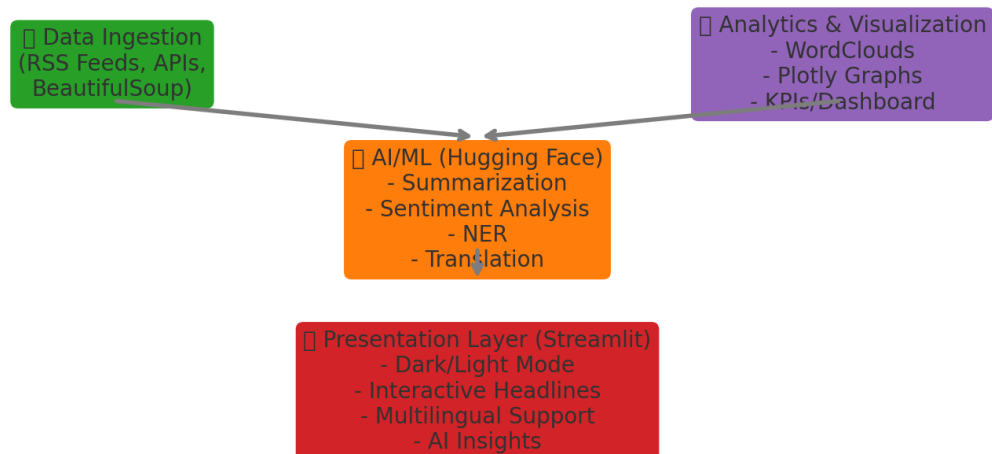
In today's fast-paced digital world, people are overwhelmed by an enormous volume of news articles coming from multiple sources and platforms. Readers often struggle to:

- Filter relevant news from noise.
- Understand key takeaways quickly without reading long articles.
- Analyze global trends in real-time.
- Access personalized summaries and sentiment insights.

This creates a demand for an intelligent news tracking and summarization system that delivers concise, meaningful, and interactive updates.

## Solution Architecture

### Global News Tracker - Architecture



## 1. Data Ingestion Layer

- Fetches RSS feeds and live headlines from global news sources (BBC, Reuters, etc.).
- Cleans and preprocesses articles (BeautifulSoup for scraping)

## 2. AI/ML Layer (Hugging Face)

- **Summarization Pipeline** → Converts long articles into short, digestible summaries.
- **Sentiment Analysis** → Determines if news is positive, negative, or neutral.
- **Named Entity Recognition (NER)** → Extracts key entities like people, organizations, countries.
- **Translation (GoogleTranslator)** → Converts global news into preferred languages.

## 3. Analytics & Visualization Layer

- **WordClouds** → Highlight trending keywords.
- **Plotly/Streamlit Graphs** → Show topic trends, sentiment distribution, regional analysis.
- **Interactive Dashboard** → Cards for KPIs (Top source, Top keyword, Article count).

## 4. Presentation Layer (Streamlit App)

- Dark/light mode dashboard.
- Interactive headlines with click-to-read full details.
- Multi-language support.
- AI-powered news insights embedded directly in UI.

# About Hugging Face

Hugging Face is an **open-source AI/ML community and model hub** widely used for:

- **Pre-trained NLP Models** (text summarization, sentiment, NER, translation).

- **Transformers Library** (state-of-the-art deep learning for NLP, Vision, Speech).
- **Inference API** for production-ready AI integration.

In your app, Hugging Face is powering:

- **Summarization (facebook/bart-large-cnn)** → condenses long articles.
- **Sentiment Analysis (distilbert-base-uncased-finetuned-sst-2)** → classifies tone.
- **NER (dslim/bert-base-NER)** → extracts entities.

This makes the app **intelligent, contextual, and multilingual** without having to train models from scratch.

## Brief Summary of the App

**Global News Tracker App** is an AI-powered, interactive dashboard that:

- Aggregates **real-time global news**.
- Provides **AI-generated summaries, sentiment insights, and key highlights**.
- Uses **visual analytics** (graphs, word clouds, KPIs) to track trends.
- Supports **dark mode, multilingual news translation, and interactive exploration**.
- Combines **Streamlit (UI), Hugging Face (AI), Plotly (visuals)** into a single unified experience.



In short:

It transforms the overwhelming flood of global news into a **personalized, intelligent, and visual experience**.