Video Fact Finder:

AI-Driven Analysis and Summarization of YouTube Content

Team Members: Shawn Chumbar, Sajal Agarwal, Aagam Shah, Dhruval Shah

Problem Statement

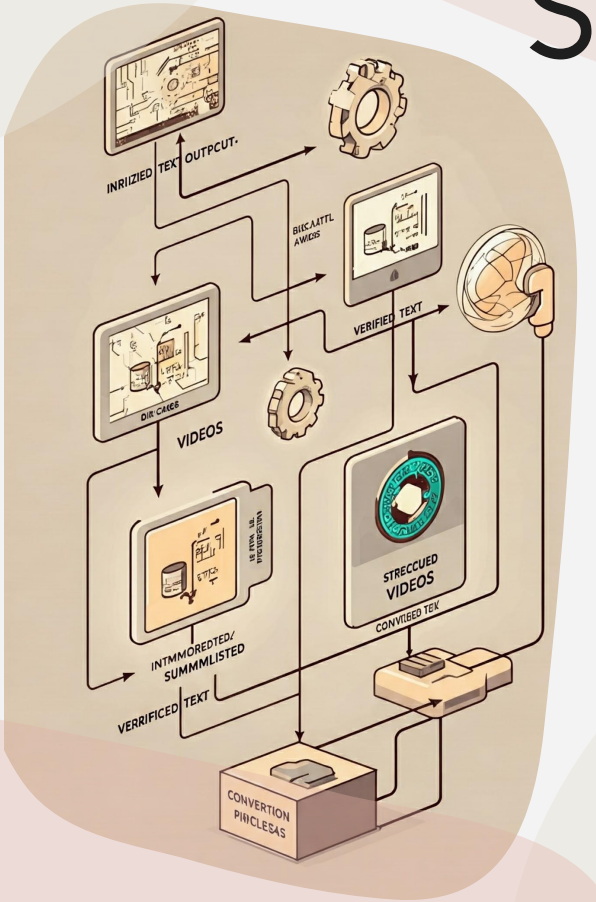
Challenge: Overwhelming video content on platforms like YouTube makes it challenging to extract meaningful information efficiently.

Impact:

- Users struggle with time-consuming manual analysis.
- Misinformation spreads due to lack of verification mechanisms.

Need: A solution that simplifies video analysis while ensuring accuracy and trustworthiness.

Solution



Introduction: The Video Fact Finder automates video analysis through transcription, summarization, and fact-checking.

Key Benefits:

- Saves users' time by condensing lengthy videos.
- Ensures reliable content through integrated fact-checking.
- Combats misinformation by verifying claims.

Technology: Multi-agent AI system for comprehensive analysis.

Key Features

Automated Transcription

High accuracy speech-to-text conversion

Integrated Fact-Checking

Identifies and verifies claims using credible sources

Smart Summarization

Relevance-focused condensation of video content

End-to-End Workflow

Modular design streamlines the analysis process

Architecture Overview

Multi-Agent System

Transcriber

Converts spoken content to text

Summarizer

Extracts key points into concise summaries

Claims Analyst

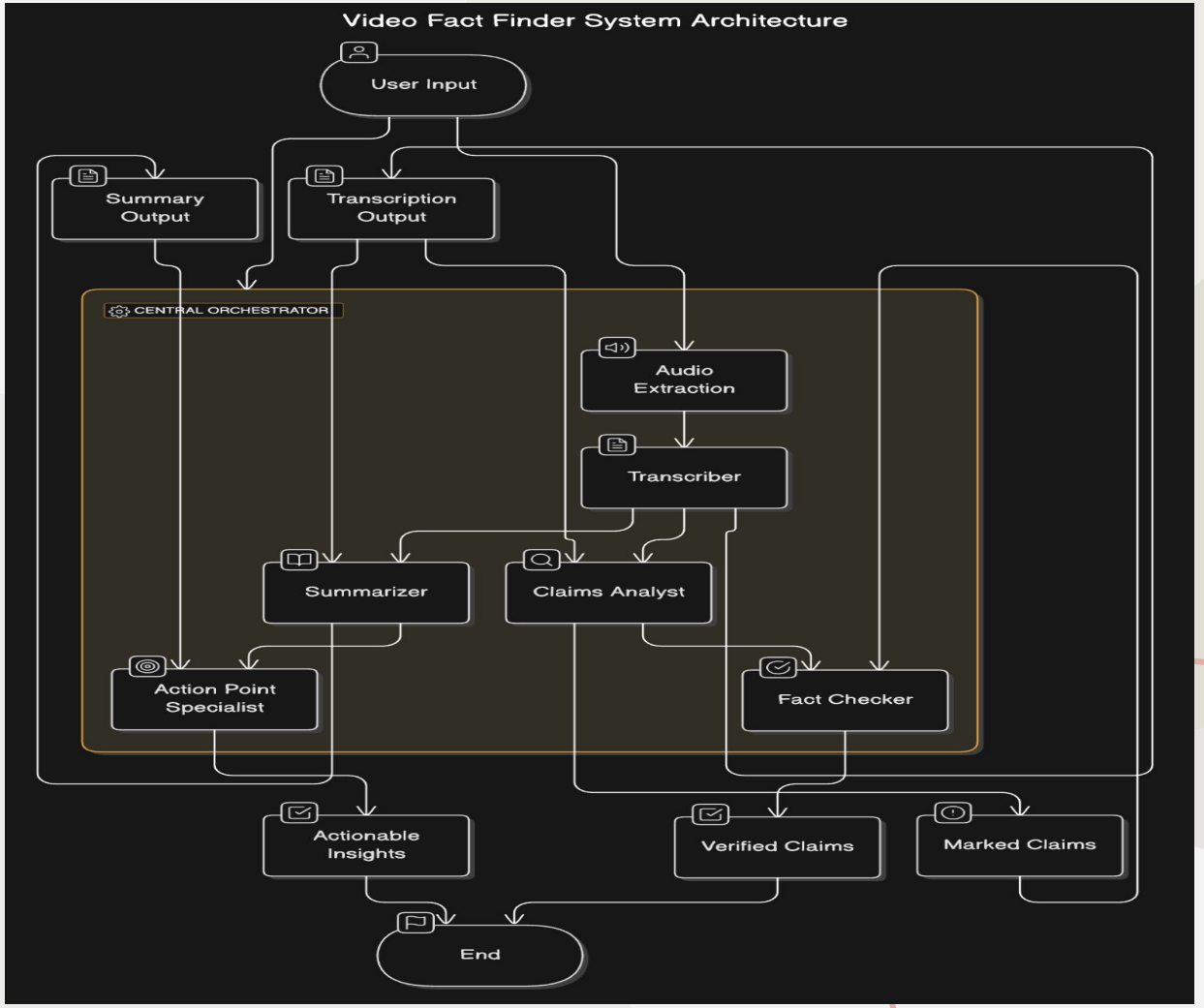
Flags potentially dubious statements

Fact Checker

Verifies flagged claims against credible data

Central Orchestration: Ensures seamless coordination between agents.

System Architecture Overview



Methods and Models

Transcription

GPT-based speech recognition model optimized for diverse accents and noisy environments

Summarization

Fine-tuned GPT model trained on instructional and explanatory text datasets

Fact-Checking

Combines Perplexity's tools and a database of verified information for accurate analysis

Data Workflow

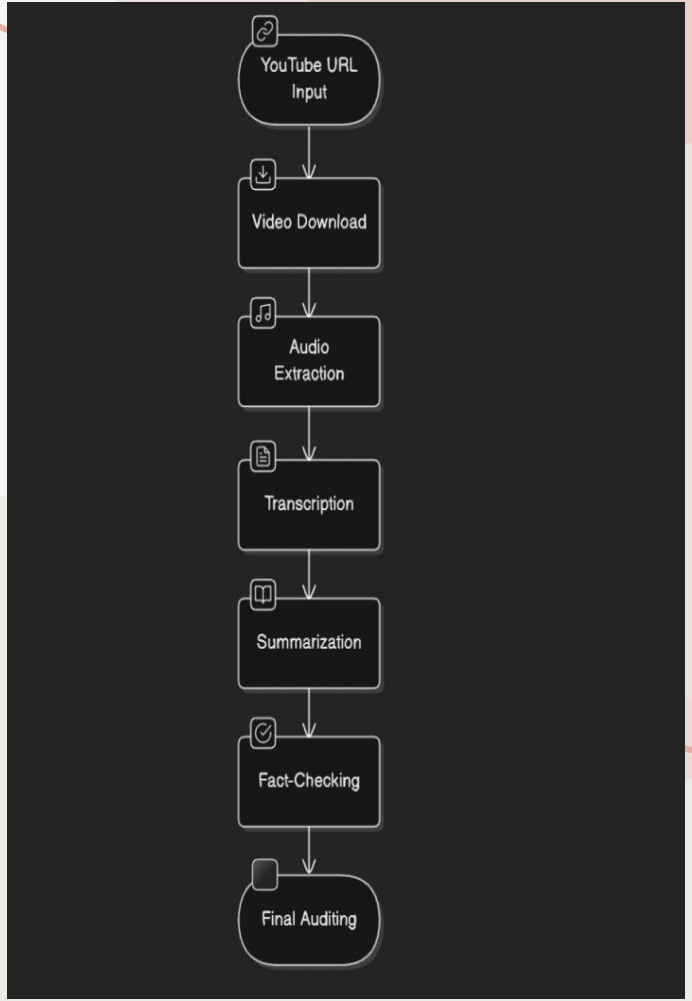
Input: YouTube URLs provided by users.

Processing Steps:

- Audio extraction from video.
- Speech-to-text transcription.
- Summarization of transcribed text.
- Fact-checking for critical claims.

Output: Verified, concise, and actionable insights.

Quality Checks: Handles variations in audio quality, language, and dialects.



Experimentation and Results

Experimentation Process:

1. Initial prompt design for AI agents.
2. Iterative tuning of prompts for clarity and relevance.
3. Evaluation using metrics: Accuracy, Clarity, Relevance.

Results:

- Accuracy improved by 10%.
- Relevance enhanced by 15%.
- Clarity increased by 20%.

Evaluation and Feedback

Functional Testing: Verified outputs on diverse YouTube video samples.

User Feedback:

1. Positive reception for usability and concise summaries.
2. Improved user experience due to high accuracy in fact-checking.

Scalability: Successfully tested for simultaneous requests and larger video files.

Future Directions

Language Expansion: Support for multiple languages and dialects.

Real-Time Analysis: Processing live video streams for instant insights.

Media Diversification: Extending analysis capabilities to podcasts and other media formats.

Advanced Bias Mitigation: Continuous refinement to ensure fairness and accuracy.

PRODUCT DEMO

THANKS!

Do you have any questions?