TRANSCRIPT AI

PROJECT SYNOPSIS

OF MAJOR PROJECT

BACHELOR OF TECHNOLOGY

Artificial Intelligence & Data Science

SUBMITTED BY

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Project Synopsis

Title page:

1. Name of Student: Roshani Kumari Sah and Arpit Rangra
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3. Branch:Artificial Intelligence &Data Science
4. Batch: 2021-2025
5. Proposed Topic:AI/ML

Introduction:

In an era characterized by an explosion of digital content, TranscriptAI emerged as a transformative project poised to redefine the landscape of audio and video processing. As the demand for sophisticated multimedia content analysis tools continues to escalate, this project leverages the latest advancements in technology, with a primary focus on the AssemblyAI API, to offer an unparalleled suite of features. TranscriptAI combines the finesse of natural language processing (NLP) and machine learning to provide users with a comprehensive set of tools, encompassing accurate transcription, dynamic summarization, topic identification, and entity extraction. This introduction delves deeper into the rationale behind TranscriptAI, the significance of its technological choices, its potential impact on diverse professional domains, and the specific technologies employed.

Rationale for TranscriptAI: TranscriptAI addresses a critical need in today's digital landscape — the efficient and intelligent processing of audio and video data. As the volume of multimedia content proliferates, traditional methods of analysis struggle to keep pace. TranscriptAI, however, represents a paradigm shift. Its raison d'être lies in bridging the gap between the spoken word and written text, offering not just transcription but a suite of tools that empower users to distill meaningful insights from diverse multimedia sources. By amalgamating advanced NLP algorithms with cutting-edge machine learning models, TranscriptAI ensures a nuanced understanding of language nuances and visual content complexities.

Technological Foundations: At the heart of TranscriptAI's prowess lies its technological stack, carefully curated to deliver efficiency and precision. The AssemblyAI API, a cornerstone of the project, provides a robust infrastructure for audio and video processing. This API, renowned for its accuracy and scalability, aligns seamlessly with the project's goals. Additionally, TranscriptAI integrates state-of-the-art NLP algorithms (e.g., BERT, GPT-3) and machine learning models, enabling it to unravel the intricacies of spoken language and visual content. The project's technological underpinnings extend beyond mere utility; they embody a commitment to staying at the forefront of advancements in artificial intelligence and machine learning.

Technologies Used: TranscriptAI utilizes state-of-the-art natural language processing (NLP) and machine learning algorithms, with a focus on the AssemblyAI API for robust audio and video processing.

Field of Project: The project operates within the domain of multimedia content analysis and aims to provide a comprehensive toolset for users in various fields, including content creation, research, and business intelligence.

Special Technical Terms: Key technical terms associated with TranscriptAI include transcription, summarization, topic detection, entity extraction, NLP, and the AssemblyAI API.

Feasibility Study:

The feasibility study establishes the groundwork for the project, outlining the viability, need, and significance. TranscriptAI addresses the growing demand for efficient multimedia content analysis tools, making it a pertinent and feasible solution in the contemporary technological landscape.

Methodology/ Planning of work:

The methodology section defines the systematic approach employed in achieving the project's objectives. TranscriptAI follows a structured process, involving data preprocessing, model training, API integration, and user interface development. The project development life cycle is designed to ensure accuracy, efficiency, and user-friendliness.

1. **Data Preparation:** Collect diverse datasets for training. Implement robust preprocessing for data standardization.
2. **Model Development:** Select and train state-of-the-art neural network models. Refine iteratively for optimal accuracy.
3. **API Integration:** Seamlessly integrate AssemblyAI API for advanced audio and video processing.
4. **Feature Enhancement:** Develop real-time transcription, dynamic summarization, and entity extraction features. Prioritize user-centric design and industry feedback.
5. **User Interface Optimization:** Design an intuitive and visually appealing interface for user-friendly interaction.
6. **Testing and Quality Assurance:** Conduct rigorous testing, including unit and integration testing. Implement quality assurance protocols for reliability.
7. **Scalability Measures:** Optimize performance for handling large datasets.

Facilities required for proposed work:

Software:

Python programming language AssemblyAI API for audio and video processing Natural Language Processing (NLP) libraries (e.g., NLTK, spaCy) Web development frameworks (e.g., Flask)

Hardware:

Standard computing hardware with sufficient processing power for model training and API interactions

Bibliography:

The development of TranscriptAI is informed by a range of scholarly and technical resources, including research papers, documentation from AssemblyAI, and relevant publications on natural language processing and machine learning. The project team draws inspiration from established methodologies and best practices in software engineering and multimedia analysis.

1. **AssemblyAI Documentation:** https://www.assemblyai.com/docs
2. **Python Flask Documentation:** https://flask.palletsprojects.com/en/2.1.x/
3. **Express.js Documentation:** https://expressjs.com/
4. **Youtube Video to MP3 Python Library:** https://pypi.org/project/pytube/