EchoVerse Generative AI-Powered Interactive Audiobook and Fan Fiction Storyline Generator Prototype

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PROJECT PROTOTYPE LINK

Objective of the Proposed Tool

The **Personalized Story Weaver**, an innovative feature within **EchoVerse - Generative AI-Powered Interactive Audiobook and Fan Fiction Storyline Generator Prototype**, is designed to revolutionize the audiobook experience on Kuku FM by generating unique, user-customized audio narratives. This feature addresses the growing demand for personalized content by creating alternative story endings, multiverse-inspired fan fiction, and interactive plotlines based on users' listening histories, real-time mood inputs, and creative suggestions. The primary objective is to increase the average daily time spent on the Kuku FM app by 20% and the frequency of app opens by 15% within six months of launch. Benefits to Kuku users include:

- **Enhanced Engagement**: An AI Buddy facilitates reflective conversations about books, allowing users to share favourite moments or critique narratives, fostering a sense of community and personal connection.
- **Creative Expression**: Users can contribute ideas for fan fiction, which are transformed into audio chapters, encouraging active participation and content sharing.
- **Achievement Motivation**: A streak system, integrated with friend challenges, promotes consistent app usage, while a dashboard provides insights into listening patterns and mood trends, enabling users to revisit past mental states. For Kuku FM, EchoVerse drives user retention, boosts subscription rates, and leverages its AI capabilities to cater to India's diverse, storytelling-centric audience.

Description of Generative AI Tools, Techniques, and Data Sources

- **Generative AI Tools**: EchoVerse employs **DistilGPT-2** (a lightweight GPT model) for text generation, fine-tuned with **ElevenLabs** APIs for multilingual voice synthesis, supporting Hindi, Tamil, and English. These tools enable dynamic, high-quality audio storytelling.
- **Techniques**:
  - **Prompt Engineering**: Custom prompts integrate user data (e.g., genre preferences from EchoVerse's interface) with real-time mood inputs (via voice or text) and user-suggested plot twists to craft personalized narratives.
  - **Reinforcement Learning from Human Feedback (RLHF)**: Refines story quality using ratings and engagement metrics from EchoVerse's chat and fan fiction features.
  - **Retrieval-Augmented Generation (RAG)**: Incorporates Kuku FM's 150,000+ hours of content and EchoVerse's uploaded PDFs to ensure cultural relevance and alignment with themes like mythology or self-help.
- **Data Sources**:
  - User listening history and preferences from Kuku FM, accessible via EchoVerse's dashboard.
  - Real-time mood and creative inputs collected through EchoVerse's in-app interface (e.g., "I feel adventurous" or "Add a dragon").
  - Public domain stories and Kuku FM's 500+ metadata types for training and inspiration.

Integration of AI into Creation, Ongoing Operation, and Continuous Analysis

- **Creation**: AI models are trained on Kuku FM’s library and EchoVerse’s audiobook data, generating initial story templates reviewed by a human creative team for coherence and cultural fit.
- **Ongoing Operation**: EchoVerse operates in real-time on cloud-based AI servers, producing 5-10 minute story segments. Mood-based adaptations and user-suggested fan fiction are synthesized with ElevenLabs voices, integrated into EchoVerse’s narration system.
- **Continuous Analysis**: EchoVerse’s dashboard analyzes user interactions (e.g., pause points, chat history ratings) using machine learning models. This data fuels the RLHF loop, optimizing narratives, and is visualized via EchoVerse’s activity graph.

Implementation Plan

- **Initial Launch (Month 1-2)**:
    - Develop and test the Personalized Story Weaver within EchoVerse with a pilot group of 10,000 Kuku users, focusing on Hindi and English content.
    - Launch a beta version with 50 personalized stories, promoted via EchoVerse’s in-app notifications and Kuku FM’s social media.
- **User Engagement Strategies (Month 3-6)**:
    - Introduce a “Daily Story Challenge” in EchoVerse, offering rewards (e.g., premium features) for consistent listening.
    - Partner with Kuku FM influencers to highlight EchoVerse’s interactive stories, boosting app opens.
    - Provide a free EchoVerse trial week to non-subscribers to drive conversions.
- **Scaling (Month 6-12)**: Expand to all Kuku-supported languages, refining personalization with feedback from EchoVerse’s fan fiction library.

Key Challenges Anticipated and Proposed Solutions

- **Challenge 1: AI-Generated Content Quality**: Initial narratives may lack depth or cultural nuance.
    - **Solution**: Leverage EchoVerse’s human-edited fan fiction framework and RAG to anchor stories in Kuku FM’s library.
- **Challenge 2: User Privacy Concerns**: Collecting mood and creative data may raise ethical issues.
    - **Solution**: Implement opt-in consent with transparent policies in EchoVerse, anonymizing data per GDPR standards.
- **Challenge 3: Scalability**: Real-time generation demands high computation.
    - **Solution**: Use AWS cloud infrastructure with scalable AI endpoints, optimized by DistilGPT-2, integrated into EchoVerse’s backend.

Metrics and KPIs to Measure Success

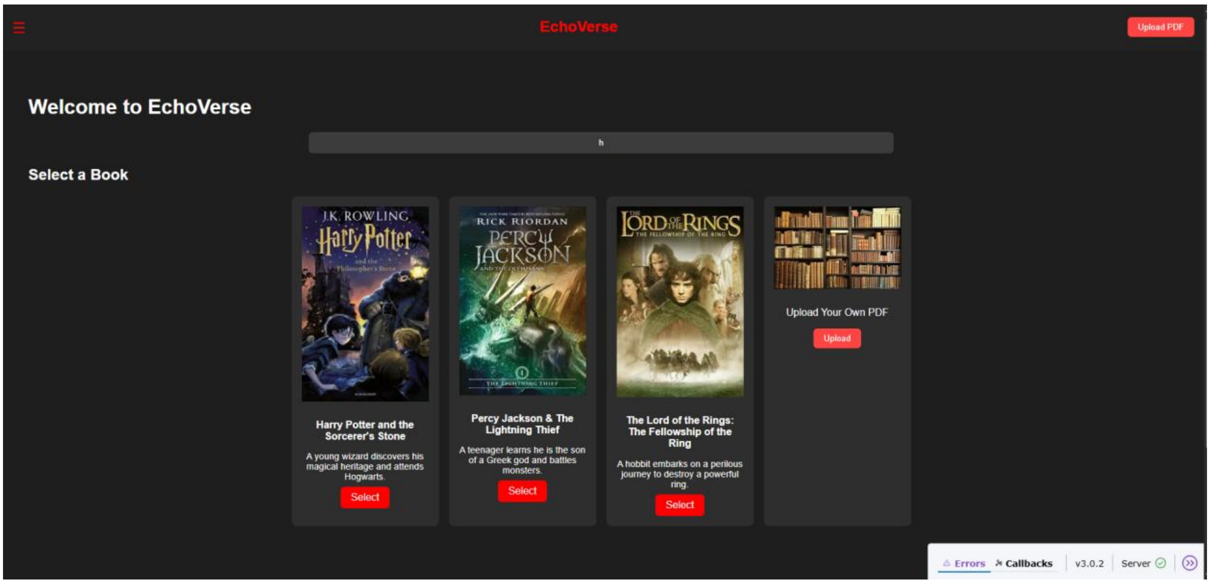
- **Average Session Length**: Increase from 30 minutes to 36 minutes.
- **Frequency of App Opens**: Achieve 15% growth (e.g., 5 to 5.75 opens/week).
- **User Retention Rate**: Target 90% retention after three months, up from 85%.
- **Engagement Score**: Compare time spent on EchoVerse’s Personalized Story Weaver vs. overall app usage.
- **Net Promoter Score (NPS)**: Monitor satisfaction with EchoVerse’s personalized narratives.

Prototype Details

This prototype is implemented through two distinct platforms to demonstrate its innovative features: a Dash-based web application and a Streamlit-based collaborative tool. These prototypes showcase the **Personalized Story Weaver** and **Collaborative Story Jam** features, respectively, providing a tangible representation of the proposed solution for Kuku FM.

Dash-Based Prototype: Personalized Story Weaver

- **Description**: This prototype, accessible at **http://127.0.0.1:8050/**, is built using Python's Dash framework, integrating generative AI, voice recognition, and a SQLite database. It offers an interactive audiobook experience with the following functionalities:
    - **Story Selection and Narration**: Users can choose predefined books (e.g., "Harry Potter and the Sorcerer's Stone") or upload PDFs, with chapters displayed and narrated using text-to-speech (via pyttsx3).
    - **Personalized Story Weaving**: A mood dropdown (e.g., "Happy," "Sad," "Adventurous") and a plot twist input allow users to generate custom audio narratives, leveraging **DistilGPT-2** for text generation and **ElevenLabs** APIs for voice synthesis.
    - **AI Buddy Chat**: Users can engage in real-time conversations via text or voice input (using speech_recognition), with the AI responding contextually based on the chapter content.
    - **Streak System and Dashboard**: A streak tracker motivates daily usage, while a dashboard visualizes activity (e.g., interaction frequency) using Plotly graphs and suggests new books.
- **Setup Instructions**: Run *python app.py* in a terminal with the virtual environment activated. Ensure dependencies (e.g., dash, transformers, speech_recognition, pyttsx3, pdfplumber, sqlite3, plotly) are installed via pip.



Welcome to EchoVerse

Select a Book

Harry Potter and the Sorcerer's Stone

A young wizard discovers his magical heritage and attends Hogwarts.

Percy Jackson & The Lightning Thief

A teenager learns he is the son of a Greek god and battles monsters.

The Lord of the Rings: The Fellowship of the Ring

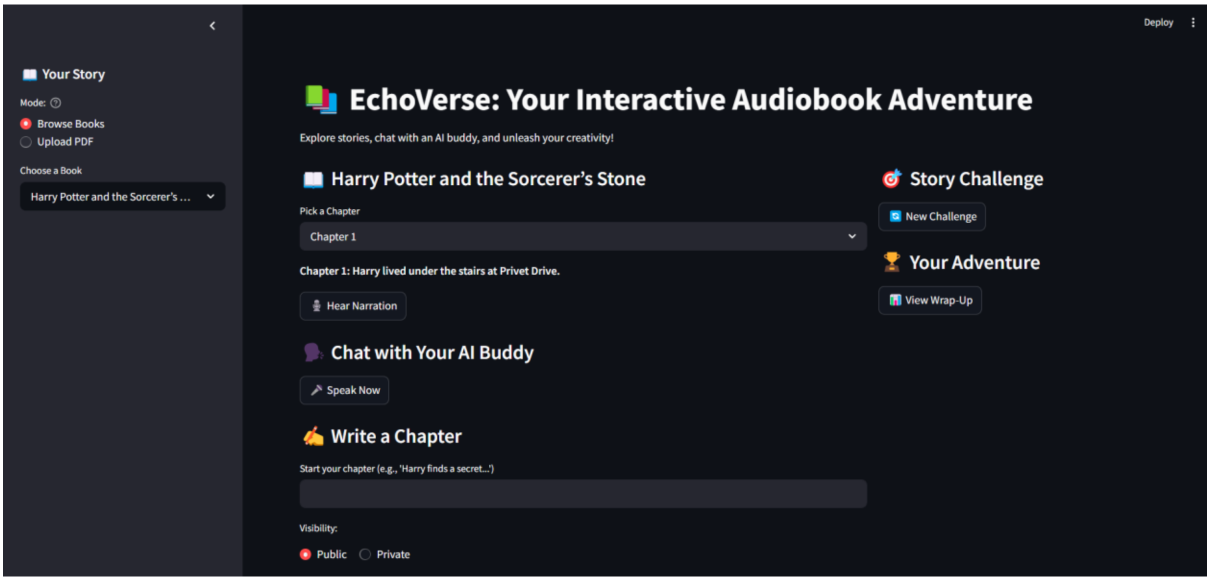
A hobbit embarks on a perilous journey to destroy a powerful ring.

Upload Your Own PDF

Streamlit-Based Prototype: Collaborative Story Jam

- **Description**: This prototype, accessible at http://localhost:8501/, is developed using Streamlit, focusing on community-driven storytelling. It features:
    - **Real-Time Collaboration**: Users contribute to a shared fan fiction story in real-time, with inputs stored in a SQLite database. The story evolves with each contribution.
    - **AI Moderation**: **DistilGPT-2** generates AI suggestions to enhance the narrative, ensuring seamless integration of user ideas.

    - **Participant Tracking**: Displays the number of contributors, fostering a sense of community engagement.
- **Setup Instructions**: Save the code as streamlit_app.py, install Streamlit (pip install streamlit), and run streamlit run streamlit_app.py. Ensure the transformers and sqlite3 libraries are installed.



📚 EchoVerse: Your Interactive Audiobook Adventure

Explore stories, chat with an AI buddy, and unleash your creativity!

📖 Harry Potter and the Sorcerer's Stone

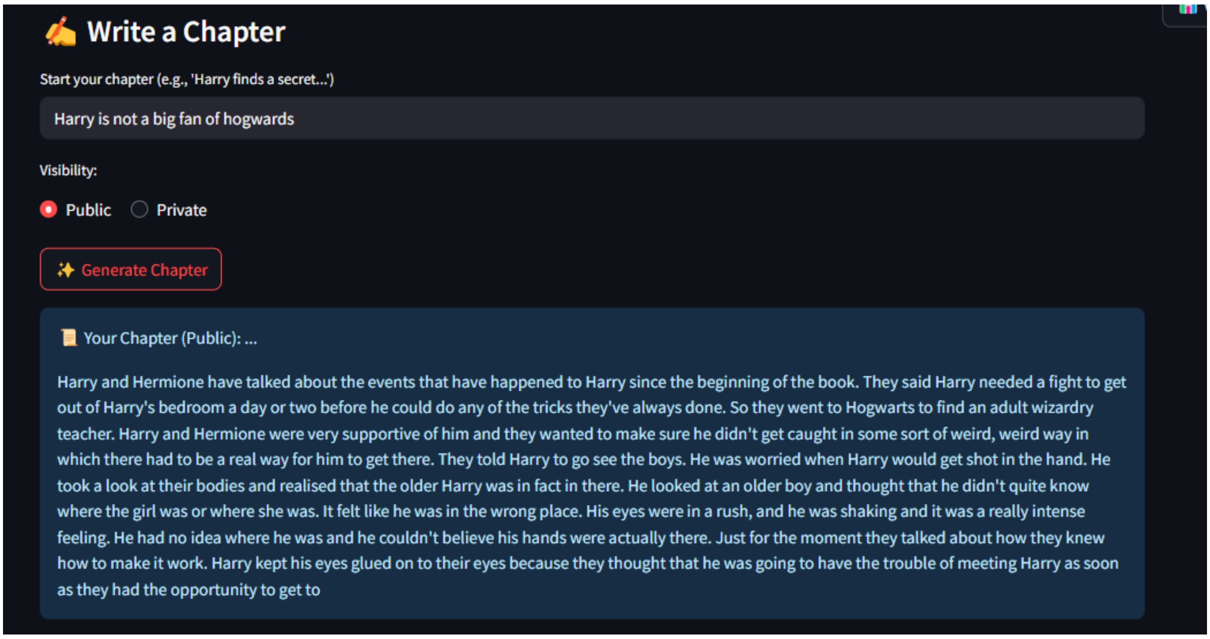
Chapter 1: Harry lived under the stairs at Privet Drive.

Chat with Your AI Buddy

✍ Write a Chapter

🎯 Story Challenge

🏆 Your Adventure



✍ Write a Chapter

Start your chapter (e.g., 'Harry finds a secret...')

Harry is not a big fan of hogwards

Visibility:

● Public ○ Private

📜 Your Chapter (Public): ...

Harry and Hermione have talked about the events that have happened to Harry since the beginning of the book. They said Harry needed a fight to get out of Harry's bedroom a day or two before he could do any of the tricks they've always done. So they went to Hogwarts to find an adult wizardry teacher. Harry and Hermione were very supportive of him and they wanted to make sure he didn't get caught in some sort of weird, weird way in which there had to be a real way for him to get there. They told Harry to go see the boys. He was worried when Harry would get shot in the hand. He took a look at their bodies and realised that the older Harry was in fact in there. He looked at an older boy and thought that he didn't quite know where the girl was or where she was. It felt like he was in the wrong place. His eyes were in a rush, and he was shaking and it was a really intense feeling. He had no idea where he was and he couldn't believe his hands were actually there. Just for the moment they talked about how they knew how to make it work. Harry kept his eyes glued on to their eyes because they thought that he was going to have the trouble of meeting Harry as soon as they had the opportunity to get to