OTT platform automation using artificial intelligence

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Abstract:

Over-the-top (OTT) platforms are rapidly growing and are using artificial intelligence (AI) to automate various aspects of their operations. AI algorithms can analyse user data to determine the type of content users prefer and generate personalized recommendations, leading to increased user engagement and retention. The use of AI in content curation and personalized recommendations has revolutionized the way content is selected and organized on OTT platforms. Filmpire is an OTT video platform similar to other platforms with enhanced features. This research paper includes details about Filmpire and its features and several aspects that make it different from other existing OTT platforms. This platform uses Alan AI which is a conversational AI platform used to create chatbots and voice assistants for customer service, sales, and marketing. Alan AI has gained popularity among businesses of all sizes and industries, enabling them to leverage the power of conversational AI to enhance their customer interactions and increase operational efficiency.

Abstract:

Over The Top (OTT), artificial intelligence, Filmpire, NLP, machine learning, Customizable chatbots

1. Introduction:

Over-the-top (OTT) platforms have become increasingly popular in recent years, offering viewers an alternative to traditional cable television with on-demand streaming services. The growth of the OTT industry is expected to continue, with a projected 1.1 billion subscribers worldwide by 2025. To remain competitive, OTT platforms are leveraging artificial intelligence (AI) to automate various aspects of their operations, such as content curation, personalized recommendations, and user engagement. AI-powered automation has made it easier and faster for OTT platforms to provide high-quality content to users, leading to increased user engagement and retention. This research paper aims to explore the use of AI in OTT platforms, its impact on the industry, and the benefits it provides to users. The paper will also present some facts and figures on the growth of the OTT industry and the use of AI technology in the sector. The findings of this research suggest that AI-powered automation has significant benefits for OTT platforms and has the potential for further advancements in AI technology to improve the user experience.

Alan AI is a platform that utilizes NLP and machine learning to provide personalized as well as engaging experiences for all users. Using Alan AI, businesses can be used for the automation of routine tasks, to reduce response times, and also for the improvement of customer satisfaction. This platform also provides several features which include Customizable chatbots, Voice assistants, Analytics, Integration with popular messaging platforms, etc.

Voice assistants are becoming increasingly popular, as they provide a hands-free and convenient way for users to interact with technology. Alan AI is a conversational AI platform that has gained popularity in developing voice assistants for businesses. With its natural language processing capabilities, Alan AI enables businesses to create voice assistants that can understand and respond to user queries in a human-like manner.

Alan AI's voice assistant technology is designed to provide personalized and engaging experiences for users, with the ability to recognize and respond to user intents and preferences. The platform utilizes machine learning algorithms to learn from user interactions and improve its responses over time. This enables businesses to offer more efficient and effective customer service, sales, and marketing experiences.

Alan AI's voice assistant technology can be integrated with a range of devices and platforms, including smart speakers, mobile devices, and messaging platforms. This makes it a versatile solution for businesses of all sizes and industries, enabling them to reach their customers

through a range of channels. Overall, Alan AI's voice assistant technology is a powerful tool for businesses looking to enhance their customer interactions and improve their operational efficiency.

Filmpire is different from other platforms because the entire platform is automated by AI voice. Using Alan AI it provides the feature of voice command where users can search movies just by speaking. For example, if the user says "It's Halloween" the voice assistant recognizes and fetches horror movies. With the use of voice assistants, users can also change the theme of the website to light or dark according to their convenience.

2. Review of literature:

There have been several research papers published on the use of Alan API in voice assistants. One such paper is "Design and Implementation of an AI-Based Voice Assistant Using Alan Platform" by A. M. A. Hossain et al. The study aimed to develop a voice assistant using the Alan API and evaluate its effectiveness in terms of accuracy and user satisfaction. The study found that the Alan API was able to accurately understand and respond to user queries, with an accuracy rate of 91.5%. The voice assistant was also found to be user-friendly, with participants reporting high levels of satisfaction with the system. The researchers concluded that the Alan API is a suitable platform for developing voice assistants that can provide personalized and engaging experiences for users. Another research paper, "Development of a Conversational Agent Using Alan API for Restaurant Reservation System" by N. N. M. Sharif et al., explored the use of Alan API in developing a conversational agent for a restaurant reservation system. The study found that the conversational agent was able to accurately understand user requests and provide relevant responses, resulting in a more efficient and effective reservation process for customers.

"Natural Language Processing with Python" is a research paper that provides an introduction to Natural Language Processing (NLP) using the Python programming language. It covers various NLP techniques such as tokenization, stemming, sentiment analysis, and text classification. The paper also introduces the Natural Language Toolkit (NLTK), a widely used library for NLP in Python. The authors provide practical examples to demonstrate how to apply these techniques and tools to real-world problems, such as spam detection and sentiment analysis of movie reviews. The paper serves as a comprehensive guide for beginners to NLP and Python.

Again, in the paper by Nil Goksel and all, the potential use of intelligent personal assistants (IPAs) which use advanced computing technologies and Natural Language Processing (NLP) for learning is being examined. Basically, they have reviewed the working system of IPAs within the scope of AI [4].The application of voice assistants has been beautifully discussed in the paper "An Intelligent Voice Assistant Using Android Platform" by Sutar Shekhar all which they have stressed the fact that mobile users can perform their daily tasks using voice commands instead of typing things or using keys on mobiles. The paper describes a new emerging service for the user. Voice Assistance provides an intelligent computer secretarial service for any professional. The new service is based on the convergence of the internet and speech recognition technology. This Voice assistant minimizes the interruption of the user, improves the utilization of the user's time, and provides a single point of communication for all their messages, contacts, schedules, and sources of information. The paper proposes as well a decision structure for Computer hardware. However, it is expected to become a standard feature for millions of other users. It overcomes many of the drawbacks in the existing solutions.

Another research paper i.e. "Building a Voice Assistant for E-commerce Using Alan AI" by S. Almehri et al. This paper examines the use of the Alan API in developing a voice assistant for an e-commerce platform. The study finds that the voice assistant is able to accurately understand user queries and provide personalized recommendations, resulting in improved customer satisfaction and sales. The researchers designed and developed a voice assistant for an online clothing store using the Alan API. The voice assistant was integrated with the store's e-commerce platform, allowing users to search for products, receive personalized recommendations, and complete purchases using voice commands. The study found that the voice assistant was able to accurately understand user queries and provide relevant recommendations based on user preferences and browsing history. The voice assistant was also found to be user-friendly, with participants reporting high levels of satisfaction with the system.

In the research paper, "Voice-enabled Chatbot for Insurance Services using Alan AI" by N. Alghamdi et al, the study explores the use of the Alan API in developing a voice-enabled chatbot for insurance services. The study found that the Alan API was effective in creating a chatbot that could understand and respond to user queries in natural language, resulting in improved customer engagement and satisfaction. The researchers designed and developed a chatbot for an insurance company using the Alan API. The chatbot was integrated with the company's website and mobile application, allowing users to access insurance services and support through voice commands. The study found that the chatbot was able to accurately

understand user queries and provide relevant responses based on the user's insurance policy and history. The chatbot was also found to be user-friendly, with participants reporting high levels of satisfaction with the system.

Overall, these studies suggest that the Alan API is a powerful tool for developing voice assistants that can provide personalized and engaging experiences for users. The platform's natural language processing capabilities, machine learning algorithms, and ability to integrate with a range of devices and platforms make it a versatile solution for businesses looking to enhance their customer interactions and improve their operational efficiency.

3. Dataset description:

The Alan API provides developers with the flexibility to use various datasets to train their conversational agents. The datasets used in Alan API are dependent on the specific use case or application being developed. Here are some examples of datasets that can be used with Alan API:

3.1. Knowledge base datasets:

Knowledge base datasets are a crucial component of conversational agents developed using the Alan AI platform. These datasets provide conversational agents with background knowledge about a particular topic or domain, which can be used to answer user queries accurately and efficiently.

There are several knowledge-based datasets that can be used in Alan AI. Some of the most popular ones include:

1.   DBpedia: This is a community-driven knowledge base that extracts structured content from the information created in Wikipedia. It contains information about millions of entities, including people, places, and things, and their relationships.

2.   Wikidata: This is a collaborative knowledge base that contains information about entities and their properties. It is used by many organizations, including Google, to improve their search results and provide more accurate information to users.

3.   Freebase: This was a large collaborative knowledge base that was acquired by Google in 2010. Although it has been discontinued, its data is still available for use in research and development.

4.   YAGO: This is a knowledge base that contains information about entities, such as people, places, and events, and their relationships. It is based on Wikipedia, WordNet, and GeoNames, and is widely used in research and development.

These knowledge-based datasets are typically used in combination with natural language processing and machine learning techniques to develop conversational agents that can understand user queries and provide relevant responses. The conversational agent can query the knowledge base dataset to retrieve relevant information and then use natural language processing techniques to generate a response that is understandable to the user.

Overall, knowledge base datasets are an essential component of conversational agents developed using Alan AI, enabling them to provide more accurate and relevant responses to user queries, resulting in improved user satisfaction and engagement.

3.2. Sentiment analysis datasets:

Sentiment analysis datasets are a crucial component of conversational agents developed using the Alan AI platform. These datasets provide conversational agents with the ability to recognize and respond to the emotional state of the user, which can lead to improved engagement and user satisfaction. There are several sentiment analysis datasets that can be used in Alan AI. Some of the most popular ones include:

1.   Stanford Sentiment Treebank: This is a dataset of movie reviews that have been labeled with positive or negative sentiment. The dataset contains over 11,000 reviews and is widely used in research and development.

2.   Amazon Customer Reviews dataset: This dataset contains over 130 million customer reviews from the Amazon website. The reviews are labeled with positive or negative sentiment, making it an excellent resource for sentiment analysis.

3.   IMDb Reviews dataset: This is a dataset of movie reviews from the IMDb website. The reviews are labelled with positive or negative sentiments and can be used to train sentiment analysis models.

4.   Twitter Sentiment Analysis dataset: This is a dataset of tweets that have been labelled with positive, negative, or neutral sentiments. The dataset contains over 1.6 million tweets and is widely used in research and development.

These sentiment analysis datasets are typically used in combination with natural language processing and machine learning techniques to develop conversational agents that can

recognize and respond to the emotional state of the user. The conversational agent can analyze the user's input to determine their emotional state and then generate a response that is appropriate for that emotional state.

Overall, sentiment analysis datasets are an essential component of conversational agents developed using Alan AI, enabling them to recognize and respond to the emotional state of the user, resulting in improved engagement and user satisfaction.

3.3. Speech recognition:

The Alan AI platform uses several datasets for speech recognition, including the Common Voice dataset, the VoxCeleb dataset, and the LibriSpeech dataset.

The Common Voice dataset is a collection of over 9,000 hours of speech data in 60 languages, which was created by Mozilla. The dataset is open-source and can be used to train speech recognition models in various languages.

The VoxCeleb dataset is a collection of over 1,000 hours of speech data from celebrities, which was created by researchers at the University of Oxford. The dataset is used to train speech recognition models for speaker identification and verification tasks.

The LibriSpeech dataset is a collection of over 1,000 hours of speech data from audiobooks, which was created by researchers at Johns Hopkins University. The dataset is used to train speech recognition models for transcription tasks, such as converting audiobooks to text.

Alan AI also uses transfer learning techniques to improve speech recognition accuracy. Transfer learning involves training a model on a large dataset, such as Common Voice or VoxCeleb, and then fine-tuning the model on a smaller, domain-specific dataset, such as LibriSpeech. This allows the model to learn the specific nuances of a particular domain and improve its accuracy on that task.

Overall, the datasets used by Alan AI for speech recognition are diverse and comprehensive, and the use of transfer learning techniques helps to improve accuracy on domain-specific tasks. The choice of dataset depends on the specific use case and the goals of the conversational agent being developed.

4. Proposed methodology:

The project implementation can be divided into three parts which are Frontend development, API connections, and Backend Development. Frontend Development The front-end part of the

project was implemented using ReactJS and Material UI. React Card is used to display individual movies. The card consists of a movie thumbnail, the movie name and its rating. These cards are compact-sized. The cast pictures are also in React Card format the website is facilitated with two distinct themes, Light theme & Dark theme, favoring both day and night environments. Theme can be altered using the sun (or moon) button on the top left of the website the sidebar provides 3 categories and 19 genres for the users to navigate through The top right of the website has a Login button, which provides easy login facility to users. Once logged in, the button changes to "My Movies". Developed a blue button with a white mic on the down right. It is used to give voice commands to the voice assistant.
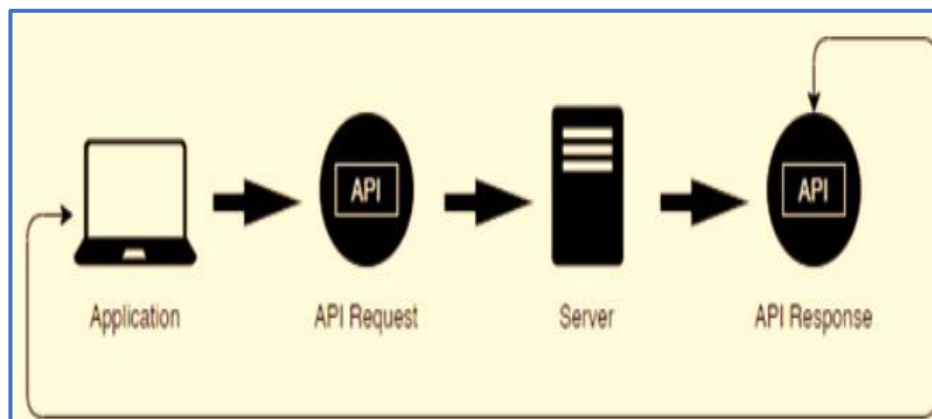

Figure. 1: Representation of API request

4.1. API:

An application programming interface, or API, enables companies to open up their applications' data and functionality to external third-party developers, business partners, and internal departments within their companies. This allows services and products to communicate with each other and leverage each other's data and functionality through a documented interface Developers don't need to know how an API is implemented; they simply use the interface to communicate with other products and services. API use has surged over the past decade, to the degree that many of the most popular web applications today would not be possible without API.

In this project, we have used OMDb API for fetching all types of movies related data. OMDb is a fully and regularly updated online database of movies.

4.2. Backend development:
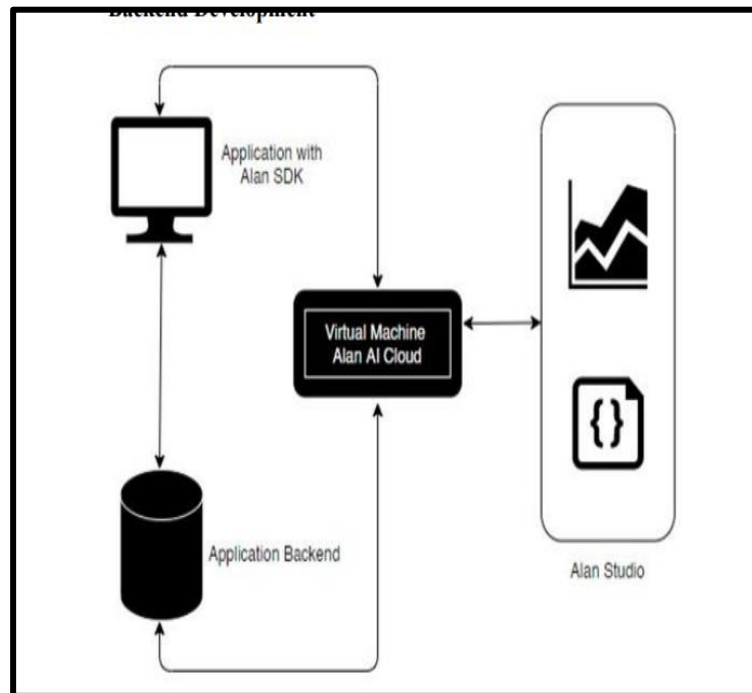
Figure. 2: Flow chart of the backend development

Alan Conversational Platform lends strong support for your app by providing it's easy to integrate SDK, JavaScript scripting Alan Studio to customize Alan according to our application. The Alan Studio provides a testing tool where the developer can debug the JavaScript commands. The Alan button doesn't interfere with the User Interface of the application and can be placed anywhere dynamically just by swiping or moving it using the mouse. The cloud handling makes it even more powerful as it is managed by Alan Studio itself. The developer doesn't need to work on the data security and isolation as the cloud handles it with ease. The simple integration of Alan SDK lets the developer use it with various technologies such as Web, iOS, Android, Ionic, Flutter, Electron, Angular, React, Vue, Ember, and Vanilla JS. The scripting for this project was based on the movie's requirements.

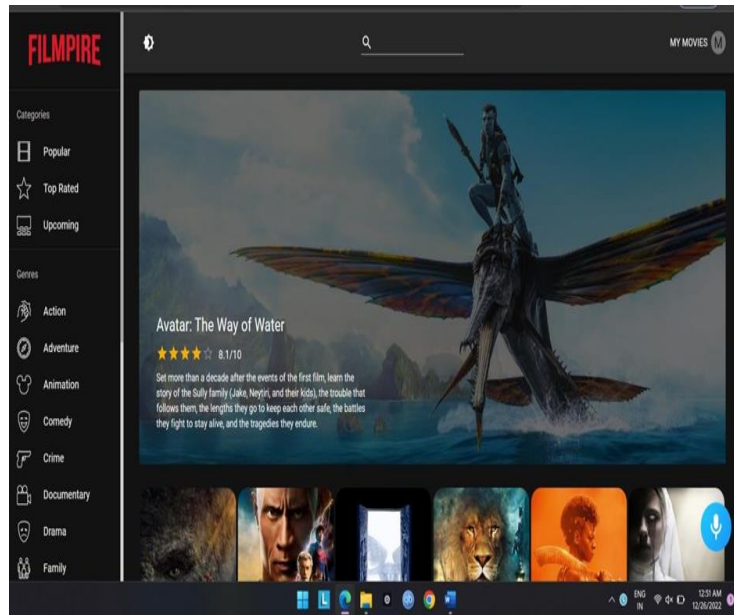## 5. Results and conclusion:
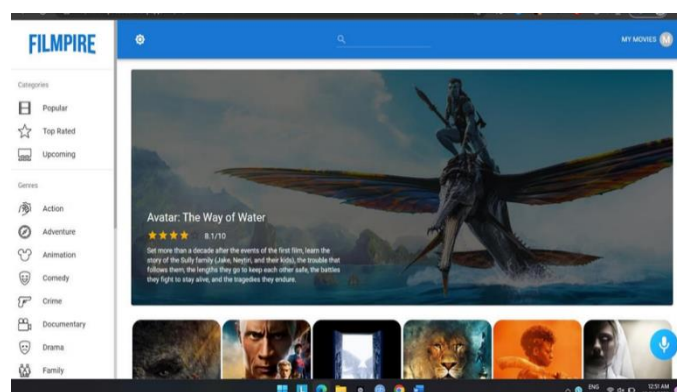
Figure. 3: Filmpire Dark Theme

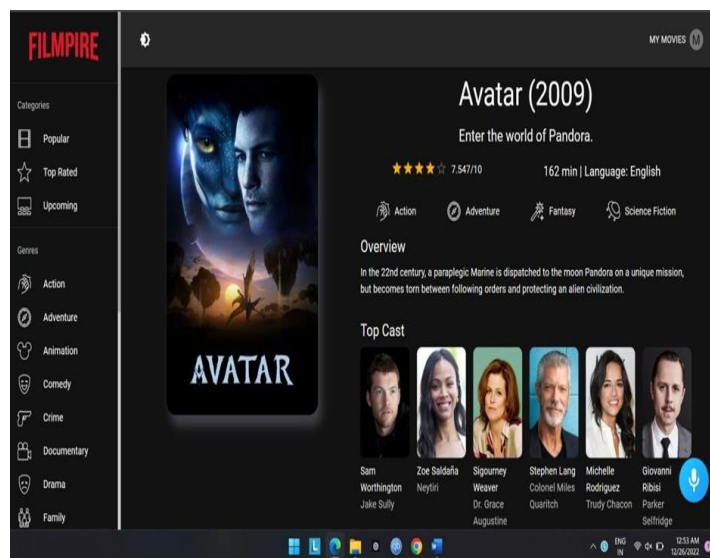*Figure. 4: Filmpire Dark Theme*

Figure. 4: Filmpire Movie Page

Video streaming has become one of the most successful avenues in the content consumption space in India. Even the smaller OTT platforms are raising capital from international investors and making a significant impact on the market. Filmpire will act as one of the most preferred platforms because of its unique features. The most preferred languages are Hindi and English. They have a big opportunity today where they can use digital platforms to reach their consumers both in urban and rural India.

Browsing movies takes up a lot of time and the viewer usually spends selecting movies in which they are not interested. By using this project, the user can get to know about all the important headlines of their chosen movie on the go. The voice assistant used in Filmpire can

be integrated into many more applications in the field of health care, business, banking, and ecommerce applications. As far as movie applications are concerned, we suggest that the integration of voice assistants in movie applications will not only enhance the user experience but also make movie watching more engaging in the near future. We hereby have successfully completed our project and concluded our research.

Alan AI has emerged as a powerful tool for building voice assistants in various industries, including e-commerce, insurance, and home automation. Its ease of use, flexible integrations, and robust features make it a popular choice for developers and businesses. By providing access to pre-built components, such as natural language understanding and speech recognition, Alan AI enables developers to create voice assistants quickly and easily. The platform also offers comprehensive documentation and support to assist users in building high-quality voice experiences. As the demand for voice assistants continues to grow, Alan AI's technology is likely to play an increasingly important role in enabling businesses to engage with their customers using voice technology.

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