Project Proposal
ECE:5995 - GAIT

AI-Powered Personalized Travel Itinerary Generator

Travel planning can be a complex and time-consuming process, often involving extensive research across multiple platforms to find the best destinations, activities, and accommodations that align with personal preferences and budgets. Traditional methods of trip planning—such as reading blogs, consulting travel agencies, or relying on generic guides—can lack personalization and fail to capture the unique needs and interests of individual travelers. Moreover, visualizing a destination or activity before committing to a trip remains a challenge for many, leaving travelers uncertain about their choices. This gap in accessible, tailored, and immersive planning tools inspired the development of the AI-Powered Personalized Travel Itinerary Generator.

The AI-Powered Personalized Travel Itinerary Generator is a platform that allows users to input their preferences for a vacation (destination, interests, budget, etc.) and receive Images and 'drone hover' like videos of the attractions as well as a fully generated itinerary. The platform uses various generative AI technologies, including image, text, and video generation. External APIs for real-time weather data will enhance the user experience. The project will serve as a comprehensive tool for trip planning, offering visual previews, personalized recommendations, automatic itinerary creation, and an option to download, save, or print the itinerary. We will utilize 'ffmpeg' in order to edit the videos together on the backend.

For the text generation we will use OpenAI ChatGPT models to create the itineraries. For image and video generation of the tourist attractions, we will use Replicates text to image and image/text to video generation models. Images of the area will be created based on the suggestions from ChatGPT and then we can take the images and some specialized prompts to create the 'drone hover' video of the area.

For our project our tech stack will be as follows:

Frontend:

- Python - Web app (flask app)
- The user launches the application and inputs preferences through the GUI.
- These inputs are sent to the Flask backend for processing.
- Once processed, then the screen will show the results and give options, this happens for each step along the way to get all the preferences

Backend:

- Python - Flask
- Flask routes handle API calls and data processing.
- OpenAI generates a detailed itinerary text.
- Replicate generates images and videos for attractions.

- OpenWeather provides real-time weather data.

AI Integration:
- OpenAI API for text generation (GPT-based models).
- Replicate: Text-to-Image
- Replicate or Runway: Text-to-Video
- Replicate or Runway: Image-to-Video

API Integration:
- Public APIs, OpenWeather, for real-time weather data.
- FFmpeg for stitching/merging individual clips together into one cohesive video