Hackathon BJIT
BUET CSE Fest 2023

API & Cloud Services

Rational Thinkers

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Chapter 1

Introduction

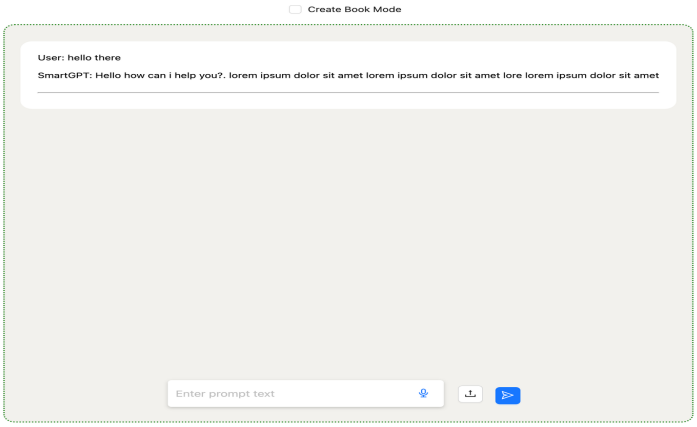
Introduction: Our hackathon project aimed to develop a multi-functional chatbot, similar to Chat GPT, with additional speech-to-speech collaboration capabilities. Furthermore, we implemented a text-to-speech and speech-to-text API to enable seamless communication. In addition, we built a kids' book generation feature using the stable diffusion model for text-to-image generation, resulting in downloadable PDF books. Lastly, we created a shared platform where users can upload and share chatbot-generated PDF books, facilitating book viewing and search functionalities through our custom API.

Chapter 2

Project Scenario

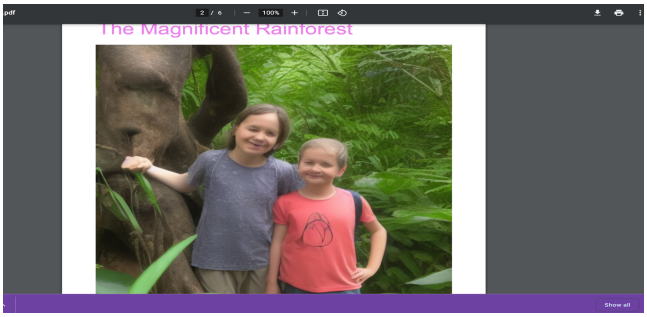
2.1 Phase - 1 : Building Chatbot

Building a Multi-functional Chatbot In this phase, we focused on creating a chatbot with capabilities similar to Chat GPT. Users could interact with the chatbot through text-based input and receive responses generated by our intelligent algorithm. Additionally, we integrated speech-to-text and text-to-speech APIs, enabling users to collaborate via speech as well. This feature enhanced the accessibility and convenience of our chatbot, making it suitable for a variety of scenarios.



2.2 Phase - 2 : Kids Book Generation

During this phase, we accomplished two primary tasks. Firstly, we developed a functionality that allowed users to upload image or text files. From these files, we extracted relevant text prompts, enabling users to generate engaging and unique content. Secondly, we implemented the stable diffusion model for text-to-image generation. This advanced technique enabled us to create visually appealing illustrations corresponding to the provided text prompts.



2.3 Phase - 3 : Shared platform for Book Sharing

In the final phase, we built a shared platform where users could upload the PDF books generated by our chatbot. This platform served as a central hub for book sharing, providing a user-friendly interface. Users could view and search for books based on their interests or specific keywords, facilitating easy book discovery. Leveraging our custom API, the shared platform enabled seamless access to the generated books, fostering a community of book enthusiasts.

Chapter 3

Implementation

3.1 Technical Requirements:

- Technical requirements : install node and npm.
- Languages : Nodejs, React, MongoDB Compass

To download the latest version of npm, on the command line, run the following command:

```
npm install -g npm
```

Overview

- Checking your version of npm and Node.js
- Using a Node version manager to install Node.js and npm
- Using a Node installer to install Node.js and npm

Checking your version of npm and Node.js

To see if you already have Node.js and npm installed and check the installed version, run the following commands:

```
node -v
```

```
npm -v
```

Using a Node version manager to install Node.js and npm

Node version managers allow you to install and switch between multiple versions of Node.js and npm on your system so you can test your applications on multiple versions of npm to ensure they work for users on different versions.

OSX or Linux Node version managers

- nvm
- n

Windows Node version managers

- nodist

- nvm-windows

Using a Node installer to install Node.js and npm

If you are unable to use a Node version manager, you can use a Node installer to install both Node.js and npm on your system.

- Node.js installer
- NodeSource installer

If you use Linux, we recommend that you use a NodeSource installer.

OS X or Windows Node installers

If you're using OS X or Windows, use one of the installers from the Node.js download page. Be sure to install the version labeled **LTS**. Other versions have not yet been tested with npm.

Linux or other operating systems Node installers

If you're using Linux or another operating system, use one of the following installers:

- NodeSource installer (recommended)
- One of the installers on the Node.js download page

Or see this page to install npm for Linux in the way many Linux developers prefer.

Less-common operating systems

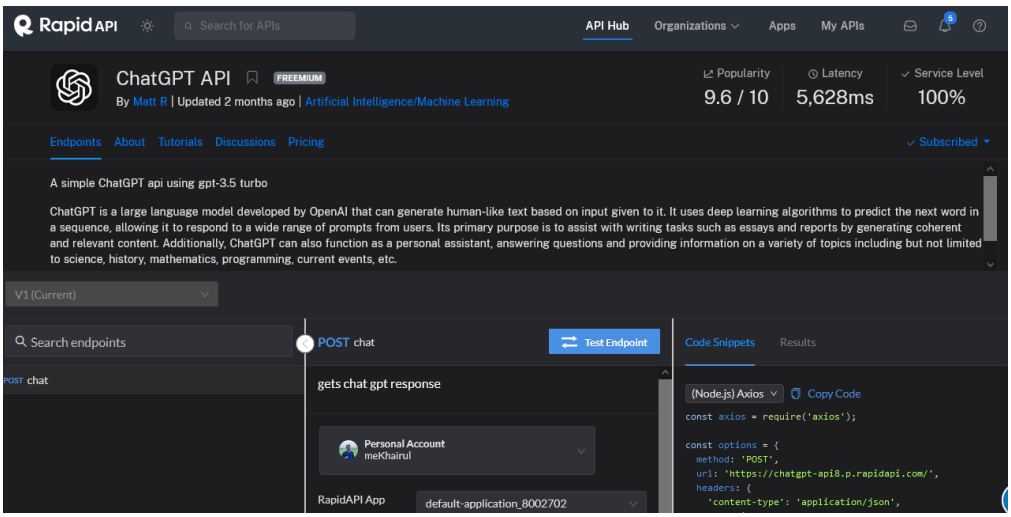
For more information on installing Node.js on a variety of operating systems, see this page.

3.2 Phase 1:

- Firstly, Communicates with ChatBot via text prompt only using GPT_3.5_turbo api from Rapid Api.
- Generate text to voice and voice to text from frontend using Tessaract

To use Rapid API keys you must sign up first.

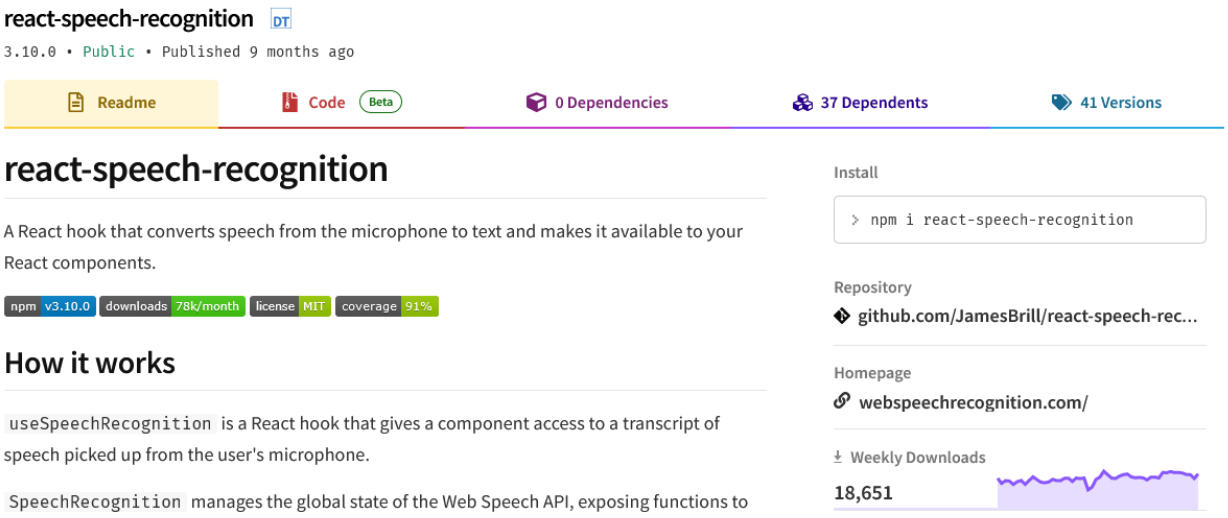
- Subscribe to ChatGPT API



- You can get the code snippets as well

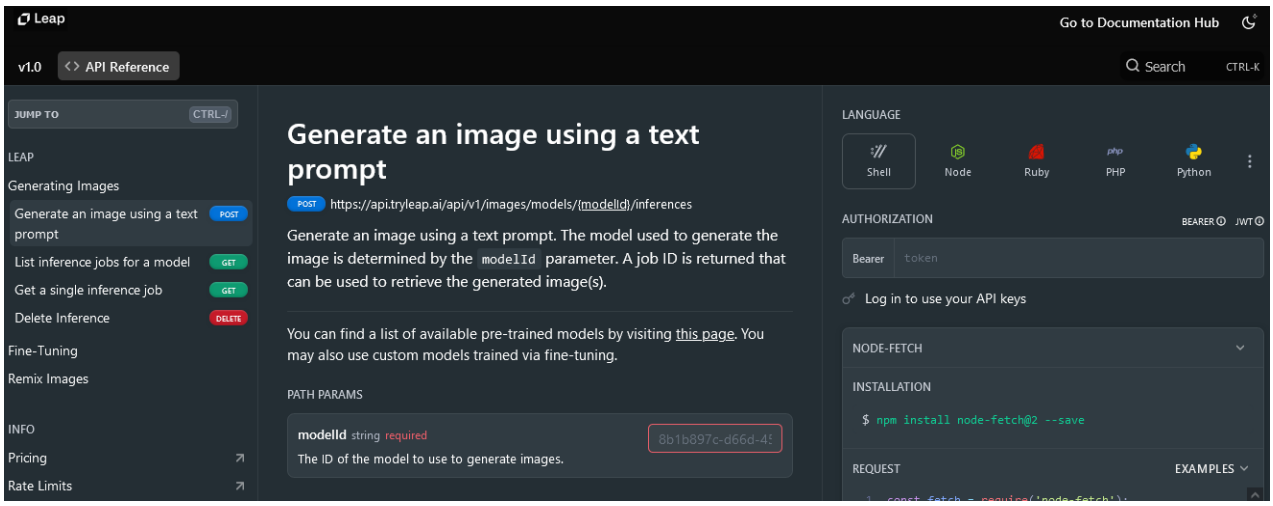
3.3 Text to speech and Speech to Text Generating:

- Integrate Text to speech using [Web Speech Api]
- Speech to text using [react-speech-recognition]



3.3 Phase 2:

- Uploading an image or text file is done using node packages.
- Image to text generation using [Tessaract]
- Book's PDF generated chatgpt response prompt and generating image by stable diffusion api.
- Stable diffusion model api is used from [stable-diffusion-api]



3.4 Phase 3:

- PDF Storage: Our platform utilizes MINIO to securely store all uploaded PDF books. This ensures reliable and efficient storage management.
- Book Browsing: Through a user-friendly interface, users can browse and explore a comprehensive list of available books. Our platform provides a convenient "get" API method to retrieve the list of books, enabling smooth navigation and effortless book discovery.
- Keyword Search: With our platform, users can effortlessly search for specific books by utilizing the keyword search feature using "get" API method.
- Book Details: Users can access detailed information about a particular book by utilizing the "get" API method with the book's unique ID. This allows users to view specific book details, including the book's title, description.

3.5 Testing and Evaluation:

- Testing backend using postman

Chapter 5

Conclusion

Our hackathon project successfully integrated multiple functionalities, resulting in a comprehensive and versatile chatbot system. By incorporating speech-to-speech collaboration, text-to-image generation for kids' books, and a shared platform for book sharing, we created an interactive and engaging experience for users. This documentation serves as a guide to understanding the various phases and features of our project, highlighting the innovative solutions we developed during the hackathon.