



ENHANCING DIGITAL GOVERNMENT AND ECONOMY
Digital Skills for Students

Final Project

TEXT TO SPEECH CONVERTER

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Project Report

1. Introduction

This project is based on a simple and interactive web-based application that converts written text into speech. The 'Text to Speech Converter' helps users, especially those with visual impairments or reading difficulties, by reading the typed content aloud using the browser's built-in speech synthesis.

2. Objective

The main goal of this project is to create an accessible and user-friendly tool that can speak out any text typed by the user. It uses basic HTML, CSS, and JavaScript to design the interface and handle the text-to-speech functionality.

3. Tools and Technologies Used

- HTML
- CSS
- JavaScript
- Web Speech API (SpeechSynthesisUtterance)

4. Working Principle

The user enters text into a text area. Upon clicking the 'Text to Speech' button, JavaScript captures the text and converts it into speech using the SpeechSynthesis API. The button toggles between 'Pause' and 'Resume' states depending on whether the speech is active or paused. A speaker icon also changes to indicate the state.

5. Output

When the program is run in a browser, it displays a text area and a button labeled 'Text to Speech'. Once text is entered and the button is clicked, the browser reads out the content using a natural voice. The design is visually appealing with a responsive layout.

6. Conclusion

This project demonstrates how modern web technologies can be used to build helpful tools for daily life. It's a good example of combining simple frontend development with built-in browser capabilities to provide real-world benefits.

7. Detailed Explanation of the Code

The Text to Speech Converter is built using three main components: HTML, CSS, and JavaScript. Here's how each part contributes to the project:

HTML:

The HTML file structures the interface. It contains a text area where users can type or paste any text, a button to trigger the speech function, and a speaker icon to indicate if speech is playing or paused.

CSS:

CSS is used to style the webpage. It provides a clean and modern look with gradient backgrounds and rounded containers. It also makes the layout responsive and visually engaging.

JavaScript:

JavaScript brings the functionality. It uses the Web Speech API's 'SpeechSynthesisUtterance' to convert text into speech. When the user clicks the button, it checks if the text is already being spoken. If so, it toggles between pausing and resuming. It also updates the button text and icon based on the current state.

8. Features

- User-friendly interface
- Real-time text-to-speech conversion
- Toggle between pause and resume
- Visual speaker icon that reflects speech state
- Responsive design with clear typography

9. Limitations

While the project works well on modern browsers, it relies on the Web Speech API, which may not be supported in all browsers or devices. Also, it currently supports only the default voice and lacks multilingual support.

10. Future Scope

In the future, this application can be improved by adding features like voice selection, language options, and saving speech as audio files. It can also be converted into a mobile app for greater accessibility.

Its modular and extensible design ensures that it can be upgraded in the future with minimal changes. With its user-friendly interface, accessibility, and visual appeal, this game is a valuable addition to any early education platform or learning environment. Moreover, the project effectively showcases practical front-end development skills suitable for real-world educational software.