

Inclusive Virtual Meeting Platform for Physically Disabled Individuals

Abstract

The current landscape of virtual meeting platforms lacks tailored features to address the unique communication needs of individuals with physical disabilities, particularly those reliant on sign language. This project aims to develop an Inclusive Virtual Meeting Platform that seamlessly integrates with popular platforms like Zoom or Google Meet. The platform will introduce advanced features such as Speech-to-Text (STT) for transcription, Text-to-Speech (TTS) for audio communication, and an optional Sign Language Recognition module. The primary goal is to elevate inclusivity and accessibility in virtual meetings, with a specific focus on meeting the diverse needs of the physically disabled community.

Functional Components of the Project

1. User Authentication and Access Control :
 - a. User login and authentication.
 - b. Password change functionality.
 - c. Access control for different user roles.
2. Speech-to-Text Integration :
 - a. Integration of STT API for accurate and efficient transcription.
 - b. Display of transcribed text in real-time during meetings.
3. Text-to-Speech Functionality :
 - a. Integration with TTS API to convert text messages into speech.
 - b. Customizable options for voices and speech sounds.
4. Sign Language Recognition :
 - a. Integration with sign language recognition module.
 - b. Display of recognized sign language expression in real-time.
5. Platform Integration:
 - a. Development of plugins or extensions for easy integration.

- b. Compatibility testing with different virtual meeting platforms.
- 6. Accessible User Interface:
 - a. Implementation of accessible design principles.
 - b. Compatibility with assistive technologies.
- 7. Real-time Collaboration Tools:
 - a. Development of real-time collaboration features.
 - b. Special considerations for participants using assistive technologies.
- 8. Notifications and Alerts:
 - a. Sending notifications for assigned tasks, meetings, or updates.
 - b. Email notifications for newly assigned tasks.
- 9. User Profile Management:
 - a. Profile creation and customization.
 - b. Accessibility settings adjustment.
- 10. Reporting and Analytics:
 - a. Reporting tools for tracking meeting trends.
 - b. Analytics dashboard for administrators.

User Privileges for the Inclusive Virtual Meeting Platform

1. Application Admin:

Privileges:

- Full access to all features and functionalities.
- User authentication and access control.
- Configuration of Speech-to-Text (STT) and Text-to-Speech (TTS) settings.
- Integration with virtual meeting platforms.
- Management of optional Sign Language Recognition module.
- Real-time collaboration tools configuration.
- Notifications and alerts settings.
- User profile management.
- Reporting and analytics access.

2. Meeting Host (Component Admin):

Privileges:

- Component maintenance (grant, revoke, mark as "Active" or "Closed").
- Defect tracking (create, assign, modify, close) for the owned component.
- Access to Speech-to-Text (STT) and Text-to-Speech (TTS) settings for the owned component.
- Real-time collaboration tools for the owned component.
- Notifications and alerts settings for the owned component.
- User profile management for users associated with the owned component.
- Reporting and analytics access for the owned component.

3. Participant (User):

Privileges:

- Defect tracking (create, modify, close) for components with access.
- Access to Speech-to-Text (STT) and Text-to-Speech (TTS) settings for components with access.
- Real-time collaboration tools for components with access.
- Notifications and alerts for assigned tasks or updates.
- User profile management for personal preferences and accessibility settings.
- Reporting and analytics access for components with access.

Note:

All user roles have access to defect tracking, Speech-to-Text (STT), Text-to-Speech (TTS), real-time collaboration tools, notifications, user profile management, and reporting and analytics based on their privileges.

The Application Admin has global control over the entire platform, including configuration settings and management of optional features.

Meeting Hosts (Component Admins) have control over their assigned components, influencing defect tracking, configuration settings, and user management within those components.

Participants (Users) have access to functionalities based on their associated components, ensuring a personalized and inclusive virtual meeting experience.

User privileges are designed to provide secure and tailored access to the Inclusive Virtual Meeting Platform, supporting collaboration and inclusivity for individuals with physical disabilities.

UML HIGH LEVEL OVERVIEW DIAGRAM

