Transcription for WebGL – Technical Documentation

Overview

Transcription for WebGL enables real-time audio-to-text transcription in Unity WebGL builds using the WebSpeech API. This system supports dynamic transcription of UI narration, NPC dialogues, interactive voice input, and even voice commands—without pre-written scripts.

Key Features

- Real-time transcription directly in the browser

- Continuous or single-utterance transcription modes

- Downloadable transcripts in plain text

- Interactive voice command support for controlling game objects

- JavaScript ↔ Unity messaging

- Lightweight integration suitable for all Unity WebGL projects

Component Breakdown

1. TranscriptionHandler.cs (Interop Layer)

Handles JavaScript ↔ Unity communication with functions such as:

- Setting the GameObject name for JavaScript callbacks

- Starting and stopping transcription

- Downloading transcription results

2. Transcription.jslib (JavaScript Plugin for Unity WebGL)

- Interfaces with WebSpeech API's SpeechRecognition

- Manages transcription events and sends results to Unity

- Supports file download functionality for transcripts

3. Transcription.js (JavaScript Implementation)

- Initializes SpeechRecognition and configures continuous/single-utterance mode

- Sends transcription results to Unity

- Implements file download functionality

4. **TranscriptionUi.cs (Unity MonoBehaviour Script)**
   Handles transcription UI, including:

   - Starting and stopping transcription

   - Displaying transcription results with timestamps

   - Clearing results

   - Downloading transcripts

5. **VoiceCommandHandlerDemo.cs (Unity MonoBehaviour Script)**

   Demonstrates using transcription results to control in-game objects by interpreting voice commands

Unity Project Setup

Step 1: Configure the WebSpeech Template

- Import the Transcription package into your Unity project

- Navigate to: Tools → Transcription For WebGL → Configure Project for Transcription

- Confirm moving the template when prompted

Tip: This step is required only once per project.

Step 2: Set the WebGL Template to "WebSpeech"

- Navigate to: Tools → Transcription For WebGL → Set WebSpeech as WebGL Template

- Confirm successful configuration in the console

Note: Without this step, WebGL builds won't support Transcription.

Step 3: Open the Transcription Demo Scene

- Navigate to: Tools → Transcription For WebGL → Open Transcription Demo Scene

- Save any unsaved scenes

- The TranscriptionDemo.unity scene will open

●   Press Play to test in WebGL (Editor playback won't produce transcription output)

Final Step: Build to WebGL

●   Go to File → Build Settings

●   Select WebGL as the platform

●   In Player Settings, set WebGL Template to WebSpeech

●   Click Build and Run

●   Open in a browser to test transcription functionality live

Usage Instructions

For General Transcription (UI)

1. Start Transcription

    ●   Click Start Transcription (triggers transcription)

    ●   Toggle listen continuously if needed

    ●   Speak into the microphone

2. View Transcription

    ●   Transcripts appear in real time with timestamps

3. Stop Transcription

    ●   Click Stop Transcription

4. Download Transcript

    ●   Click Download Transcript to save as .txt

5. Clear Result

    ●   Use Clear to reset the transcript area

For Voice Commands

- Click Start Listening in the Voice Command Demo

- Speak commands like:

  - "rotate" → Rotates the cube

  - "rotate faster" → Rotates the cube quickly

  - "left" → Moves the cube left

  - "right" → Moves the cube right

- Use Stop Listening to stop transcription

Function Trigger Flow

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Unity C# (TranscriptionUi.cs / VoiceCommandHandlerDemo.cs)
↓
TranscriptionHandler.cs (Interop)
↓
Transcription.jslib (JS Bridge)
↓
Transcription.js (Speech Logic)
↓
Web Browser (WebSpeech API)
```

Known Constraints

- Only works in WebGL builds (not in the Unity Editor)

- Browser must support the WebSpeech API

- Language selection and dialect support depend on browser capabilities

Browser Compatibility:
MDN: SpeechRecognition Browser Compatibility
https://developer.mozilla.org/en-US/docs/Web/API/SpeechRecognition#browser_compatibility

Support
Email: admin@devdensolutions.com