FORM 2

THE PATENT ACT 1970

(39 of 1970)

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The Patent Rules, 2003

PROVISIONAL SPECIFICATION

(See Section 10 and Rule 13)

1. TITLE OF THE INVENTION

System and Method for separation of audio and music from a song and playing them in predetermined audio devices separately.

2. APPLICANT(S)

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3. PREAMBLE TO THE DESCRIPTION

PROVISIONAL

The following specification particularly describes the invention.

4. DESCRIPTION

Field of the Invention

The present invention pertains to audio processing, music streaming enhancement, and interactive performance technology. More particularly, it relates to computer-implemented systems and methods for embedding AI-powered music performance features—including real-time audio stem separation, bilingual lyric synchronization, dual-channel audio routing, playback speed control, and performance recording—into standalone applications or third-party music streaming platforms .

Background of the Invention

Music streaming platforms offer vast licensed catalogs but usually lack interactive performance features such as stem-level control, dual audio routing, real-time lyric synchronization and translation, and performance recording within licensed environments. Existing karaoke and music apps often require separate licensing, physical hardware, or complex user setups, posing challenges to scalability and user engagement. Furthermore, unauthorized redistribution of licensed music during manipulation remains a critical legal concern. There exists a technical and legal need for a system that integrates these advanced features seamlessly—either as a standalone solution or embedded within host platforms—while respecting licensing frameworks and maximizing user interactivity.

Summary of the Invention

The following presents a simplified summary of the disclosure to provide a basic understanding to the reader. This summary is not an extensive overview of the disclosure, and it does not identify key/critical elements of the invention or delineate the scope of the invention. Its sole purpose is to present some concepts disclosed herein in a simplified form as a prelude to the more detailed description presented later.

Summary of the Invention:

The invention provides a computer-implemented system and method for integrating AI-driven interactive music performance features into third-party streaming platforms or delivering them as standalone applications.

Key features include:

Real-time AI-based audio stem separation dividing an audio stream into vocal and instrumental components. Dual-channel output routing directing separated stems to different output devices (e.g., vocals to headphones, instrumental to speakers) for immersive performance experiences.

Multilingual lyric synchronization with color-coded timing, pitch, or sentiment highlights, enhanced with neural machine translation for various languages. Playback speed adjustment preserving pitch and lyric synchronization.

Live performance recording or streaming with synchronized lyric overlays while operating in compliance mode that prevents unauthorized copying or distribution of original audio.

Dual deployment modes via authorized APIs, SDKs, or as a standalone app hosting licensed catalogs or external content sources. This unified architecture enables rich user interaction, extends host platform capabilities, and addresses legal concerns through an integrated compliance mechanism.

Brief Description of the Drawings

Other objects and advantages of the present invention will become apparent to those skilled in the art upon reading the following detailed description of the preferred embodiments, in conjunction with the accompanying drawings, wherein like reference numerals have been used to designate like elements, and wherein:

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Description of the Invention

Brief Description of the Drawings:

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Detailed Description of the Invention:

The present invention related to a System and method for integrating interactive music performance features into a music streaming environment, comprising: receiving an audio stream from a third-party platform or standalone catalog; applying AI-based stem separation to divide the audio stream into vocal and instrumental stems in real time; routing the vocal stem to a first output device and the instrumental stem to a second output device; retrieving and synchronizing a multilingual lyric stream with the audio; displaying the lyric stream with color-coded highlighting synchronized to audio timing and pitch; adjusting playback speed without pitch distortion while maintaining lyric synchronization; recording or streaming a performance combining the separated audio

and synchronized lyrics; operating under a compliance mode that restricts unauthorized storage and distribution of the audio stream.

The integration occurs via API, SDK, or embedded software within a music streaming platform and neural machine translation is used for lyric language conversion and display. the output routing is user-configurable for any number of audio output devices.

Integration Layer:

Interfaces with third-party streaming platforms via authorized API or SDK to receive audio streams, metadata, and control commands. In standalone mode, manages licensed content catalogs or external content feeds.

Audio Processing Engine:

Leverages AI algorithms (e.g., deep neural networks) for real-time stem separation, isolating vocal and instrumental components with noise reduction. Ensures low latency to maintain streaming synchronization.

Output Routing Module:

Assigns separated audio stems to selected output devices such as speakers, head phones, Bluetooth devices and the like. For example, routes vocal stem exclusively to connected headphones while sending instrumental stem to room speakers, customizable per user preferences.

Lyric Synchronization & Translation Engine:

Fetches timestamped lyrics associated with audio tracks. Applies neural machine translation for multilingual support and displays color-coded text indicating timing, pitch, or emotional sentiment for enhanced engagement.

Playback Control Module:

Adjusts playback speed dynamically without altering pitch or lyric sync by using advanced time-stretching algorithms ensuring seamless user experience during practice or performance.

Performance Recording & Streaming Module:

Captures video/audio combining real-time audio streams and synchronized lyrics overlays. Enables local saving or live streaming compliant with hosting platform licenses. Incorporates visual and audio effects for performance enhancement.

Compliance Mode:

Enforces licensed content restrictions by preventing local storage or unauthorized retransmission of original audio and stems outside the approved environment. Utilizes encryption, watermarking, and access control mechanisms to adhere to copyright.

The system of the present invention supports multi-user personalized lyric synchronization for concurrent listeners and the recording supports video capture with lyric and effect overlays, and further the system operates in standalone mode hosting licensed content or external internet content feeds.

Dated: 12 November 2025

Signature:

A. Naveen Kumar

IN/PA-2183

5. CLAIMS

I/We Claim

Dated: 31st October 2025

Signature:

A. Naveen Kumar

IN/PA-2183

ABSTRACT

System and Method for separation of audio and music from a song and playing them in predetermined audio devices separately.

The present invention related to a System and method for integrating interactive music performance features into a music streaming environment, comprising: receiving an audio stream from a third-party platform or standalone catalog; applying AI-based stem separation to divide the audio stream into vocal and instrumental stems in real time; routing the vocal stem to a first output device and the instrumental stem to a second output device; retrieving and synchronizing a multilingual lyric stream with the audio; displaying the lyric stream with color-coded highlighting synchronized to audio timing and pitch; adjusting playback speed without pitch distortion while maintaining lyric synchronization; recording or streaming a performance combining the separated audio and synchronized lyrics; operating under a compliance mode that restricts unauthorized storage and distribution of the audio stream.