Tencent Cloud

Game Multimedia Engine

Product Introduction

Product Documentation

Contents

Product Introduction
Overview

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Game Multimedia Engine (GME) is a one-stop audio solution that provides various services such as voice chat, voice messaging, and speech-to-text conversion for gaming scenarios of many game types, including FPS, MOBA, MMORPG, casual battle games, chess and card games, and online board games. It also supports interconnection between mobile, PC, game console, and browser games.

Features and Use Cases

Key Features	Description	Scenario
Real-time Voice	Implements real-time voice chat between two or multiple users. Supports 3D voice, range voice, team chat, and ultra large voice chat rooms that can contain up to 100,000 users. Supports real-time voice accompaniment and voice changing.	Team battling Commanding Board games such as Werewolf
Voice Messaging	GME can send recorded voice messages to game channels and get offline voice messages sent during a certain period of time.	Chat with friends/in a channel
Speech-to-Text Conversion	Converts recording files, streaming voice messages, or content of voice chat to text in up to 125 languages in real time.	Channel chat Draw Something
Audio Recording	Allows players to record the voice of all players or the specified room, so as to retain the interesting audio content in the game for production or recording storage. The recordings can be stored to the client or server.	Recording storage Content production
Text translation	Allows you to specify the source (language recognition is supported) and	Channel chat Game battles

	target languages and translates the input text.	
Text-to-Speech Conversion	Converts text to natural and realistic speech based on advanced deep learning technology.	Game content broadcasting Barrier-free gameplay

Note:

Audio recording, text translation, and text-to-speech features have not been officially launched. To use them, contact the channel manager or submit a ticket for more information.

Supported Platforms

GME is compatible with iOS, Android, Windows, macOS, web, Unity, Unreal, Cocos, PlayStation, Switch, and Xbox, and is adapted to more than 20,000 terminals and numerous peripheral device models, ensuring a smooth voice chat experience across all platforms. The table below lists the compatibility requirements:

Platform	Supported Versions
Android	Android 6.0 or later
iOS	iOS 9.0 or later
macOS	macOS 10.13 or later
Windows	Windows 2007 Windows XP Windows 10 Windows 11
Unity	Unity 4.7 or later
Unreal Engine	Unreal Engine 4.2 or later Unreal Engine 5.0 or later
Cocos2d	Cocos2d-x 3.16 or later
Web	Mozilla Firefox 67 Google Chrome 75 Apple Safari 12.1 Microsoft Edge 18
WebGL	Mozilla Firefox 67 Google Chrome 75 Apple Safari 12.1

	Microsoft Edge 18
PlayStation	PlayStation 4 PlayStation 5
Switch	Nintendo Switch
Xbox	Xbox One Xbox Series

Strengths

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GME has six major strengths:

Strength 1. Wide Game Scenario Coverage

To comprehensively meet diversified voice needs in gaming scenarios, GME provides a rich set of services such as voice chat, voice messaging, and speech-to-text conversion to implement mainstream voice-enabled features such as team battling and commanding. Its proprietary 3D voice technology is ideal for creating an immersive gaming experience in scenarios such as survival and VR games. Moreover, it makes gaming even more enjoyable with its amusing voice changing and vocal beautification features.

Strength 2. Ultimate Gaming Sound Effect Experience

GME optimizes voice chat in depth based on use cases. Its patented algorithms for echo cancellation as well as noise suppression developed by Tencent Ethereal Audio Lab help restore the crystal clear sound effect of audio. Further, its deep integration with the Wwise audio engine ingeniously solves the problem where the background sound effects are lost when in-game voice is enabled. Plus, it supports acoustic echo cancellation (AEC) to help players identify the positions and directions of other players through sound both on headphones and speakers, making players more immersed.

Strength 3. Multi-Terminal and Cross-Platform Compatibility

As the only Chinese voice development tool that makes the list of third-party development tools and middleware for Nintendo Switch™, PS5™, and PS4™, GME is compatible with mainstream consoles, is well adapted to UE, Unity, Cocos, and other major game engines, and supports macOS, Windows, iOS, and Android systems.

Strength 4. Global Service

GME is available in six continents. Relying on its 2,800+ cache nodes deployed in more than 70 countries/regions, it enables nearby access to low-latency and non-lagging voice chat services. Its speech-to-text conversion feature supports 125 languages, implementing barrier-free communications among global players and technically helping Chinese applications go global.

Strength 5. High Stability and Reliability

Based on the underlying audio/video technologies of QQ that have been verified by hundreds of millions of QQ users, GME serves thousands of global customers in the gaming industry and sustains voice calls of 1 billion minutes every day on average. It features real-time monitoring, remote disaster recovery, and smart scheduling to ensure stable and reliable services. In addition, its 24/7 customer service and SLA help achieve carefree business operations.

Strength 6. Cost-Effective Access

GME has a simple API design which allows you to integrate the voice chat capability through four lines of code. It is easy to access and supports developers.

Features
Voice Chat

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GME's real-time voice service can implement real-time voice chat between two or more players and supports various advanced features, including 3D voice, range voice, and ultra large voice rooms.

Use Cases

Voice-enabled team battling

Game audio interaction and chat

Social networking in open world games

Game live streaming, voice chat, and karaoke

Social networking and board game scenarios requiring real-time voice chat, such as Werewolf and script game

Overview

3D voice

GME's 3D voice feature enables players to hear a stereo voice with a sense of direction from characters when characters move. The voice also gets weaker as the distance from the source increases, making the game voice more immersive. For more information, see 3D Sound Effect.

Range voice

GME determines whether players can chat with each other based on their positions. In the same voice room, a large number of users can turn on their mic to have a voice call. It provides "team only" and "everyone" voice modes unique to battle royale and survival shooter games. For more information, see Range Voice.

Room management

GME provides SDKs for you to implement room member management, mic-on/off, and muting. You can also use server APIs to remove players from a room and perform other operations.For more information, see Integrating GME Chat Room Management.

Ultra large room for 100,000 users

GME supports an ultra large voice room containing up to 100,000 users and allows multiple users to enter a room at the same time.

Audio forwarding routing

GME allows you to set audio forwarding rules and customize the audio senders and recipients. For more information, see Custom Audio Forwarding Routing.

Custom message channel

GME supports carrying custom messages during real-time voice chat. For more information, see Custom Message in Audio Package.

Sound effect and accompaniment

Voice changing: GME supports voice changing during voice chat. Players can change their tone to that of a middle-aged man, little girl, etc. For more information, see Voice Changing Effects.

Accompaniment: GME allows players to play back background music from the licensed music library while speaking. For more information, see Accompaniment in Voice Chat.

Sound effect: GME allows players to add various sound effects during voice chat. For more information, see Real-time Sound Effect.

Equalizer: GME acts like an equalizer to adjust the captured audio.For more information, see Real-Time Sound Equalizer.

Product Features

1. GME supports ultra low-latency voice chat.
2. GME provides three room audio quality options to perfectly meet the requirements of different scenarios where a smooth call experience or an HD audio quality is required.
3. GME offers 3D voice technology that brings a virtual stereo sense to players' voice and creates a 3D immersive gaming experience.
4. GME is compatible with various terminals and adapts to 20,000+ device models with targeted cloud parameters.
5. GME provides templates of over 50 voice changing effects and supports custom sound effects to make the game voice more amusing.

Voice Messaging

Last updated：2024-01-18 11:33:01

GME's voice messaging service can help you implement voice messaging scenarios in your game. It supports cloud storage and can get offline voice messages sent during a certain period of time.

Overview

Voice message recording: It can record a short audio of up to 60 seconds.
Voice message upload and download: After a voice message is recorded, it will be uploaded to a bucket in a nearby region for storage. After upload, the recipient can download the audio file.
Voice message playback: A recipient can play back voice messages received from the world/friend channel.

Use cases

GME allows players to send voice messages in friend, family, guild, and world chat channels.
GME allows players to get the text in real time based on the short voice message content by holding the button to speak.
GME allows players to add an audio self-description on their homepage.

Service features

1. GME can convert voice messages to text and change the voice in the messages, which is easy to use and implements various features.
2. GME stores voice messages in the cloud and can get historical messages sent during a certain period of time.
3. GME is deployed in more than 70 countries/regions to enable nearby access for players.
4. GME supports one-stop global acceleration for voice message upload and download to guarantee the connection experience for senders and recipients.
5. GME can handle an unlimited number of online tasks and hundreds of millions of concurrent requests with ease.
6. GME is efficient in encoding and transfer, delivering an HD audio quality.

Speech-to-Text Conversion

Last updated：2024-01-18 11:33:46

GME's speech-to-text conversion service can convert a recording file or a streaming voice message to text in up to 125 languages in real time.

Overview

Recording file to text conversion: GME can convert a recorded audio file to text.
Streaming voice message to text conversion: GME can convert players' voice messages to text in real time.

Use cases

GME can get the text result in real time when a player holds the button to speak in a chat channel.
GME can convert voice messages in a chat channel to text.
In word guessing scenarios such as concert and Draw Something, GME can convert players' audio files for policy hitting.
In human-computer interaction and interaction with AI bot in the game, GME enables players to chat with the bot.

Product features

1. GME supports speech-to-text conversion in 125 languages.
2. GME calls back the audio stream recognition result immediately to the client and server to help the game implement the business logic conveniently.
3. GME improves the keyword recognition accuracy through custom trending keyword dictionaries.

Text Translation

Last updated：2024-01-18 11:34:34

GME's text translation service allows you to specify the source (automatic language recognition is supported) and target languages and translate the input text.

Note:

This feature hasn't been officially launched. To use it, contact the channel manager or submit a ticket to query the price.

Feature Overview

Language recognition: If you don't know the language of the source text, the system can automatically recognize it.

Text translation: The text translation service supports over 100 languages, including Chinese, English, Japanese, and Korean. The translation result can be output immediately after the source text is input and the target language is specified.

Use Cases

Translation of text in chat channels such as friend, family, guild, and world.

Automatic text translation during battles.

Benefits

1. The text translation service supports over 100 languages.

2. Owing to training with massive amounts of data and an advanced neural network model, the translation quality is high.

3. Translation requests are responded to in real time, and the service is highly stable.

Text-to-Speech Conversion

Last updated：2024-01-18 11:36:18

GME's text-to-speech service can convert text to natural and realistic speech based on advanced deep learning technology.

Note:

This feature hasn't been officially launched. To use it, contact the channel manager or submit a ticket to query the price.

Feature Overview

Text-to-speech: It synthesizes the speech from text to convert text to realistic speech.

Custom speech: You can mark and add pauses, numbers, dates, and time and specify other pronunciation rules for custom speech.

Pitch adjustment: You can customize the pitch of the selected speech.

Speech speed adjustment: You can adjust the speech speed.

Use Cases

Players' text content can be output as speech, effectively simplifying players' operations.

The game can play back the text content easily to deliver a better user experience to visually impaired players and meet the requirements for accessibility features of your service and application.

Minor players with a developing text reading ability can comprehend the text more easily. The output speech allows players to communicate more smoothly.

Benefits

1. High voice fidelity: Realistic speech is generated based on professional speech synthesis technology.

2. Wide speech options: You can select the languages and tones most suitable for your players and application from over 220 tones and 40 languages and variants, including Chinese, Hindi, and Spain.

Audio and Video Recording

Last updated：2023-04-27 17:06:31

The **audio recording service of GME** allows players to record the voice of all players or the specified room. The recordings can be stored to the client or server.

Note:

This feature hasn't been officially launched. To use it, contact the channel manager or submit a ticket for more information.

Feature Overview

You can choose to record on the client or on the server. Recording on the client is implemented by calling the GME SDK recording API, and recording on the server is implemented by calling the cloud API.

It supports full recording and recording by room ID and user ID; supports single-stream and combined-streams recording.

The recording content can be previewed after the recording is completed, and the capability to synthesize vocals and accompaniment is available.

You can upload the recording content to the cloud.

Use Cases

Record the best moments of the game, so that you can play back the moments at any time.

Recreate the recorded content to generate high-quality content material.

Record the best moments of the game, so that you can play back the moments at any time.

Benefits

| Strengths	Description
Stable and Reliable	Globally distributed cluster deployment is available to provide high-availability services.
High security	The audio calls, data transmission, and data storage links are safe and reliable.
Flexible recording	It supports recording on the client and on the server. Both full recording and recording by room ID are available to meet the different recording needs.

Scenarios
Game Interaction

Last updated：2024-01-18 11:40:36

GME provides voice chat, 3D sound effect, range voice, and room management capabilities, which can be used in various **game interactive** scenarios such as team battling, game commanding, and board, console, VR, and music games to create an excellent game voice interactive experience.

Team battling

In esports games such as MOBA, FPS, and MMORPG, the battle conditions change rapidly and players in the same team need to communicate and discuss the defense strategies in real time accordingly. GME provides a smooth voice chat service with an ultra low latency, allowing players to better communicate and enjoy the fun of gaming. In addition, its unique 3D voice technology brings a virtual stereo sense to players' voice, which creates a 3D immersive gaming experience with better gameplay when used in battle royale games.
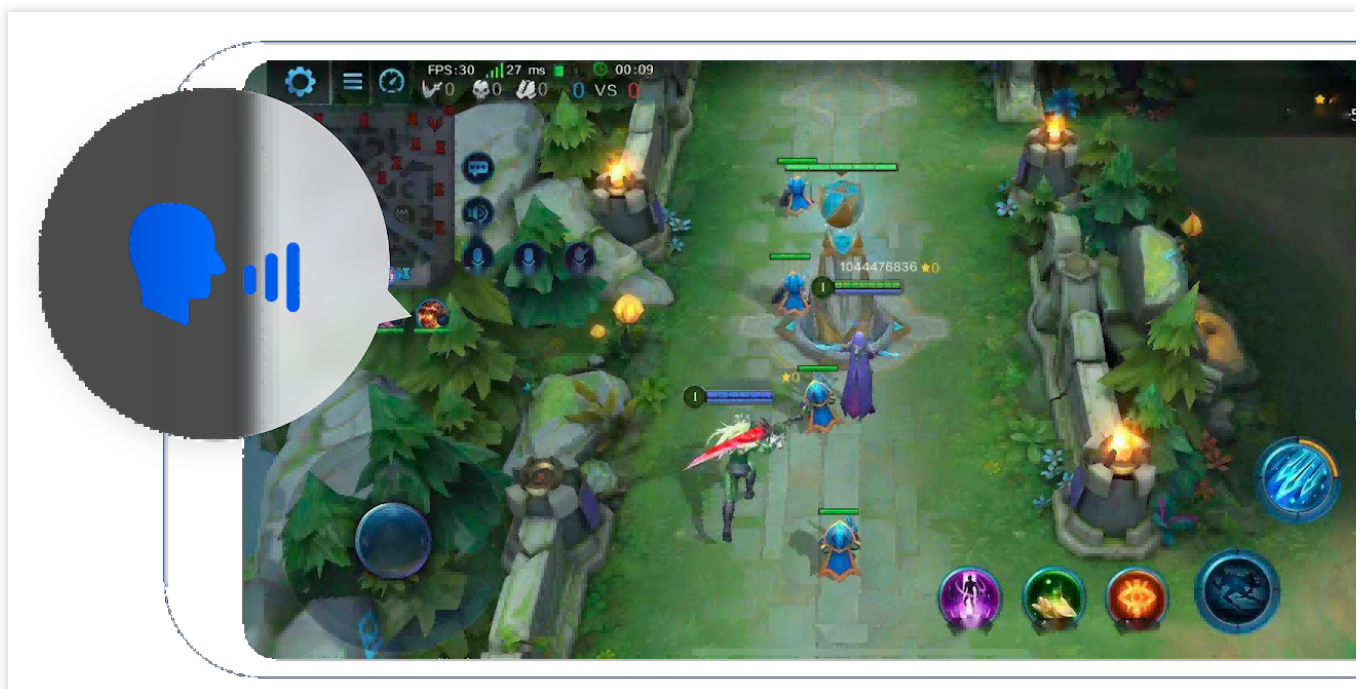

Game commanding

Various types of gaming scenarios such as game commanding, team battles, and large live rooms require a low voice latency. GME features a commanding mode that enables players to automatically mic on/off in voice calls instantly with an ultra low latency, making it highly suitable for gaming voice scenarios with high numbers of concurrent players in commanding games.
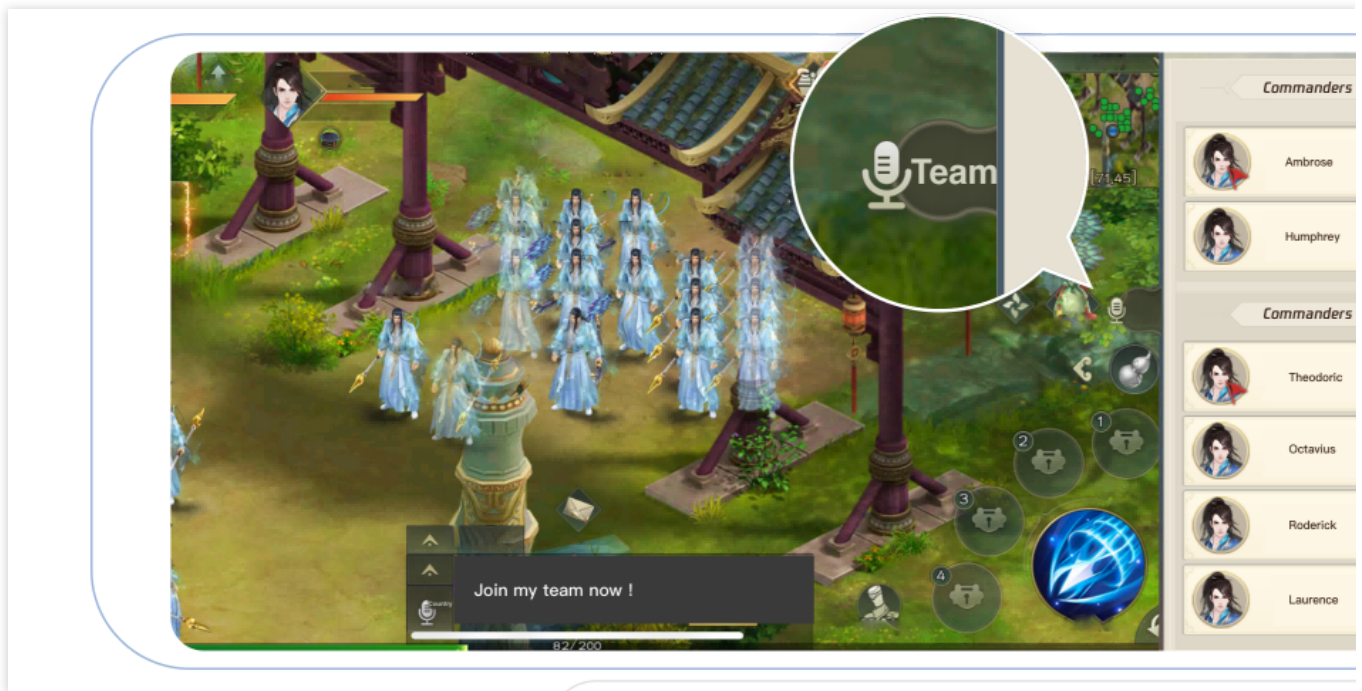
Online board game

GME provides amusing real-time interactive features to make online board games even more fun, such as Werewolf, Draw Something, quiz games, and song guessing games. It helps implement complex gameplay scenarios such as voice control in the visible range and quick switch of player roles and talk directions in Werewolf games. It is well adapted to both traditional Werewolf games and space Werewolf (Among Us) by providing various convenient features, including custom audio routing and millisecond-level multi-room switch.
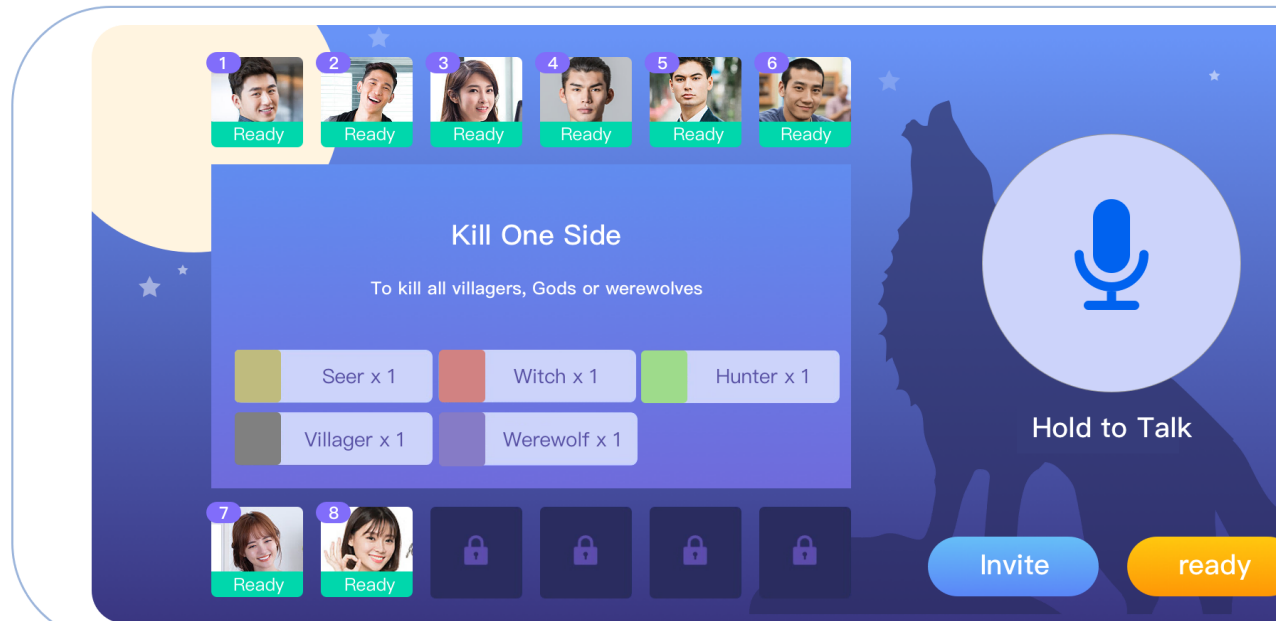
Console game

With cross-platform interconnection capabilities, GME enables console game players and mobile game players to communicate with each other. It is the only Chinese voice development tool that makes the list of third-party development tools and middleware for Nintendo Switch™, PlayStation®4, and PlayStation®5.

VR game

GME enables players to communicate in the virtual world easily through voice chat after putting on their VR headset and glasses. It's 3D sound effect feature makes players feel more immersive just like in the real world.

Music game

In music game scenarios, GME allows players to use features such as karaoke and voice chat. It supports accompaniment in voice chat, so players can sing with the background music. It also provides the voice chat equalizer, which enables players to adjust the reverb effects of songs.
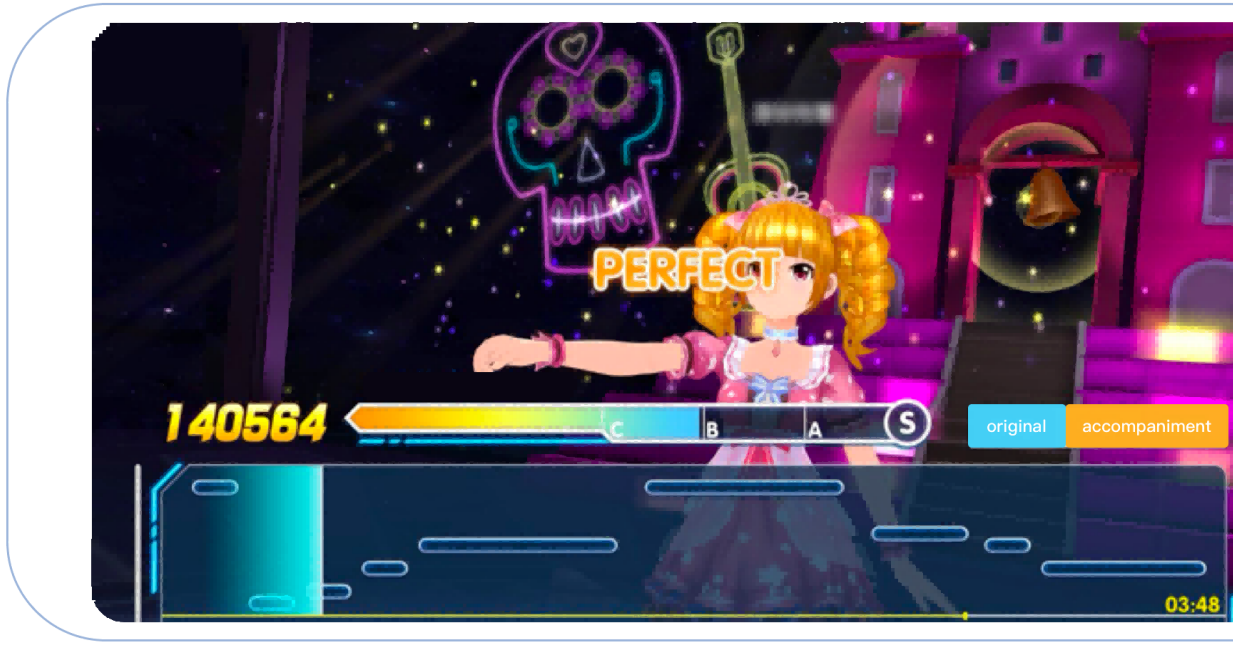
Multilingual Communication

Last updated：2024-01-18 11:41:33

GME provides diversified capabilities such as speech-to-text conversion, text translation, and text-to-speech conversion, which can be used in **multilingual communication** scenarios for global players to freely communicate with each other and enjoy a better gaming experience.

Chat in a game channel

GME allows players to send voice messages in a public or friend channel in games. It supports speech-to-text conversion and direct recording of short voice messages for the recipients to download and convert to text in 125 languages, so as to implement low-latency multilingual communication in game channels.

Voice-enabled team battling

Players from different countries/regions on a unified global server cannot well interact or communicate with each other during team battling due to the language barrier, which makes them unwilling to talk in the game. GME's multilingual solution not only translates speech in multiple languages to text accurately and quickly, but also converts the text messages sent by teammates or enemies to speech when it is inconvenient for players to read the text during battles.

It gives players a barrier-free multilingual chat experience and makes them feel completely immersive, attracting more players and helping the game go global.
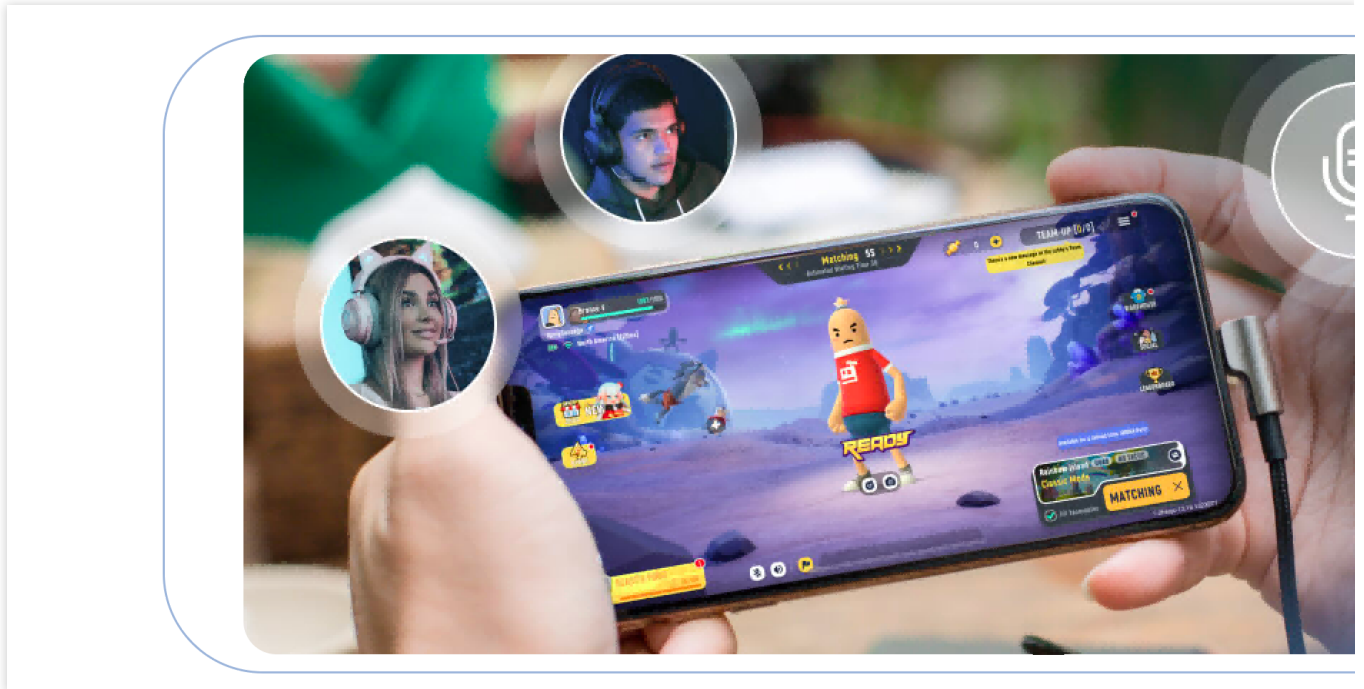
Visual and hearing impairment

Aurally challenged players can convert other players' speech to text, and visually challenged players can convert other players' text to speech, so that they can smoothly interact with others and have more fun.

Metaverse Game

Last updated：2023-04-27 17:06:30

GME provides voice chat, 3D sound effect, voice changing, special voice effects, and other capabilities, which can be used in **real-time metaverse interactive** scenarios to improve the interactive, fun, and immersive experience in metaverse games and create diverse and real interactive experiences.

Metaverse game

The voice chat service of GME can implement group voice chat in scenarios such as online team building and camping in metaverse social games. It offers over 50 amusing voice changing templates for players to customize their voice. It can work with multiple platforms and terminals to render a high-quality and entertaining metaverse gaming experience.

VR/AR game

GME's 3D sound effect feature can implement stereo audio in VR social games and board games like Werewolf and script game, so that players can hear a stereo voice with a sense of direction from other characters, immersing

themselves in the game.
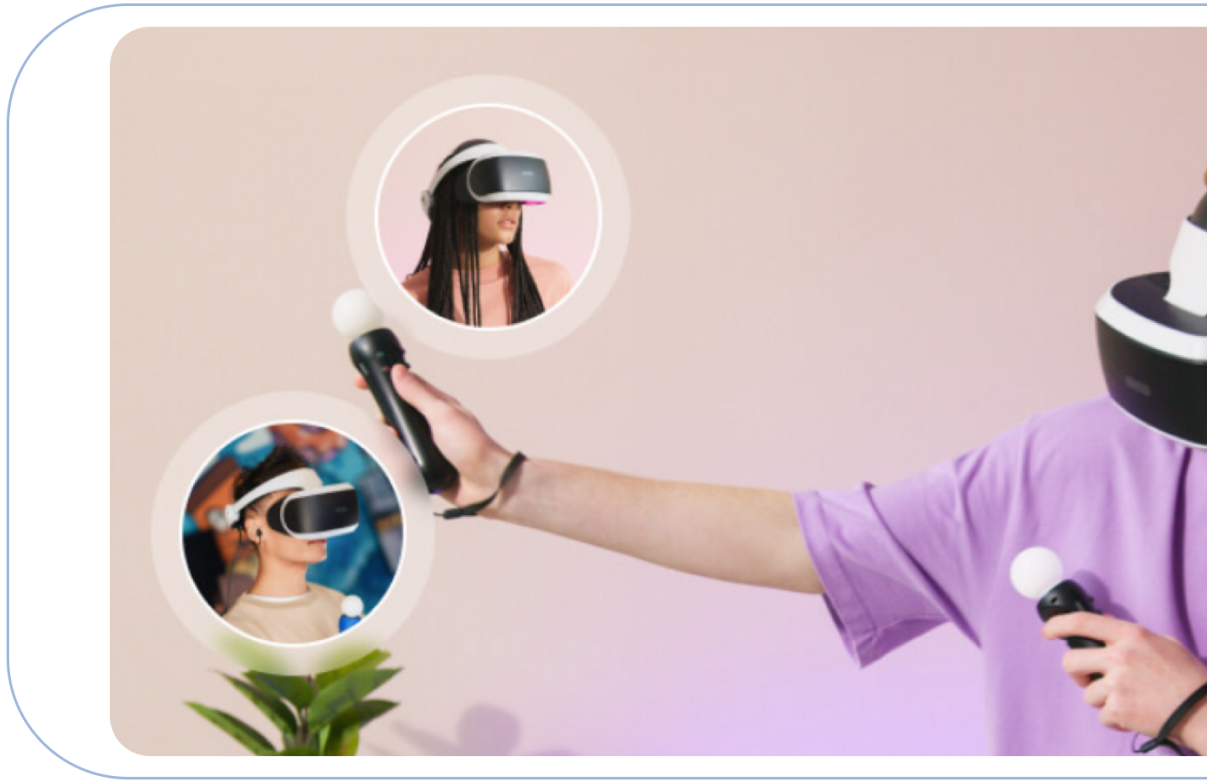
Virtual concert/exhibition

GME can be used to create next-gen scenarios in a virtual space and implement immersive cloud virtual concerts with tens of thousands of players based on sound reflection, diffraction, and reverb.

It also enables users to attend online exhibitions immersively as avatars. Plus, exhibitors can use GME's voice service to communicate with each other.

Compliance

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GME owns global compliance certifications such as ISO certifications (including ISO 27001, 27017, 27018, 27701, and 29151), CSA STAR, BS 10012, SOC, NIST CSF, and K-ISMS, delivering a secure, compliant, and reliable service.

ISO 27018

ISO 27018

C

BS10012

NIST CSF